

PORT EVERGLADES BROWARD COUNTY, FLORIDA EN-
VIRONMENTAL FEASIBILITY REPORT AND ENVI-
RONMENTAL IMPACT STATEMENT

COMMUNICATION

FROM

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**EIS
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FISH AND WILDLIFE COORDINATION ACT REPORT
(FWCAR)**

**FINAL
FEASIBILITY REPORT
AND ENVIRONMENTAL IMPACT STATEMENT
PORT EVERGLADES HARBOR NAVIGATION STUDY
BROWARD COUNTY, FLORIDA**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

August 20, 2013



Alan M. Dodd
District Commander
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code: 2007-FA-1548
Project: Port Everglades Harbor Navigational
Improvements
County: Broward

Dear Colonel Dodd:

In accordance with the Fiscal Year 2003 Transfer Fund Agreement between the U.S. Fish and Wildlife Service (Service) and the U.S. Army Corps of Engineers (Corps), the Service provided to the Corps a draft Fish and Wildlife Coordination Act (FWCA) report in March 2005, for the Port Everglades Harbor navigation project (Port Project), Broward County, Florida. This draft report was provided in accordance with the FWCA of 1958, as amended (48 Stat.401; 16 U.S.C. 661 et seq.) and under the provisions of section 7 of the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 et seq.), to provide an evaluation of environmental effects of navigation improvements to Port Everglades. The Service concluded implementation of the recommended project plan may impact fish and wildlife resources directly and indirectly as a result of dredging and/or blasting activities. The fish and wildlife resources likely to be directly and indirectly affected included seagrass, low relief hardbottom, high relief coral reefs, rock/rubble habitat, and shallow sandy bottom habitat.

The Service provided extensive recommendations in the 2005 draft FWCA report to further minimize or avoid possible adverse effects of the Port Project on fish and wildlife resources. Specifically, the Service suggested the following to compensate for the temporal loss of function and value of the impacted habitats:

1. Increase the mitigation ratio (*e.g.*, to 3:1) for mangroves if the 8.48 acres in the conservation easement cannot be avoided;
2. Increase the mitigation ratio for impacted seagrass habitat from 1:1 to 3:1 for a total of 15 acres;
3. Develop a Seagrass Monitoring Plan that contains success criteria that are consistent with Fonseca et al. (1998);

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4. Create a 51-acre mitigation reef to compensate for direct impacts to high and low relief hardbottom reef habitat;
5. Provide adequate mitigation for the temporal loss of function and value associated with the low relief hardbottom habitat located within the previously dredged channels, particularly the channel walls;
6. Continue to seek alternative methods to mitigate for reef impacts through the Port Everglades Reef Group; and
7. Develop a comprehensive (pre, during, and post project) environmental monitoring program to verify that project impacts occurred within the levels anticipated and to ensure that the mitigation areas are performing to a level where habitat replacement values are maintained.

In addition, the Service recommended inclusion of the following items in the project plan to further minimize and reduce potential adverse effects of blasting on listed species:

1. The Florida Fish and Wildlife Conservation Commission (FWC) and Service must review a blasting proposal prior to any blasting activities. The blasting proposal must include information concerning a watch program and details of the blasting events. This information must be submitted in writing at least 30 days prior to the proposed date of the blast(s) to the FWC, OES-BPS, 620 South Meridian Street, Tallahassee, Florida 32399-1600 and to the Service's South Florida Ecological Services Office, 1339 20th Street, Vero Beach, Florida 32960. At a minimum, the proposal should include the following information:
 - 1a. A list of observers, qualifications, and positions for the watch, including a map depicting the proposed locations for the boat or land-based observers; and
 - 1b. The amount of explosive charge proposed, the explosive charge's equivalency in TNT, how it will be executed (depth of drilling, in-water, etc.), a drawing depicting the placement of the charges, size of the safety radius and how it will be marked (also depicted on a map), tide tables for the blasting event(s), and time tables (days and times) for blasting event(s);
2. A formal watch coordination meeting must be held at least 2 days prior to the first blast event. Attendants should include the designated observers, construction contractors, demolition subcontractors, and other interested parties such as the Service, FWC, and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries). All participants will be informed about the possible presence of manatees, dolphins, sea turtles, or whales in nearshore areas, and that civil or criminal penalties can result from harassment, injury, and/or death of a listed species;
3. The watch program should begin at least 1 hour prior to the scheduled start of blasting to identify the possible presence of manatees, dolphins, sea turtles, or whales, if applicable. The watch program shall continue until at least 0.5 hour after detonations are completed;

4. The watch program shall consist of a minimum of six observers. Each observer shall be equipped with a two-way radio that shall be dedicated exclusively to the watch program. Extra radios should be available in case of failures. All of the observers shall be in close communication with the blasting subcontractor in order to halt the blast event if the need arises. If all observers do not have working radios and cannot contact the primary observer and the blasting subcontractor during the pre-blast watch, the blast shall be postponed until all observers are in radio contact. Observers will be equipped with polarized sunglasses, binoculars, a red flag for backup visual communication, and a sighting log with a map to record sightings. All blasting events will be weather dependent. Climatic conditions must be suitable for optimal viewing conditions, as determined by the observers;
5. The watch program shall include a continuous aerial survey to be conducted by aircraft. The event shall be halted if an animal(s) is spotted within 300 feet of the perimeter of the safety zone or the danger zone as defined by the Corps in their project description. An "all-clear" signal must be obtained from the aerial observer before detonation can occur. The blasting event shall be halted immediately upon request of any of the observers. If animals are sighted, the blast event shall not take place until the animal(s) move out of the area under their own volition. Animals shall not be herded away or harassed into leaving. Specifically, the animal must not be intentionally approached by project watercraft. If the animal(s) is not sighted a second time, the event may resume 30 minutes after the last sighting;
6. The observers and contractors shall evaluate any problems encountered during blasting events and logistical solutions shall be presented to the Service and the FWC. Corrections to the watch shall be made prior to the next blasting event. If any one of the aforementioned conditions is not met prior to or during the blasting, the watch observers shall have the authority to terminate the blasting event until resolution can be reached with the Service and FWC;
7. If an injured or dead marine mammal or sea turtle is sighted after the blast event, the watch observers shall contact the Service at 772-562-3909 and the FWC through the Manatee Hotline at 1-888-404-3922. The observers shall maintain contact with the injured or dead marine mammal or sea turtle until authorities arrive. Blasting shall be postponed until the Service and FWC can determine the cause of injury or mortality. If blasting injuries are documented, all demolition activities shall cease. A revised plan shall then be submitted to the Service and FWC for approval; and
8. Within 14 days after completion of all blasting events, the primary observer shall submit a report to the Service and FWC providing a description of the event, number and location of animals seen and what actions were taken when the animals were seen. Any problems associated with the events and suggestions for improvements shall also be documented in the report.

Since the 2005 draft FWCA report was completed, the Port Project has been modified as outlined in the Corps' June 28, 2013, Draft Feasibility Report and Environmental Impact Statement (EIS) (Figures 1 and 2). Modifications to the proposed project under the current Tentatively Selected Plan (TSP) include:

1. Extending the Outer Entrance Channel (OEC) 2,200 feet seaward with an 800-foot width, and deepening the existing 500-foot wide OEC from 45 to 55 feet;
2. Deepening the Inner Entrance Channel from 42 to 48 feet;
3. Deepening the Main Turning Basin (MTB) from 42 to 48 feet;
4. Widening the rectangular shoal region southeast of the MTB by approximately 300 feet and deepening it to 48 feet;
5. Widening the Southport Access Channel (SAC) in the proximity of berths 23 to 26 (the knuckle) by approximately 250 feet and relocating the U.S. Coast Guard (USCG) facility, a General Navigation Feature (GNF), easterly on USCG property;
6. Shifting the existing 400-foot wide SAC approximately 65 feet to the east near berth 26 to the south end of berth 29 to transition from the knuckle area widening to the existing Federal channel limits;
7. Deepening the SAC from approximately berth 23 to the south end of berth 32 from 42 to 48 feet;
8. Deepening the Turning Notch (TN), including the Port Authority planned expansion, from 42 to 48 feet, with nearby widening including: widening the eastern edge of the SAC 100 feet along a 1,845-foot stretch parallel to the SAC, and widening the western edge of the SAC for access to the TN from the existing Federal channel near the south end of berth 29 to a width of approximately 130 feet at the north edge of the TN;
9. Other GNFs; and
10. Environmental mitigation.

Construction will be accomplished through a combination of traditional dredging methods and the use of explosives inshore and offshore. Unconsolidated and consolidated material generated during dredging will be deposited within approved offshore and/or upland disposal sites. Expansion of the offshore Ocean Dredged Material Disposal Site (ODMDS) is required, and analysis for selecting an ODMDS footprint is currently underway.

FISH AND WILDLIFE RESOURCES

This section is provided in accordance with the FWCA of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 *et seq.*) to address other fish and wildlife resources in the project area.

Seagrasses

The Corps estimates a total of 4.01 acres of seagrass (3.57 acres of Johnson's seagrass [*Halophila johnsonii*] and 0.44 acre of other seagrass), and 1.16 acres of mangroves will be impacted as a result of the Port Project. As compensation for these impacts, the Corps evaluated three mitigation alternatives for functions of seagrass habitats lost due to the implementation of the TSP, but only one alternative was feasible based in part on the Incremental Cost Analysis. Following detailed analyses and cost assessments, the Corps proposes the following:

1. To use 1 mangrove and 2.4 seagrass functional units from an on-going habitat enhancement and restoration project at West Lake Park (WLP).

The WLP project includes previously permitted restoration, enhancement, and preservation of like habitats in this County-operated, State-owned natural area located to the south of the Port Project. The WLP project does not comprise a mitigation bank, and its use for mitigation is not available for purchase by the public or private entities. Credits (units of increased ecological functional value) compiled in association with the existing WLP permit (for restoration/enhancement activities) are specifically limited for use as mitigation for Broward County projects (and further, specifically the Port Project and airport expansions). Broward County (the local sponsor) will bear the responsibility for construction, monitoring, and success of mitigation at WLP. The estimated costs for mangrove wetland enhancements and seagrass restoration WLP are \$238,000 and \$4.84M, respectively.

Hardbottom reef habitat

The Corps estimates that a total of 15.23 acres of hardbottom reef habitat will be impacted due to implementation of the TSP. As compensation for these impacts, the Corps evaluated nine potential mitigation alternatives to offset unavoidable impacts to reefs and hardbottom habitats. Of those nine alternatives, four were found to be feasible and subjected to an Incremental Cost Analysis. Only one preferred alternative was determined to be cost-effective.

Where restoration and enhancement of reef resources are not available for use as mitigation, hardbottom creation has traditionally been offered (in this geographic area and where similar habitats are affected) as compensation for impacted habitats and lost ecosystem functions. The preferred alternative consists of the following:

1. Creation of approximately 12.57 acres of high-profile, artificial reef habitat to mitigate for the direct removal of approximately 10.10 acres of complex, high-profile, linear and spur/groove reef habitat; and
2. Creation of 6.92 acres of low-profile hardbottom to mitigate for the direct removal of approximately 5.07 acres of less complex, low-profile hardbottom habitat (colonized pavement).

Based on pre- and postconstruction monitoring, additional mitigation may be provided due to any detectable, incidental, direct impacts of dredging equipment and indirect impacts on hardbottom habitats due to turbidity and sedimentation.

For the preferred alternative for reef/hardbottom mitigation, the configuration of artificial reef materials will resemble, in profile and in functionality, to the maximum extent practicable, those habitats impacted. Since new reef impacts would take place at water depths of approximately 40 to 45 feet (middle reef terrace) and 50 to 55 feet (outer reef terrace) for the proposed channel expansion, the Corps has suggested these two depth zones be used as mitigation sites to achieve in-kind mitigation. The use of in-kind mitigation immediately adjacent to the impact site is one of the major benefits to this mitigation alternative. Also, the amount of high-relief reef and low-relief hardbottom could be created in proportion to the impacted sites, unlike many of the other mitigation options examined by the Corps. The Corps examined the mitigation reefs associated with the Port of Miami expansion in 1993 (the last deepwater port expansion with mitigation creation available for assessment) to determine if the mitigation reefs provided similar habitats, species assemblages, and functions as the impact area. After 7 years, it was determined the mitigation reefs (without any transplants of corals to the mitigation reef) did provide similar habitats, species assemblages, and functions. Other benefits of this mitigation option include the relative stability (on the seafloor) of quarried or dredged limestone/rock; relative ease of construction; and relative low cost.

The preferred alternative involves the deployment of limestone that has either been quarried and transported to the mitigation area, or dredged from the channel construction areas. The piles will be configured into rows that are parallel to the existing reef tracts. Two layers of boulders will comprise these piles, given a vertical dimension of approximately 6 to 8 feet of relief. Low-relief areas will comprise only one layer of boulders. Similar structures will be constructed near the Port of Miami in 2013. Based on outcomes from that effort, the Corps will be able to improve on design and material specifications for Port Project mitigation.

The interval required to reach substantial functional productivity of this alternative is estimated to be 30 to 50 years. However, with the transplantation of corals from the impact site to the rock reef infrastructure, the interval may be shortened to 23 to 30 years. As proposed, coral colonies greater than 4 inches in diameter (up to 12,235 colonies) and free of disease and boring sponge would be translocated from the impact area to the mitigation sites, which would be prepared in advance of dredging.

The total estimated cost for this alternative, including the cost of coral translocation, is estimated at \$20.13M.

The NOAA Fisheries, Southeast Regional Office, a cooperating agency with the Corps for development of the EIS, independently estimated that the TSP would impact 137.83 acres of coral, coral reef, and hardbottom (20.34 acres of coral reef in the channel and 117.49 acres of coral reef located outside the channel). In May 2013, NOAA Fisheries recommended that the Corps consider mitigating these impacts by propagating coral colonies at in-water and land-based nurseries and then outplanting the colonies to suitable recipient sites in Broward County's offshore waters. NOAA Fisheries estimated that this approach would require approximately 20 years to complete and would cost approximately \$35.6M to \$42.3M (including risk contingencies).

NOAA Fisheries' recommendation is based on successful coral propagation and enhancement programs in Atlantic and Caribbean waters. Scientific based practices for nursery propagation, outplanting and monitoring have been developed and used by coral nursery managers in the Florida Keys, Broward County, Puerto Rico, U.S. Virgin Islands, and other Caribbean islands to reproduce *Acropora* spp. asexually. Typically, small fragments less than 2 inches in diameter are collected from the reef and held in an underwater or tank-based nursery environment through their juvenile life-stage. Offshore nurseries are sited based on a number of factors, including: habitat feasibility, water quality conditions, potential for future impacts, and permitting status and considerations. Once the stock nursery population is established, no more coral is collected from natural reef communities. The physical and genetic origin of each coral is tracked from fragment collection to ensure that both nursery and outplanting operations are done in a scientifically responsible manner. Regular maintenance is performed on nursery structures and the corals themselves to ensure all are free of coral competitors and predators. Once coral fragments have grown to a size where the probability of survival on natural reefs has increased to an acceptable level (this usually requires 12 to 18 months), the corals are outplanted. Decisions regarding which species to propagate and outplant, and the relative percent-cover, or relative population densities among all species, would be based on findings from the most recent coral restoration studies, historical survey data, and results of ongoing monitoring throughout the project area. Additionally, outplant recipient sites would be selected using a strategy that maximizes likelihood of outplant survival while minimizing risk from natural and human disturbances.

Using "resource-to-resource" equivalency analysis, NOAA Fisheries estimated that 195,000 to 250,000 corals need to be outplanted from nurseries to offset the impacts to coral from expanding the OEC. These costs are reflected in the budget for this alternative. In addition to eventually establishing those colonies on recipient sites, NOAA Fisheries also assumes that additional coral translocation will occur as an impact minimization measure (such costs are not included in the budget for this mitigation alternative). These include the following:

1. Relocation of all corals listed under the Act from impact areas, regardless of size;
2. Relocation of a subset of massive corals and all corals proposed to be listed under the Act that are 2 inches in diameter or larger; and
3. Relocation of all other corals greater than 4 inches in diameter.

The proposed coral propagation and outplanting program is based on existing NOAA Fisheries coral recovery programs that support the implementation of projects such as this in partnership with local resource agencies (e.g., Florida Department of Environmental Protection [DEP]), academic institutions (e.g., Nova Southeastern University Oceanographic Center [NSUOC]), and other coral restoration partners in Florida. One benefit of this alternative is that it is designed to maximize the chances of successful natural coral reproduction, larval transport, settling and colonization into new areas, and genetic mixing required for survival and recovery of the species. Furthermore, this proposal is consistent with the NOAA Fisheries *Acropora* Recovery Strategy (under development) and other coral conservation priorities for coral species that have been proposed to be listed under the Act. Should this alternative be selected, it will undergo full Corps review, and meet all Corps policy requirements.

In addition to NOAA Fisheries' preferred reef mitigation alternative outlined above, other discrepancies in the Corps' preferred reef mitigation alternative have been documented. Dr. Brian Walker (NSUOC) prepared a technical review of the coral reef mapping presented in the Corps' final draft EIS. In particular, he outlined discrepancies in the Corps' spatial analysis, direct/indirect impacts analysis, and data integrity. Furthermore, Dr. Walker concluded the final draft EIS did not address cumulative impacts to hardbottom reef habitat. In addition, Dr. Richard Dodge (NSUOC) prepared a technical review of the Corps' Habitat Equivalency Analysis (HEA) and summarized his comments as follows:

1. The Corps used incorrect areas of impact, including those areas directly impacted below the 57-foot dredging depth;
2. The Corps used an inappropriate zero percent discount rate in its "modified" HEA. The HEA is an economic model and not intended to be used with a zero discount rate;
3. The Corps' choice of mitigation using boulders with coral transplants will not provide services upon maturity equivalent to those of the natural reef;
4. The HEA inputs and results in Appendix E2 of the Corps' final draft EIS are not the same as those of the Cost Analysis;
5. Many of the final draft EIS HEA input parameters used by the Corps are not supported by the best available science;
6. The inputs chosen by the Corps for their HEAs underestimate the amount of mitigation required;
7. An Alternate HEA has been developed using corrected direct impact areas for the outer and middle reefs to include the area below 57 feet, 3 percent discount rate and corrected equivalence that boulders upon maturity reach 50 percent of services of the natural reef;
8. The Corps' final draft EIS HEA for Scenario 2 in Appendix E Cost Analysis E2 of the Corps' final draft EIS, requires 32 acres less mitigation than the more correct Alternate HEA;
9. Corps project mitigation costs are significantly underestimated using the underestimated mitigation amount;
10. There is no justification given for using a much smaller figure concerning the cost per acre of boulders with transplants outlined in Table 9 of the Cost Estimate;
11. The Corps' plan lacks input from their independent technical review performed by Battelle Memorial Institute;
12. The NOAA Fisheries recommended mitigation program is scientifically valid and preferred;
13. The NOAA Fisheries recommended mitigation program is more cost efficient than the Corps version, had the Corps calculated their HEA with correct inputs; and
14. The NOAA Fisheries should be given responsibility for impact analysis, determination of mitigation type and amount, and implementation of the resultant program.

Based on the discrepancies outlined above, the Service recommends the Corps mitigate in concert with the NOAA Fisheries' preferred reef mitigation alternative plan, if the plan is found to be legally sufficient, in order to resolve these issues and provide maximum protection of all fish and wildlife resources.

THREATENED AND ENDANGERED SPECIES

The Corps determined that the project "may affect, but is not likely to adversely affect" the federally endangered West Indian manatee (*Trichechus manatus*), endangered American crocodile (*Crocodylus acutus*), endangered green sea turtle (*Chelonia mydas*), threatened loggerhead sea turtle (*Caretta caretta*), endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), endangered hawksbill sea turtle (*Eretmochelys imbricata*), and endangered leatherback sea turtle (*Dermochelys coriacea*).

American crocodile

The American crocodile is a State and federally listed species. The current range of the species in the southeastern United States includes coastal and estuarine habitats in the extreme southern Florida peninsula, including Broward County. Females nest primarily on northern Key Largo and from Florida Bay to Turkey Point. Nesting begins in March and extends until late April or early May. Approximately 90 days following fertilization, eggs are buried in sand or marl nests adjacent to deep water. Adult crocodiles feed at night on schooling fish in creeks, open water, and deep channels, and are also known to eat crabs, raccoons, and water birds. At least one crocodile is known to occur within WLP and one other may be present (Ricardo Zambrano, FWC, email, November 7, 2003). However, nesting has not been confirmed in WLP.

The Corps has determined the proposed expansion and deepening of the Port Everglades Harbor as described in the TSP "may affect, but is not likely to adversely affect" the endangered American crocodile. Possible adverse effects to this species during construction include injury, mortality, or harassment, which may affect the life history of these species as a result of dredging and/or blasting activities.

The TSP includes implementation of protection measures designed to minimize possible adverse effects to frequently observed listed species such as the West Indian manatee and sea turtles; these provisions will also protect the American crocodile. Therefore, the Service concurs with the Corps' determination as it relates to adults, hatchlings, and/or juveniles of the American crocodile during dredging or blasting operations adjacent to WLP.

Sea turtles

The Service and the NOAA Fisheries share Federal jurisdiction for sea turtles under the Act. The Service has the responsibility for sea turtles on the nesting beaches and the NOAA Fisheries has jurisdiction for sea turtles in the marine environment. Our analysis will only address activities that may impact nesting sea turtles, their nests and eggs, and hatchlings as they emerge from the nest and crawl to the sea. NOAA Fisheries will assess and consult with the Corps concerning potential impacts to sea turtles in the marine environment. For further information on Act compliance with the NOAA Fisheries, please contact Ms. Cathy Tortorici, Chief of the

Interagency Cooperation Branch, by e-mail at cathy.tortorici@noaa.gov or by phone at 727-209-5953. In addition, the Corps will assess and consult with the NOAA Fisheries concerning potential impacts to foraging and swimming sea turtles, and all other marine species under their jurisdiction within the action area.

Beaches along John U. Lloyd State Recreational Area provide nesting habitat for federally listed sea turtles. In addition, other resources comprise important habitats for sea turtles. Removal of sections of hardbottom, reef, and seagrass habitats will eliminate potential foraging habitat for juvenile and adult sea turtles and refugia for hatchlings. Also, dredge activities and associated disturbances (noise, lights, etc.) offshore may interrupt the movement of turtles swimming toward or away from nesting beaches to the north or south. Specifically, the highest potential impact to sea turtles may result from the use of explosives to break/dislodge rock substrates in offshore channels. Threshold lethal pressures for sea turtles are probably similar to those of marine mammals (Corps 2000). Therefore, sea turtles in the immediate vicinity of any detonation site would likely be killed, and individuals existing within 400-600 feet of the blast would likely suffer injury.

Another possible element of the action that may affect sea turtles is the presence of light and/or noise from construction/dredging vessels anchored offshore. These factors may interrupt the movement of adult, nesting, female sea turtles swimming toward or away from nesting beaches, and may cause disorientation of hatchlings following emergence. Artificial lighting can be detrimental to sea turtles in several ways. Field observations have shown reduced sea turtle nesting on lighted beaches. Adult females rely on visual brightness cues to find their way back to the ocean after nesting and those turtles that nest on lighted beaches may be disoriented by artificial lights and have difficulty finding their way back to the ocean. Beachfront lighting has an even more profound effect on hatchling sea turtles. Under natural conditions, hatchlings, which typically emerge from nests at night, move toward the brightest, most open horizon, which is over the ocean. However, when bright light sources are visible on the beach, they attract hatchlings in the wrong direction, resulting in an increased risk of death or injury because they are more vulnerable to predators, dehydration, entrapment in debris or vegetation, and exhaustion. In addition, artificial lights often lure hatchlings or adult sea turtles onto roadways and parking lots where they are vulnerable to car strikes. However, since Port Everglades Harbor is an active facility, offshore lighting is not an unusual feature of the area, and the Port Project should not appreciably change the ambient conditions of nesting areas in the vicinity of the action. That said, the Corps will require all lighting aboard dredges and dredge support vessels operating within 3 nautical miles of sea turtle nesting beaches, be limited to the minimal lighting necessary to comply with U.S. Coast Guard and OSHA requirements. All non-essential lighting on dredges and support vessels shall be minimized through reduction, shielding, and appropriate placement of lights to reduce potential disorientation effects on nesting sea turtles approaching the nesting beaches and sea turtle hatchlings heading seaward.

The Service previously concurred with the Corps' determination for sea turtles (March 31, 2005) because no adverse direct or indirect impacts to sea turtle nesting habitat due to dredging operations are anticipated for the TSP. In addition, the Corps agreed to incorporate and implement the sea turtle conditions outlined in DEP Permit No. 0220509-007-JM.

West Indian manatee

The federally endangered West Indian manatee is found from coastal areas of Beaufort, North Carolina through Florida and the Gulf of Mexico. Manatees frequently inhabit shallow areas where seagrasses are present and are commonly found in protected lagoons and freshwater systems. In winter, they frequently move into areas where water temperatures are mitigated by spring-fed streams or power-generation plant effluent, such as the Florida Power & Light Company (FP&L) power plant in Fort Lauderdale. In general, very few manatees are present in the offshore waters from November through April; however, during the remainder of the year, manatees occasionally use open ocean passages to travel between favored habitats.

The West Indian manatee is protected under the Act and the Marine Mammal Protection Act of 1972. The State of Florida provided further protection in 1978 by passing the Florida Marine Sanctuary Act, designating the State as a manatee sanctuary, and providing signage and speed zones in Florida's waterways. Though there are not any areas within Broward County that are designated as Critical Habitat for the West Indian manatee, the waterways in Broward County support permanent and transient manatee populations. Some waterways serve as important warm water refugia and calving areas, particularly in the vicinity of the Port and the FP&L power plant.

Surveys indicate that, during winter months when temperatures decline, manatees from north and south of Port Everglades Harbor migrate to canals associated with the FP&L power plant. As many as 290 manatees have been observed near the power plant on a single day (Laist and Reynolds 2005).

Mezich (2001) hypothesizes manatee preference may be changing as recent years have shown a decrease in the number of animals using the Port power plant and an increase in the number of animals using the Fort Lauderdale plant located west of the Port. A review of the data from FP&L reports (Reynolds 2005, 2006, 2007, 2009, 2010, 2011) appears to support this belief. The growth in usage of the Fort Lauderdale plant may also be attributable to its more consistent releases of warm water and isolated location with less human disturbance than the Port Everglades plant site (Laist and Reynolds 2005).

Deutsch et al. (2003) noted the manatees that utilize the Port power plant during winter cold spells exhibit three trends in movement to access forage. As previously stated, some move south into Biscayne Bay, some move north into Lake Worth Lagoon, and some move further west toward the Fort Lauderdale FP&L plant to access freshwater forage and mangroves. Manatees typically demonstrate a diurnal feeding pattern when at the power plants. They spend the mornings into the early afternoons in the warm discharge waters at the plant, and then move away from the plant to forage since the sun has warmed the surrounding waters. As air temperatures (and subsequently water temperatures) drop, they return to the power plant discharges' thermal refuges.

During the summer months when the water warms, manatees return to the counties to the north and south to forage and reproduce. However, telemetry and aerial surveys confirm manatees are present within Broward County all year (Deutsch 2000). Broward County conducts aerial

surveys by helicopter flights throughout the year. Recent surveys conducted between 2004 and April 2011 have documented between 8 and 455 manatees in all waterways of Broward County (Broward County 2011).

FP&L is in the process of temporarily ceasing operations at the current Port power plant. Demolition of the current plant is expected to begin in 2013 and construction of the new plant is expected between 2014 and 2016, with the plant online and operational in 2016. FP&L has been preparing, with the Service and FWC, an environmental and biological monitoring plan. During construction, FP&L will maintain an "Interim Warm-Water Refuge" (IWWR), using the current warm-water discharge system, during the winter months beginning with the discontinuation of operations at the existing Port power plant and continuing until the new unit is operational. Implementation of the IWWR should result in continued manatee use of the Port Everglades plant and potentially no decrease in protection measures associated with the Port expansion project (*i.e.*, standard manatee protection measures and cessation of confined underwater rock blasting during manatee congregation periods).

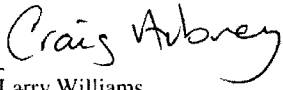
The Service concurred on March 31, 2005, with the Corps' determination for the West Indian manatee because the Corps agreed to incorporate and implement the following:

1. The Standard Manatee Conditions for In-Water-Work (FWC 2011), all manatee protection measures outlined in the final draft EIS, manatee conservation measures from the Miami Harbor Phase III project, and all manatee conditions outlined in the DEP Permit No. 0220509-007-JM;
2. The same blasting protection measures and monitoring procedures developed for the Miami Harbor Phase III project, known as the Navy Diver Protocol, plus an additional 500 feet to the safety zone. Furthermore, the Corps agreed to revise the blasting protection measures should the results of the Miami Harbor Phase III indicate the need based on input from State, Federal, and local governmental agencies; and
3. Blasting activities will be avoided during the winter months (November 15 to March 15) when manatee populations are expected to be at their highest concentration in the action area. Other dredging and construction activities may take place inside the Port Everglades Harbor during this time period, but confined underwater (CU) blasting will not be utilized during this period.

The Service recommends the Corps provide details concerning the wildlife protection measures to be implemented in the test blast program and how these measures may vary compare to all other CU blasting activities.

Thank you for your cooperation in the effort to conserve fish and wildlife resources. Should you have additional questions or require clarification regarding this letter, please contact Jeff Howe at 772-469-4283.

Sincerely yours,


for Larry Williams
Field Supervisor
South Florida Ecological Services Office

cc: electronic only

Corps, Jacksonville, Florida (Terri Jordan-Sellers)

DEP, Tallahassee, Florida (Lanie Edwards)

EPA, West Palm Beach, Florida (Ron Miedema)

FWC, Tallahassee, Florida (Kellie Youmans)

NOAA Fisheries, Palm Beach Gardens, Florida (Jocelyn Karazsia)

NOAA Fisheries, Fort Lauderdale, Florida (Kelly Logan)

Service, Jacksonville, Florida (Jim Valade)

USGS, Gainesville, Florida (Susan Walls)

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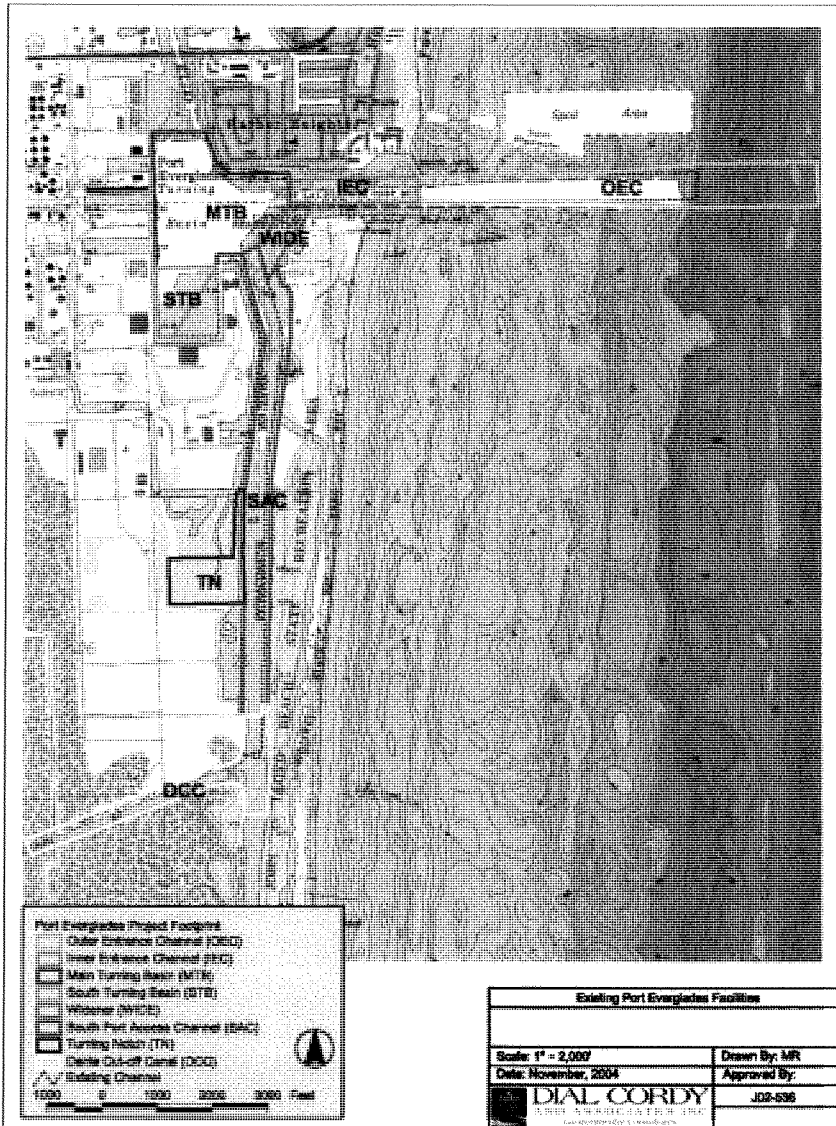


Figure 1. The Port Everglades Harbor navigation project proposed in the 2005 FWCA report.

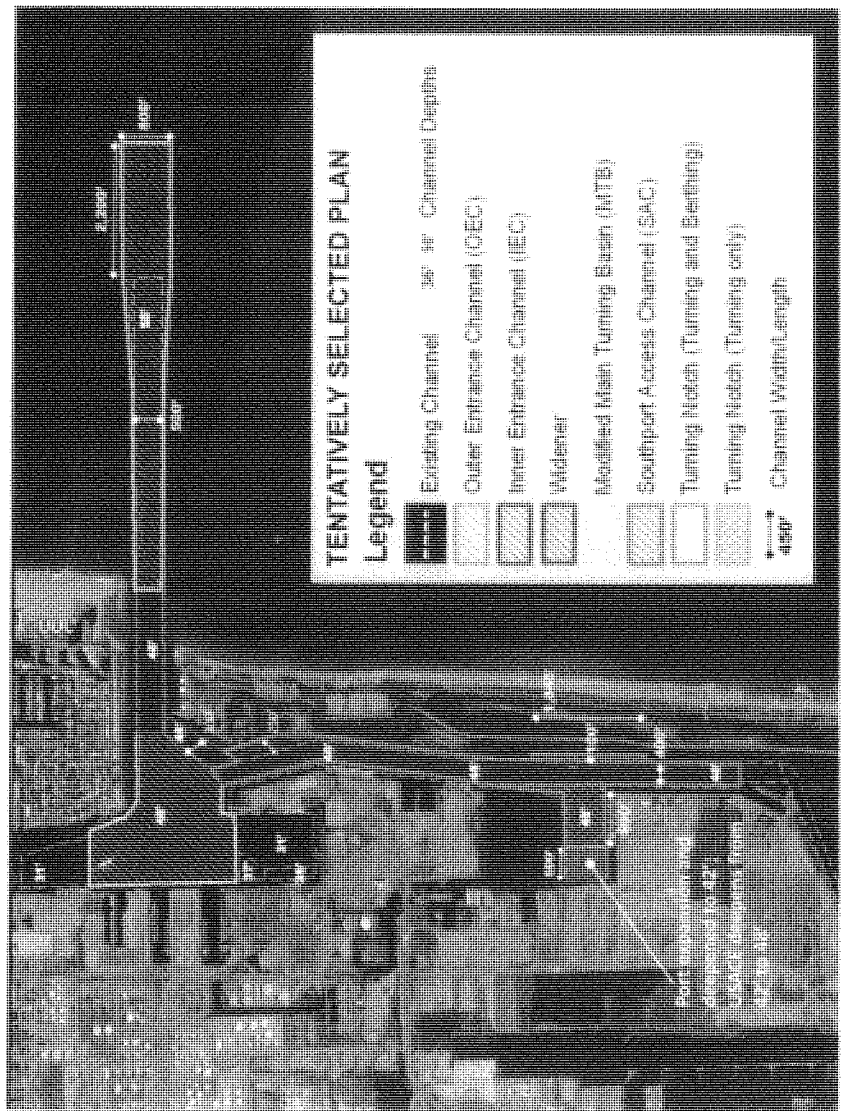


Figure 2. The proposed Port Everglades Harbor navigation project outlined in the 2013, draft Feasibility Report and Environmental Impact Statement.

From: Jeffrey_Howe@fws.gov
To: [Jordan-Sellers, Terri SAJ](#)
Subject: RE: Port Everglades CAR (UNCLASSIFIED)
Date: Monday, November 28, 2011 12:02:34 PM

Hello Terri:

To be honest with you if I had access to the DEIS that is currently in review, I really wouldn't have the time to review and start on our updated CAR. Consequently, could you plan on sending me the finalized DEIS when available in early 2012?

Thanks,

Jeff Howe
 Fish and Wildlife Biologist
 U.S. Fish and Wildlife Service
 South Florida Ecological Services Office
 1339 20th Street
 Vero Beach, FL 32960-3559
 (772) 562-3909 x.283
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"Jordan-Sellers, Terri SAJ" <Terri.Jordan-Sellers@usace.army.mil>

11/16/2011 11:17 AM To
 "Jeffrey_Howe@fws.gov" <Jeffrey_Howe@fws.gov>
 cc
 "Craig_Aubrey@fws.gov" <Craig_Aubrey@fws.gov>, "Trish_Adams@fws.gov" <Trish_Adams@fws.gov>
 Subject
 RE: Port Everglades CAR (UNCLASSIFIED)

Classification: UNCLASSIFIED
 Caveats: NONE

Yes - I think we can do that. Would it be helpful to give you access to the DEIS that is in higher authority review so that you could start looking at it now?

-----Original Message-----

From: Jeffrey_Howe@fws.gov [mailto:Jeffrey_Howe@fws.gov]
 Sent: Wednesday, November 16, 2011 7:19 AM
 To: Jordan-Sellers, Terri SAJ
 Cc: Craig_Aubrey@fws.gov; Trish_Adams@fws.gov
 Subject: Port Everglades CAR

Hello Terri:

Personally, I don't have any desire to have our March 31, 2005, draft CAR represent the Service's position concerning the above referenced project based on project changes since the draft CAR was written. Could we plan on providing the Corps with an updated final CAR based on the latest DEIS due in January 2012? If this is acceptable, could this be noted in the DEIS?

Thanks,

Jeff Howe
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
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Vero Beach, FL 32960-3559
(772) 562-3909 x.283
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Classification: UNCLASSIFIED
Caveats: NONE



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 Southeast Regional Office
 236 13th Avenue South
 St. Petersburg, Florida 33701

May 20, 2005

James J. Slack, Field Supervisor
 South Florida Ecological Services Office
 U.S. Fish and Wildlife Service
 1339 20th Street
 Vero Beach, Florida 32960

Dear Mr. Slack:

The National Marine Fisheries Service (NMFS) has reviewed the draft Fish and Wildlife Coordination Act Report (CAR) for the Port Everglades Navigation Project, prepared pursuant to the Fish and Wildlife Coordination Act and the Endangered Species Act and provided by the Fish and Wildlife Service (FWS). Port Everglades (Port) is one of the major port complexes along the east coast of the U.S. The Port, located approximately 27 nautical miles north of Miami, is accessible via Port Everglades Inlet and the Atlantic Intracoastal Waterway (AIWW) in Broward County, Florida. Broward County's Port Everglades Department requested that the Army Corps of Engineers (COE) study the feasibility of modifying portions of Port Everglades Harbor to improve the federal navigation system of channels. The draft CAR evaluates the likely effects of the proposed harbor expansion on fish and wildlife resources.

According to the information provided, the COE proposes to widen and deepen most of the major channels and basins within Port Everglades to accommodate longer, wider, and deeper-draft commercial vessels and meet the changes in the industry standard. Although not emphasized in the draft CAR, NMFS has been advised by the COE that the expansion project is primarily proposed to accommodate post-Panamax vessels. Modifications to the federal system of channels under the Recommended Plan include: (1) deepening the harbor turning basins and channels; (2) widening the Dania Cutoff Canal (north shore); (3) widening portions of the AIWW (east shore and south of entrance channel); and (4) extending and widening the eastern section of the Outer Entrance Channel by 2,200 feet and 300 feet, respectively. Construction would be accomplished through a combination of traditional dredging methods and the use of explosives in inshore and offshore locations. Unconsolidated and consolidated material generated during dredging would be deposited within offshore and/or upland disposal sites.

The proposed navigational improvements to Port Everglades Harbor would significantly impact habitats utilized by fish and wildlife. The COE estimates that a total of 5.0 acres of seagrass, 11.55 acres of mangroves (8.48 acres currently held in a conservation easement), 14.86 acres of



low relief hardbottom, 10.82 acres of high relief coral reef, and 20.09 acres of previously dredged rock/rubble habitat would be adversely affected as a result of the expansion of Port Everglades. Indirect impacts to fish and wildlife resources may include the resuspension of fine sediments and potential resuspension of contaminants. Lethal and sub-lethal effects on marine mammals, sea turtles, and marine fisheries may also occur due to the loss of habitat and proposed blasting. At the February 17, 2005, interagency meeting, NMFS was advised by the COE that an additional 7.14 acres of high relief offshore reef and 6.37 acres of low relief reef could be eliminated in connection with anchors and cables used to position construction equipment and vessels.

As compensation for impacts to marine and estuarine habitats, the COE has proposed to: (1) mitigate for the direct impacts to 5.0 acres of seagrass through the removal of spoil islands in West Lake Park and to create 8.0 acres of seagrass recruitment habitat; (2) mitigate for the removal of 11.55 acres of mature mangrove habitat, including the 8.48 acres currently held in a conservation easement, at a 1:1 mitigation ratio through the creation of 11.55 acres of mangrove habitat within West Lake Park; (3) mitigate for the removal of 10.82 acres of high relief coral reef habitat at a ratio of 2:1 through the creation of 19.36 acres of high complexity, high relief artificial reef habitat; and (4) mitigate for the 14.89 acres of impact to low relief hardbottom habitat at a ratio of 1.3:1 through the creation of 19.36 acres of low complexity, low relief artificial hardbottom habitat. The COE has not proposed compensation for removal of the biotic communities, such as soft corals, sponges, and hard corals, which have colonized the existing channel and rock/rubble bottom since the last dredging event.

The CAR provides a qualitative assessment of the habitats proposed for impact associated with the Port Everglades channel and harbor improvements. In general, we support the recommendations provided in the CAR on behalf of the FWS. However, the NMFS opines that it is premature to evaluate the effect of this project and develop detailed recommendations given that avoidance measures and alternatives including the no action alternative and the Port of Miami Expansion Project as an alternative have not been duly considered. The impacts are significant and would permanently eliminate over 40 acres of essential fish habitat (EFH)/habitat areas of particular concern (HAPC) utilized by various life stages of federally managed species. Further, the NMFS is concerned that the impacts do not justify need for the project, especially when considering that the Port of Miami, located approximately 27 nautical miles to the south in Miami-Dade County, Florida, will commence construction late May/early June 2005 to expand and deepen port facilities to accommodate post-Panamax vessels. The need for two ports within 30 miles of one another and for use by post-Panamax vessels has not been demonstrated, nor has it been evaluated in the feasibility study (Terri Jordan, COE, pers. comm. 2005). The economic analysis prepared for the feasibility study considers the need for Port Everglades expansion independent of the Port of Miami expansion (Bob King, COE, pers. comm., 2005). Currently, there are no ports along the U.S. east coast that can accommodate post-Panamax vessels; however the Port of New York/New Jersey is undergoing a dredging project to accommodate these vessels.

The following comments are primarily based on information presented in the CAR, but also consider information presented at interagency meetings including the February 17, 2005, and May 4, 2005, meetings. Based on the limited available information provided to date from the COE, we emphasize that the following comments are not intended to be comprehensive or final. These comments are primarily with regard to marine and estuarine habitat impacts, i.e., those habitats designated EFH-HAPC, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Other issues regarding threatened and endangered species, should be coordinated with the NMFS Protected Resources Division at the letterhead address.

Specific comments

Pages 10-11. Nearshore Hardbottom Reefs. This section omits reference to important habitat functions of this habitat type. Nearshore hardbottom communities in this area have been characterized by Goldberg (1973a) and Nelson (1989). Nearshore hardbottom habitats serve as nursery habitats for coastal fish species, for example by providing structural support, food, and shelter for post-settlement fishes (Lindeman and Snyder 1999). Further, it should be noted that nearshore hardbottom habitats provide structure for all types of corals, including many hermatypic species that are near their northernmost range (SAFMC 1998).

Pages 11-12. Ichthyofauna. In the absence of reviewing the 2001 fish survey protocol and findings, NMFS is concerned that the results presented in the CAR may represent a gross underestimate of the managed species present on the nearshore hardbottom reefs. This habitat type is utilized by newly settled species. Methods used during the 2001 survey to identify post-settlement and juvenile life stage fishes and timing of the survey should be addressed in the CAR.

Pages 12-13. Essential Fish Habitat. Overall, this section should be rewritten, including the first paragraph, which describes the EFH mandate. Many statements in this section are inaccurate. For example, contrary to what is stated in the draft CAR, the *littoral zone* and *sublittoral zone* are not categories of EFH.

State of Florida listed species (e.g., snook) should not be addressed in this section. Although the NMFS considers State of Florida listed species as aquatic resources of national importance (ARNI), in accordance with Section 906(e)(1) of the Water Resources Development Act of 1986 (PL 99-602), EFH has not been designated for each life stage history. Inclusion of State of Florida listed species generates confusion and could potentially dilute their significance in the final CAR.

The coral component of the EFH section is inadequate. Although NMFS acknowledges that the CAR is not meant to serve as a comprehensive literature review, only one generic sentence is provided to characterize the corals in this area. Several key publications have been omitted from this section including, but not limited to Goldberg 1973; SAFMC 1998; Vargas et al., 2003; and Moyer et al., 2003.

In general, NMFS does not concur with the mitigation components of the EFH section. For example, the draft CAR states that mitigation will not be required for “dredging softbottom habitats . . . or habitats with rubble substrates.” If rubble areas support corals that are within the size class for successful relocation, the NMFS will recommend that these corals be removed and transplanted to suitable areas.

Further, this section does not acknowledge the water column as EFH. The marine water column has been designated as EFH due to its importance as the medium of transport for nutrients and migrating organisms between estuarine systems and the open ocean. Impacts to this category of EFH would occur through dredging-induced increases in turbidity and sediment transport.

We strongly encourage the FWS and/or Dial Cordy and Associates (contractor, CAR author) to contact our office for clarification on the habitats types that are designated EFH, the EFH mandate, and the literature available to characterize EFH in this region. We are enclosing an EFH guidance document that was prepared by the NMFS Southeast Regional Office. This document provides an overview of the EFH provisions of the Magnuson-Stevens Act and implementing rules.

Page 16. Dredged material disposal. The draft CAR states that dredged material disposal would occur in upland disposal sites, however, NMFS has been advised by the COE that offshore disposal is also likely. While effects associated with potential offshore disposal have been evaluated by the Environmental Protection Agency through National Environmental Policy Act (NEPA) procedures, this activity should also be described in the CAR.

Pages 42-46. FWS Recommendations. As stated above, NMFS does not believe that the adequate avoidance and minimization measures have been demonstrated and it is premature to evaluate the effect of the project, as currently proposed, and develop detailed recommendations. The NMFS recommends that the COE explore alternatives including the no action alternative and the Port of Miami Expansion Project, as alternatives.

Assuming that the federal sequential mitigation requirements and NEPA procedures may be adequately addressed, we provide the following comments. Unless otherwise noted below, NMFS concurs with the recommendations provided in the draft CAR. We especially support the design modification recommendations and the recommendation (#7) to seek alternative hardbottom and coral reef mitigation options through the multi-disciplinary Port Everglades Reef Group (PERG). We also support the recommendation (#20) to further avoid direct impacts to seagrasses and to increase the mitigation ratio. Recommendation #15 which call for conduct biological monitoring of managed fish and protected species is also supported. Other specific comments are provided below.

Recommendation #2: The FWS recommends that impacts to mangrove wetlands that are under a conservation easement should be offset using a 3:1 (impact/replacement) ratio. NMFS recommends that a much higher mitigation ratio be applied, i.e., not less than 10:1.

Recommendation #6: The FWS recommends that hard corals (one foot in diameter or greater) within the dredging footprint should be relocated. We note that Broward County, in concert with NOVA Southeastern University, has experienced recent and replicated success with coral relocation associated with the Broward County Shore Protection Project (SPP). In connection with that project, corals 15 centimeters in diameter or greater were salvaged and relocated. Therefore, the NMFS recommends that all stony coral colonies (Order Scleractinia) having a living tissue diameter (long axis of continuous living tissue) of 15 cm or greater, be transplanted in order to speed recovery of ecological function and diversity.

Recommendation #8: The NMFS strongly supports this recommendation, which advises that lessons learned from the Broward County SPP and the Key West Harbor Dredging Project be applied to this project. The NMFS opines that the interagency coordination efforts associated with the Key West project are directly related to that project's success and we would like to participate in a similar effort with the Port Everglades project. We further recommend that biological monitoring (i.e., coral sedimentation monitoring) that was developed for the Broward County SPP be applied to this project as well.

Recommendation #23: The FWS recommends that the COE create a 51-acre mitigation reef to compensate for direct impacts to high and low relief reef. As stated above, at this time the NMFS prefers to seek alternative hardbottom and coral reef mitigation options through the multi-disciplinary PERG.

Editorial comments:

Page i, first paragraph. The first sentence references the "Seaport Department of Miami-Dade County" instead of the "Broward County's Port Everglades Department."

Page i, second and third paragraphs. The first sentences reference "Miami Harbor" instead of "Port Everglades Harbor."

Page 12, first paragraph. It is not clear what is meant by the following sentence: "All of these species are listed in SAFMC (1998a)."

We appreciate the opportunity to provide these comments. The NMFS re-iterates that we strongly encourage the FWS and/or Dial Cordy and Associates (contractor, CAR author) to contact our office for clarification on the habitats types that are designated EFH, the EFH mandate, and the literature available to characterize EFH in this region. Related correspondence

Literature Cited:

- Goldberg, W.M. 1973. The ecology of the coral-octocoral communities off the southeast Florida coast: Geomorphology, species composition, and zonation. *Bulletin of Marine Science* 23: 465-488.
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United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960



April 5, 2005

Dennis Barnett
Acting Chief, Planning Division
U.S. Army Corps of Engineers
701 San Marco Boulevard, Room 372
Jacksonville, Florida 32207-8175

Dear Mr. Barnett:

In accordance with the Fiscal Year 2003 Transfer Fund Agreement between the Fish and Wildlife Service (Service) and the U.S. Army Corps of Engineers, Jacksonville District, enclosed is the Draft Fish and Wildlife Coordination Act (FWCA) Report for the Port Everglades Navigation Project, Broward County, Florida. This draft report, provided in accordance with the FWCA of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 *et seq.*) and under the provisions of section 7 of the Endangered Species Act of 1973, as amended (87 Stat. 884; 16 U.S.C. 1531 *et seq.*), has been prepared to provide an evaluation of environmental effects of navigation improvements to Port Everglades.

By copy of this letter, the Service is soliciting comments within 45 days from the Florida Fish and Wildlife Conservation Commission and the National Marine Fisheries Service. Comments by both agencies will be considered by the Service in preparing the final FWCA report, and copies of the comments will be included as appendices to the final report, which will constitute the Secretary of the Interior's views and recommendations for this project, in accordance with section 2(b) of the FWCA.

Please contact Trish Adams at 772-562-3909, extension 232, regarding the findings and recommendations contained in this draft report.

Sincerely yours,

James J. Slack
Field Supervisor
South Florida Ecological Services Office

Enclosure

TAKE PRIDE
IN AMERICA 

Dennis Barnett

Page 2

cc: w/enclosure

FWC, Tallahassee, Florida (Robbin Trindell)

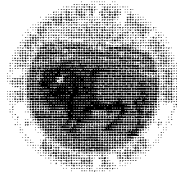
FWC, Vero Beach, Florida

NOAA Fisheries, Habitat Conservation Division, Miami, Florida

NOAA Fisheries, Protected Resources Division, St. Petersburg, Florida

**Port Everglades Navigation Project
Fish & Wildlife Coordination Act Report**

DRAFT



Prepared for

**U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960**

by

**Dial Cordy and Associates, Incorporated
490 Osceola Avenue
Jacksonville Beach, Florida 32250**

March 31, 2005

EXECUTIVE SUMMARY

Broward County's Port Everglades Department requested that the U.S. Army Corps of Engineers (Corps) study the feasibility of modifying portions of Port Everglades Harbor to improve the Federal navigation system of channels. This draft Fish and Wildlife Coordination Act (FWCA) Report evaluates the likely effects of the proposed harbor expansion project on fish and wildlife resources, including federally threatened and endangered species, and is submitted in accordance with provisions of the FWCA of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 *et seq.*) and the Endangered Species Act (ESA) of 1973, as amended (87 Stat. 884; 16 U.S.C. 1531 *et seq.*).

Port Everglades (Port) is one of the major port complexes along the east coast of the United States. It is located adjacent to the Cities of Dania and Fort Lauderdale, Broward County, Florida, approximately 27 nautical miles north of Miami. The Port is accessible from the Atlantic Ocean through Port Everglades Inlet and the Atlantic Intracoastal Waterway (AIW). The mainland and barrier islands surrounding the Port Everglades are fully developed, except for John U. Lloyd State Recreation Area and West Lake Park. Though the majority of the terrestrial land surrounding the Port is developed, there are important habitats for fish and wildlife existing inside and adjacent to the project area. Terrestrial and marine habitats in the vicinity of the project area include the coastal strand, mangroves, seagrass beds, coral reefs and other hardbottom reefs, sand-bottom habitats, and rock/rubble-bottom habitats. The waters in the vicinity of Port Everglades are important for manatees, since they provide access to an important manatee calving area and a warm water refugia associated with the Florida Power and Light power plant at Fort Lauderdale.

The proposed navigational improvements to Port Everglades will impact habitats utilized by fish and wildlife populations. Modifications to the Federal system of channels under the Recommended Plan include: (1) deepening the harbor turning basins and channels; (2) widening the Dania Cutoff Canal (north shore); (3) widening portions of the AIW (east shore and south of the entrance channel), and (4) extending and widen the eastern section of the Outer Entrance Channel by 2,200 feet and 300 feet, respectively. Construction will be accomplished through a combination of traditional dredging methods and the use of explosives inshore and offshore. Unconsolidated and consolidated material generated during dredging will be deposited within approved offshore and/or upland disposal sites.

The Corps estimates that a total of 5.0 acres of seagrass, 11.55 acres of mangroves, 14.89 acres of low relief hardbottom, 10.82 acres of high relief coral reef, and 20.09 acres of previously dredged rock/rubble habitat will likely be adversely affected as a result of the expansion of Port Everglades. Indirect impacts to fish and wildlife resources may include the resuspension of fine sediments and possibly contaminants.

As compensation for the impacts to habitat, the Corps has proposed to: (1) mitigate for the direct impacts to 5.0 acres of seagrass through the removal of spoil islands in West Lake Park, and create 8 acres potential seagrass recruitment habitat; (2) mitigate for the removal of 11.55 acres of mature mangrove habitat, 8.48 acres of which are currently held in a conservation easement, at

a mitigation ratio of 1:1 through creation of 11.55 acres of mangrove habitat within West Lake Park; (3) mitigate for the removal of 10.82 acres of high relief coral reef habitat at a ratio of 2:1 through the creation of 21.64 acres of high complexity, high relief artificial reef habitat; and (4) mitigate for the 14.89 acre of impact to low relief hardbottom habitat at a ratio of 1.3:1 through the creation of 19.36 acre of low complexity, low relief artificial hardbottom habitat. The Corps has not proposed compensation for the removal of the biotic communities, such as soft corals, sponges, and hard corals, which have colonized within the existing channel walls and rock/rubble bottom since the last dredging event.

The Fish and Wildlife Service (Service) has provided several recommendations in this document to further minimize or avoid possible adverse effects of the harbor expansion project on fish and wildlife resources. Specifically, the Service recommends the following to adequately compensate for the temporal loss of function and value of the impacted habitats by: (1) significantly increasing the mitigation ratio (e.g., to 3:1) for mangroves if the 8.48 acres in the conservation easement can not be avoided; (2) increasing the mitigation ratio for impacted seagrass habitat from 1:1 to 3:1 for a total of 15 acres; (3) developing a Seagrass Monitoring Plan that contains success criteria that are consistent with Fonseca et al. (1998); (4) creating a 51-acre mitigation reef to compensate for direct impacts to high and low relief hardbottom reef habitat; (5) providing adequate mitigation for the temporal loss of function and value associated with the low relief hardbottom habitat located within the previously dredged channels, particularly the channel walls; and (6) continuing to seek alternative methods to mitigate for reef impacts through the Port Everglades Reef Group. In addition, the Service recommends the development of a comprehensive (pre, during, post project) environmental monitoring program to verify that project impacts occurred within the levels anticipated and to ensure that the mitigation areas are performing to a level where habitat replacement values are maintained.

The Corps has determined that the project "may affect, but is not likely to adversely affect" the federally endangered West Indian manatee (*Trichechus manatus*), endangered American crocodile (*Crocodylus acutus*), endangered green sea turtle (*Chelonia mydas*), threatened loggerhead sea turtle (*Caretta caretta*), endangered Kemp's ridley turtle (*Lepidochelys kempii*), endangered Hawksbill sea turtle (*Eretmochelys imbricata*), endangered leatherback turtle (*Dermochelys coriacea*), threatened Johnson's seagrass, and endangered smalltooth sawfish (*Pristis pectinata*). In addition, the Corps has determined that the following whale species may be affected during blasting activities: the endangered humpback whale (*Megaptera novaeangliae*), endangered fin whale (*Balaenoptera physalus*), endangered sei whale (*Balaenoptera borealis*), and endangered sperm whale (*Physeter macrocephalus*) which are known to occur along the Atlantic coast. Since the Corps has agreed to incorporate the *Standard Manatee Protection Construction Conditions* and implement a comprehensive blasting plan to minimize possible adverse effects to listed marine species using the standard "Navy diver" protocol plus an additional 500 foot buffer to the safety zone, the Service concurs with the Corps' determination for the two species which fall under the jurisdiction of the Service, the West Indian manatee and the American crocodile. The Corps has initiated consultation with the National Oceanographic and Atmospheric Administration concerning the remaining listed species.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
LIST OF ACRONYMS	VI
LIST OF TABLES	VII
LIST OF FIGURES	VIII
1.0 IDENTIFICATION OF PURPOSE, SCOPE, AND AUTHORITY.....	1
2.0 PROJECT HISTORY AND SERVICE INVOLVEMENT	1
3.0 AREA SETTING.....	1
3.1 Project Location and Existing Conditions	1
3.2 Description of Study Area	2
3.2.1 Physical Conditions	2
3.2.2 Geology.....	2
3.2.3 Sediment and Water Quality.....	2
3.2.4 Land Use.....	3
4.0 FISH AND WILDLIFE RESOURCES	4
4.1 Biotic Communities.....	4
4.1.1 Coastal Strand.....	4
4.1.1 Mangroves	5
4.1.3 Seagrass	7
4.1.4 Unvegetated Softbottom Habitat	8
4.1.5 Rock/Rubble Habitats.....	9
4.1.6 High and Low Relief Hardbottom and Coral Reefs.....	9
4.1.7 Essential Fish Habitat	12
4.2 Threatened and Endangered Species	13
4.2.1 Sea Turtles	13
4.2.2 West Indian Manatee	14
4.2.3 American Crocodile.....	14
4.2.4 Johnson's Seagrass	15
4.2.5 Smalltooth Sawfish and Other Protected Fish Species.....	15
4.2.6 Whales and Dolphins.....	16
5.0 DESCRIPTION OF THE RECOMMENDED PLAN AND ALTERNATIVES	16

5.1 SPOIL DISPOSAL	17
5.2 Blasting Methodology.....	18
5.2.1 Proposed Protection Measures.....	19
5.2.2 Proposed Test Blast	20
5.2.3 Other Rock Removal Methods Considered	20
5.2 Proposed Mitigation	21
5.3.1 Mangrove Mitigation.....	21
5.3.2 Seagrass Mitigation	21
5.3.3 Other Proposed Enhancement Measures in West Lake Park	22
5.3.4 Proposed Mitigation Monitoring at West Lake Park	22
5.3.5 High and Low Relief Hardbottom and Coral Reef Mitigation.	24
5.3.6 Hardbottom reef and coral reef mitigation plan.....	24
6.0 EVALUATION OF THE RECOMMENDED PLAN.....	25
6.1 Fish and Wildlife Resources.....	26
6.1.1 Coastal Strand.....	26
6.1.2 Mangroves	26
6.1.2.1 Direct Impacts.....	26
6.1.2.2 Indirect Impacts	26
6.1.3 Seagrass Beds	27
6.1.3.1 Direct Impacts.....	27
6.1.3.2 Indirect Impacts	27
6.1.4 Unvegetated Softbottom Habitats and Rock/Rubble Habitats.....	28
6.1.5 High and Low Relief Hardbottom Reef and Coral Reefs.....	29
6.1.5.1 Direct Impacts Inside the Existing Channel Zone	29
6.1.5.2 Direct Impacts Outside the Existing Channel Zone.....	29
6.1.5.3 Indirect Impacts	30
6.1.6 Essential Fish Habitat	30
6.2 Threatened and Endangered Species	32
6.2.1 Sea Turtles	32
6.2.2 West Indian Manatee	33
6.2.3 American Crocodile.....	34
6.2.4 Johnson's Seagrass	34
6.2.5 Smalltooth Sawfish and Other Protected Fish Species.....	34
6.2.6 Whales and Dolphins.....	35
6.3 Effects of Blasting	35
6.4 Additional Concerns Affecting Fish and Wildlife Resources	37
6.4.1 Contaminated Sediments	38

7.0 SERVICE'S MITIGATION POLICY	39
7.1 Evaluation of Proposed Mitigation.....	40
7.1.1 Mangrove	40
7.1.2 Seagrass	41
7.1.3 Low and High Relief Hardbottom Reefs and Coral Reefs	42
8.0 RECOMMENDATIONS.....	42
9.0 SUMMARY OF SERVICE'S POSITION	46
LITERATURE CITED	48
TABLES	53
FIGURES	60

APPENDIX A: Previous Correspondence from U.S. Fish and Wildlife Service

APPENDIX B: Functional Assessment of Mangrove Habitats

LIST OF ACRONYMS

AIW	Atlantic Intracoastal Waterway
DC&A	Dial Cordy and Associates, Incorporated
DCC	Dania Cutoff Canal
DDT	Dichloro-diphenyl-trichloroethane
DEP	Florida Department of Environmental Protection
EPA	Environmental Protection Agency
ESA	Endangered Species Act
EWRA	Estuarine Wetland Rapid Assessment Procedure
FPL	Florida Power and Light
FWC	Florida Fish and Wildlife Conservation Commission
HAPC	Habitat Areas of Particular Concern
HRHC	High Relief/High Complexity
HTRW	Hazardous, Toxic or Radioactive Waste
IEC	Inner Entrance Channel
LRLC	Low Relief/Low Complexity
MMPA	Marine Mammal Protection Act
MTB	Main Turning Basin
NMFS	National Marine Fisheries Service
NSU	Nova Southeastern University
NTB	North Turning Basin
OEC	Outer Entrance Channel
RFP	Request for Proposal
SAC	Southport Access Channel
SAV	Submerged aquatic vegetation
SQAG	Sediment Quality Assessment Guidelines
SRA	State Recreation Area
STB	South Turning Basin
TBP	Test Blast Program
TN	Turning Notch
USCG	U.S. Coast Guard

LIST OF TABLES

Table 1. Previous Port modification projects.

Table 2. Relative abundance of fish species observed during visual surveys conducted in May 2001 at nearshore hardbottom and offshore reef sites along transects within the entrance channel and adjacent areas.

Table 3. Number of nests for three species of sea turtles at John U. Lloyd SRA during 6 years.

Table 4. Project alternatives and recommended plan.

Table 5. Habitat restoration and enhancement elements at West Lake Park.

Table 6. Recommended Plan impact (acres) by mangrove habitat type.

Table 7. Annual number of manatee deaths in Broward County as a result of various causes during a 28 year period.

LIST OF FIGURES

- Figure 1. Port Everglades project location.
- Figure 2. Mangrove communities in the vicinity of Port Everglades.
- Figure 3. Seagrass distribution in the northern portion of the project area.
- Figure 4. Seagrass distribution in the southern portion of the project area.
- Figure 5. High and low relief hardbottom and coral reef distribution in project area.
- Figure 6. Threatened and endangered species observations and occurrence.
- Figure 7. Existing facilities at Port Everglades.
- Figure 8. Proposed plan to deepen, widen, and extend the OEC.
- Figure 9. Proposed plan to deepen and widen the TN.
- Figure 10. Proposed plan to modify the IEC.
- Figure 11. Proposed plan to modify the MTB.
- Figure 12. Proposed plan to modify the STB.
- Figure 13. Two potential disposal sites for material excavated during the Port project.
- Figure 14. Proposed locations for mitigation reefs.
- Figure 15. Conceptual design for artificial reef sites.

1.0 IDENTIFICATION OF PURPOSE, SCOPE, AND AUTHORITY

The Port Everglades (Port) Feasibility Study was authorized by a House Resolution in May 1996. Congress added funding in the appropriations for fiscal year 1997 to begin the Feasibility Study. The U.S. Army Corps of Engineers (Corps) and Broward County, the local sponsor, entered into a cost sharing agreement on April 17, 1997. On June 29, 1999, the Port requested the Corps to re-scope the Feasibility Study. The Amended Study Agreement was signed on April 4, 2000, and was further amended on February 19, 2002. This draft Fish and Wildlife Coordination Act (FWCA) Report evaluates the likely effects of the proposed federal channel and harbor improvements on fish and wildlife resources and is submitted in accordance with provisions of the FWCA of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 *et seq.*) and the Endangered Species Act (ESA) of 1973, as amended (87 Stat. 884; 16 U.S.C. 1531 *et seq.*).

2.0 PROJECT HISTORY AND SERVICE INVOLVEMENT

Port Everglades was initially constructed from 1925 through 1928. Although the Federal project was completed in 1984, the most recent modifications to the Port were carried out between 1984 and 1991 (Table 1). Modifications during that period included deepening and widening of the Southport Access Channel (SAC), construction of a bulkhead, and creation of the Turning Notch (TN) (Corps 1991). The Fish and Wildlife Service (Service) addressed these activities in at least two letters submitted in accordance with the ESA and the FWCA, respectively. Maintenance dredging issues were addressed by the Service in an additional letter and the Planning Aid Report, Port Everglades, Florida, Maintenance Dredging Project, both submitted under the authority of the FWCA (see Appendix A for all four documents). The Dania Cutoff Canal (DCC), part of which lies within the proposed project area, serves local drainage needs and lends access to Port Denison from the Atlantic Intracoastal Waterway (AIW). In 1985-1986, local interests dredged the canal to minus 16 feet National Geodetic Vertical Datum.

3.0 AREA SETTING

3.1 Project Location and Existing Conditions

The Port Everglades Harbor (Port) is a major seaport located on the southeast coast of Florida. It is located within the cities of Hollywood, Dania Beach and Fort Lauderdale, with immediate access to the Atlantic Ocean. The entrance of the Port is approximately 27 nautical miles (nm) north of Miami Harbor, Florida and 301nm south of Jacksonville Harbor, Florida. The existing Port Everglades Federal Navigation Project provides for an Outer Entrance Channel (OEC) which is 45 feet deep and 500 feet wide, an Inner Entrance Channel (IEC) which is 450 feet wide and 42 foot deep, a Main Turning Basin (MTB) which is 42 feet deep, a North Turning Basin (NTB) which is 31 feet deep, a South Turning Basin (STB) which is 31 to 36 feet deep, a SAC which is 390-400 feet wide and 42 feet deep, and a TN which is 42 feet deep. To the east of the Port is a barrier island that contains a U.S. Navy facility, a Nova Southeastern University facility (NSU), a U.S. Coast Guard (USCG) facility, and John U. Lloyd State Recreation Area (SRA) and its adjacent beaches. South of the Port's DCC is the West Lake Park area. West of the Port is

Federal Highway which is flanked by the Fort Lauderdale/Hollywood International Airport. North of the Port is a mixture of small craft waterways and commercial and residential development. Figure 1 shows major features located within and surrounding the project site.

3.2 Description of Study Area

3.2.1 Physical Conditions

Tides at Port Everglades are semi-diurnal (two high and two low daily). Mean tidal range in the harbor entrance and main harbor area is less than 2 feet.

Two types of currents affect Port Everglades, offshore currents and currents within the harbor itself. Offshore currents affecting Port Everglades Harbor include littoral currents, inlet related tidal currents, and strong currents resulting from the proximity of the Atlantic Gulf Stream. Currents within the harbor arise from flood and ebb tides, river outflows, and power plant discharges.

3.2.2 Geology

In the Main Harbor Area of the Port, a significant quantity of rock is present and will likely require blasting. In general, there is a wide ridge of hard massive rock in the MTB that extends in a north-south direction from the north harbor extension, through the center of the harbor, and through the south harbor extension. Based on the historic core boring drilled along the South Port Channel, it appears that the rock may be dredged by using a rock-cutting hydraulic dredge. Although it is likely that harder more massive rock could be encountered at lower elevations. In the DCC, core borings and geotechnical data are being collected and evaluated. The OEC and IEC will likely be excavated without blasting, although blasting may be required where hard rock dominates the substrate.

3.2.3 Sediment and Water Quality

The waters within the Port are designated Class III by the Florida Department of Environmental Protection (DEP). However, the waters adjacent to John U. Lloyd SRA, on the Atlantic Ocean side, are designated as Outstanding Florida Waters. Major waterways adjacent to the Port are the New River system to the north, the AIW, and the DCC to the south. In addition, there are storm water collection systems within the Port and areas west and north of the Port discharging into Port waters.

Monitoring data indicate that water quality varies on a seasonal basis, while physical parameters are influenced by freshwater run-off normally during summer. Historical chemical analyses indicate that some pesticides have been found in trace amounts. However, Port Everglades does not handle fertilizers or pesticides as a bulk cargo and it is possible that the presence of these compounds may be associated with urban run-off surrounding the Port.

Sediment constituents encountered at Port Everglades vary greatly according to core boring location and elevation. Appendix E of the Draft Feasibility Report contains detailed core boring logs and some grain-size curves. The Corps analyzed hundreds of core borings that have been drilled in and around the Port. The sponsor, Broward County, has also drilled two groups of core borings (total 36 borings) in support of this study. The majority of materials within the project area include interbedded layers of sand and rock, which are categorized as sands, silty sands, gravelly sands, weakly cemented sands, moderately cemented sands, weakly cemented sandstone and limestone, and occasional solid beds of sandstone and limestone. Softer materials on average are excavated as partially cemented sand with occasional thin (inches to a few feet) layers of solid rock. After excavation, the materials will appear as gravelly sand with occasional pockets of silt. Approximately 80 to 90 percent of the excavated material would be classified as sands.

According to the *Port Everglades Harbor Marine Protection Research and Sanctuaries Act Tier 1 Evaluation of Dredged Material Disposal* (Corps 2002, February 1 revision), disposal of unusable dredged materials would be on uplands. Sediments from project reaches that have been examined have not shown traces of anthropogenic contaminants that would preclude disposal of materials at upland sites. The DEP has suggested that upstream marinas and the Ft. Lauderdale-Hollywood International Airport may contribute various pollutants in sediments of the DCC. In an effort to locate additional information regarding contaminants, the Corps has contacted the following for sediment chemistry data: Broward County Department of Planning and Environmental Protection, the South Florida Water Management District, the DEP Bureau of Laboratories, the U.S. Geological Service Center for Coastal and Regional Marine Studies, and the U.S. Geological Service Miami Subdistrict for Water Resources. To date, personnel in these offices were not able to identify any sediment chemistry data for the DCC or any other reaches within the project area.

3.2.4 Land Use

Broward County is the second most populous county in the State of Florida, with over 1.5 million citizens (U.S. Census Bureau 2000). Adjacent Miami-Dade County, to the south, is the most populous (over 2 million). Port Everglades lies within the urban, eastern section of Broward County. To the east of the Port is a barrier island that contains a U.S. Navy facility, the NSU facility, a USCG facility, and John U. Lloyd SRA and adjacent beaches. South of the DCC is an undeveloped coastal system including West Lake Park. West of the Port is Federal Highway, which is flanked by the Fort Lauderdale/Hollywood International Airport. North of the Port is a mixture of small craft waterways and commercial and residential development. Dial Cordy and Associates, Incorporated (DC&A) (2001) determined current land use and biotic community cover types according to the Florida Land Use Cover Classification System (Florida Department of Transportation 1995).

4.0 FISH AND WILDLIFE RESOURCES

4.1 Biotic Communities

Habitats within the project impact area include coastal strand, mangroves, seagrasses, unvegetated softbottom, rock/rubble, high and low relief, and coral reefs.

4.1.1 Coastal Strand

The majority of coastal strand adjacent to the project area is largely developed with commercial, industrial, governmental, and educational facilities. To the north of Port Everglades Inlet, the barrier island is dominated by residential communities. South of the Inlet, the barrier island supports the USCG facility, NSU Oceanographic Center, and John U. Lloyd SRA. Encompassing 251 acres of barrier island, John U. Lloyd SRA represents the greatest amount of continuous undeveloped barrier island in the project vicinity. Exotic vegetation such as Australian pine (*Casuarina equisetifolia*) and Brazilian pepper (*Schinus terebinthifolius*) dominate many of the natural habitats in the park, but aggressive habitat restoration efforts are currently on-going.

Common plants associated with southeast Florida beach dunes include sea-oat (*Uniola paniculata*), sea-grape (*Coccolobis uvifera*), cabbage palm (*Sabal palmetto*), and palmetto (*Serenoa* spp.). Dune species noted in John U. Lloyd SRA likely included seashore paspalum (*Paspalum vaginatum*), dune sunflower (*Helianthus debilis*), and beach elder (*Iva imbricata*).

Isolated pockets of coastal scrub communities may also be found within the vicinity of the project area. Common components of these habitats are saw palmetto (*Serenoa repens*), sand live oak (*Quercus geminata*), myrtle oak (*Q. myrtifolia*), yaupon (*Ilex vomitoria*), railroad vine (*Ipomoea pes-caprae*), sea oats (*Uniola paniculata*), sea purslane (*Sesuvium maritimum*), sea grape (*Coccoloba uvifera*), Spanish bayonet (*Yucca aloifolia*), and prickly pear (*Opuntia* sp.). This cover type is generally found in dune and white sand areas above the mean high tide line. The most notable coastal scrub habitat located within the project area is within the boundaries of John U. Lloyd SRA and south of the SRA along the same peninsula.

The piping plover (*Charadrius melodus*), a migratory shorebird, is protected as a threatened species by the State of Florida and the Federal government, and is also protected under the Migratory Bird Treaty Act. According to the American Ornithologists' Union (1998), the species breeds in the northern Great Plains, the Great Lakes region, and Atlantic Coastal States or Provinces from New Brunswick to South Carolina. Individuals of the species winter along the Atlantic and Gulf Coasts from Texas to North Carolina, arriving on Florida's coasts in September and departing for the north in March. Foraging areas include intertidal beaches, mudflats, sandflats, lagoons, and salt marshes, where they feed on invertebrates such as marine worms, insect larvae, crustaceans, and mollusks.

The least tern (*Sterna antillarum*) is a small member of the gull family (Laridae) listed by Florida as a threatened species (Florida Fish and Wildlife Conservation Commission [FWC] 1997) and

protected federally under the Migratory Bird Treaty Act. The eastern least tern population breeds primarily from coastal Maine through Florida (American Ornithologists' Union 1998). Florida populations arrive each year in mid- to late March to breed. They nest through mid-September, and typically choose open sandy substrates to form breeding colonies. Although typically nesting on open, sandy beach areas, an increasing number of colonies are located on open, flat, artificial surfaces (e.g., warehouse roof tops). Least terns forage along coastal areas feeding on small fishes, as well as some crustaceans and insects.

4.1.1 Mangroves

Historically in Broward County, freshwater wetlands and cypress swamps extended from coast to coast though mangroves were common on the western and southern coastline and on the barrier islands. As a result of dredging activities to create the AIW and the construction of jetties to ensure open access through the inlet to the ocean, salinity increased and freshwater wetlands were converted to estuarine communities over time. Mangroves became common along both sides of the AIW and in some places formed wide fringes over a mile wide.

Mangroves represent the largest natural habitat within the project boundaries, including several created wetland areas (Fig. 2). These habitats comprise either stands of red mangrove (*Rhizophora mangle*) or mixed stands of red mangrove and black mangrove (*Avicennia germinans*). Major associates include white mangrove (*Languncularia racemosa*) and buttonwood (*Conocarpus erectus*). Mangroves are important for shoreline protection and stabilization. In addition, mangrove habitats provide many important ecological functions, such as providing refugia for juvenile stages of managed fish species, and have been identified as significant resources for seven federally protected species and four federally protected subspecies (Odum and McIvor 1990). These systems also provide organic matter that forms the basis of a littoral zone marine food web.

Florida mangrove communities are known to support up to 220 species of fishes, 24 species of amphibians and reptiles, 18 species of mammals, and 181 species of birds (Odum et al. 1982). Managed fish species associated with mangroves during at least one life-cycle phase include pink shrimp (*Farfantepenaeus duorarum*), spiny lobster (*Panulirus argus*), jewfish (*Epinephelus itajara*), gray snapper (*Lutjanus griseus*), black drum (*Pogonias cromis*), red drum (*Sciaenops ocellatus*), and snook (*Centropomus undecimalis*) (South Atlantic Fishery Management Council [SAFMC] 1998a).

Sloughs (channels of slow-moving water) penetrate mangrove wetlands adjacent to channel areas. These are extremely important areas that provide species with passageways for movement into and out of interior mangrove areas. They are also important for refuge and feeding areas for various fishes and invertebrates.

The largest mangrove habitats in the project area occur along the western edge of John U. Lloyd SRA and to the north and west of the TN. Some mangrove fringe in the SRA was created by the Port as mitigation for previous impacts to native mangrove areas. Mangroves adjacent to the TN

are protected under a DEP conservation easement. Sloughs are associated with both of the major mangrove areas.

Staff from Federal and local regulatory agencies and project sponsors examined mangrove wetlands on September 12, 2001, to examine habitat quality. Mangrove wetlands in the project area were examined for the composition, maturity, tidal regime, position in the landscape, and overall functionality. Mangrove habitats similar in these characteristics were grouped together in a given category, and characterized as follows:

Mixed Mangrove Habitat: These mangroves are comprised of mixed stands of black and red mangroves and non-native invasive species, such as Brazilian pepper. These habitats are located north of the most northern mangrove creation area as described below under Created Mangrove Habitat and south of the USCG facility along the eastern side of the AIW. The width of the area averages 20 feet with mangrove coverage less than 50 percent.

Scattered Mixed Mangrove Habitat on the North Shore of the DCC: These mangroves comprise occasional lines of predominantly white and black mangroves, with some red mangroves, that have grown among scattered rock and fill on the eroding north shoreline of the DCC. Behind the 10-foot high trees is a row of Australian pine trees and an access road.

Mature Red Mangrove Habitat along the AIW: These mature mangroves provide valuable refugia and foraging area for fishes and motile invertebrates, such as juvenile spiny lobster and mangrove snapper (*Lutjanus griseus*).

Mature Red Mangrove Habitat at DCC: A healthy mangrove system is found along the DCC, just west of the high salt marsh mangrove area, and adjacent to Whiskey Creek. Mangroves average in height 12 to 16 feet.

Created Mangrove Habitat: As mitigation for Port improvements in the mid-1980s, mangrove habitat was created from scraping down uplands along the east shore of the AIW, in several areas north of the John U. Lloyd SRA boat ramp south to the DCC/AIW intersection. These wetlands are dominated by red and black mangroves with heights ranging between 2 to 12 feet. All of the areas are functioning as productive natural mangrove stands. Both killifish (*Fundulus* sp.) and puffers (*Sphoeroides testudineus*) were observed by the Service during the September 2001 field inspection. Tidal flushing was considered optimal along riprap that was staggered for the purpose of open water movement.

Mature Mangrove Habitat Bordered by Riprap: These red and black mangroves are separated from open water by riprap. These mangroves are located along the east side of the AIW next to the parking lot of John U. Lloyd SRA and west of the TN. Mangroves range up to 25 feet in height. A belted kingfisher (*Ceryle alcyon*) and little blue heron (*Egretta caerulea*) were observed during our September 2001 site inspection.

Stunted Mangrove/High Salt Marsh Habitat: Spoil deposition areas on the southwest corner of the intersection of the AIW and the DCC associated with previous AIW activity support red

and black mangroves less than 5 feet in height. Elevations are slightly higher than the adjacent mature mangroves to the west and soils are heavily laden with shell materials. Rainwater collects and pools in some areas, and much of the habitat is utilized by fiddler crabs and is adequate for use by wading birds. Elevations are too high to support tidal waters, fish, and aquatic macroinvertebrates, but rather this area functions as a high salt marsh supporting sea purslane and sea oxeye daisy (*Borrchia frutescens*).

4.1.3 Seagrass

Seagrasses provide many biological, chemical, and physical functions for marine communities. They provide habitat for a myriad of fishes, shrimps, crabs, and other species, and therefore have been designated as Essential Fish Habitat (EFH) by the SAFMC (1998a). Some of those species use seagrass meadows for the duration of their life cycles, whereas others use them for only a distinct life-history stage (e.g., as juveniles, for the purpose of refuge). Seagrasses are used as food sources for protected species such as manatees and sea turtles. Epiphytes, using seagrass blades as substrates, provide another primary food source for grazers, which in turn are consumed by larger species (invertebrates, small fishes) foraging in the beds. Seagrasses also provide important ecosystem cycling functions. For example, they produce oxygen, which is released to the water during photosynthesis. In addition, seagrasses absorb some nutrients from the water column. This may help to reduce suspended algae concentrations. Epiphytes using seagrass blades as a substrate may sequester additional nutrients from the water column. Again, this may contribute to limiting water-column algae production. Other water quality benefits may also occur as grasses and associated epiphytes trap fine, suspended solids from the water-column. Finally, seagrasses stabilize sandy bottoms with roots and rhizomes, and decrease wave action where meadows are dense. These functions increase water clarity, beneficial to primary production, species interaction, and in the recreational quality of coastal areas.

In southeast Florida, seagrasses are associated with such flora as algae of the genera *Halimeda*, *Udotea*, and *Penicillus* (Zieman 1982). Many invertebrate species also utilize seagrass communities. The most obvious inhabitants include the queen conch (*Strombus gigas*), urchins including the long spine urchin (*Diadema antillarum*), nudibranchs, bivalve mollusks, and crustaceans including the spiny lobster, and the blue crab (*Callinectes sapidus*). On shallow seagrass areas, corals and sponges may also occur (Zieman 1982). Many fish species have also been shown to have life cycles dependent on seagrass beds. Of particular importance are the mullet (*Mugil cephalus*), snook, and many prey species including mojarras and pinfish. Seagrass beds are also important nurseries for many of the fish associated with the snapper-grouper complex (SAFMC 1998a).

Marine seagrass species observed within the study area include manatee grass (*Halodule wrightii*), paddle grass (*Halophila decipiens*), and Johnson's seagrass (*Halophila johnsonii*), the only federally protected seagrass species (DC&A 2000, 2001) (Figs. 3 and 4). Seagrass communities are comprised of mixed beds of *H. decipiens* and *H. wrightii*, mixed beds of *H. decipiens* and *H. johnsonii*, monospecific beds of *H. johnsonii*, and monospecific beds of *H. decipiens*. Mapped seagrass areas are illustrated in Figures 3 and 4. Video surveys within the OEC confirmed the presence of isolated patchy beds of *H. decipiens* in 45 feet of water (DC&A

2000). Other grass beds were found in nearshore areas east of the NTB, south of the IEC, and near the north entrance to the SAC (east side). Three other grass beds were found in the SAC. One seagrass bed was found in the DCC, and several other beds were found along the AIW (south of the SAC), terminating at the intersection of the DCC and the SAC.

Frequency of occurrence and coverage for each species was calculated following surveys (comprising a total of up to 67 transects) in 1999 and 2001 (DC&A 2000, 2001). Average seagrass frequency-of-occurrence values were 11 percent, 12 percent, and 8 percent for *H. johnsonii*, *H. decipiens*, and *H. wrightii*, respectively. When present in sampled transects, average percent-area coverage for each species was less than 5 percent. Percent-area coverage was greatest for *H. johnsonii*, followed by *H. decipiens*, and then *H. wrightii*.

4.1.4 Unvegetated Softbottom Habitat

Softbottom areas are defined as areas where hard substrates are covered by more than 5 inches of sediment, typically sand, mud, clay, or silt. Also, for the purposes of classification in this document, "softbottom habitats" may include those with small-diameter rubble left over from previous dredging events, or may support isolated macroalgae beds. Softbottom areas may provide corridors for reef species to travel between reef lines and these areas may also be important foraging areas for some fish species (Jones et al. 1991). Macroalgal growth is occasionally associated with these communities, particularly where wave action does not disturb sediments and where sufficient light reaches the substrate (*i.e.*, shallow areas of the AIW, or fairly transparent waters offshore). The most abundant species are of the green algae genera *Caulerpa* sp., *Halimeda* sp., and *Codium* sp. during the summer months. This is in contrast to the winter months, when *Dictyota* sp. and *Sargassum* sp. are more common (Courtenay et al. 1974, Florida Atlantic University and Continental Shelf Associates, Incorporated 1994).

The benthic infaunal community generally comprises polychaetes, mollusks, and various amphipod crustaceans. Species composition and numerical dominance varies according to water depth, light penetration, and other physical characteristics. In inshore waters, such as the AIW, diversity and population density of these taxa are generally higher on the shallow shoals than in deeper waters of the harbor and channel (Messing and Dodge 1997, Rudolph 1986). Benthic community monitoring data for the shallow, inshore shelves of the study area indicate that the softbottom community is dominated by several taxa of polychaete worms, oligochaetes, mollusks, sipunculans, peracarid crustaceans, platyhelminthes, and nemertina, and that species richness is moderately high. Based on studies by Messing and Dodge (1997) and Rudolph (1986), as many as 370 species of invertebrates exist within the shallow water benthic community. Rudolph (1986) also determined that species richness was higher near ocean inlets and in seagrass beds.

In offshore softbottom communities, the numerically dominant organisms tend to be polychaete and nematode worms. The Dodge et al. (1991) infaunal study of offshore habitats of Hollywood Beach indicated that the dominant taxa were polychaetes (52 percent), nematodes (14 percent), and crustaceans (9 percent). Invertebrate fauna also utilize this softbottom area, including the Florida fighting conch (*Strombus alatus*), milk conch (*Strombus costatus*), king helmet (*Cassia*

tuberosa), and the queen helmet (*Cassia madagascariensis*) (Corps 1996). This area, since it lies within the second and third reef lines within the study area, may provide a corridor for reef species to travel between reef lines and also be an important foraging area for some fish species (Jones et al. 1991).

Softbottom substrates that will be affected by the project occur in previously dredged inshore and offshore channels, previously dredged inshore basins, non-dredged, shallow, inshore areas, and deeper offshore areas adjacent to dredged channels. In the Port entrance channel, softbottom habitats are typically located between hardbottom reef and between rock/rubble habitats, and occasionally support seagrass and macroalgal beds. These typically have a sandy composition. Within the dredged harbor and inshore channels, softbottom habitats develop in channel beds as sediment accumulates from side-slope sloughing or from natural geological processes acting in areas that have consolidated sub-surface rock. Surficial materials in inshore areas are composed of variable amounts of sand, silt, and mud, depending on geology and adjacent land use/habitats. Shallow, inshore, softbottom areas also have variable substrate composition.

4.1.5 Rock/Rubble Habitats

Rock/rubble habitats occur among all dredged areas within the project area, and where rock outcrops occur in/near reef habitats. Rock/rubble substrates within the project area may comprise either naturally occurring rock outcrops or rubble material that has been left from prior dredging events. These substrates provide structure for use by fishes and motile invertebrates, and may also provide surfaces for attachment of soft corals and sessile organisms, such as sponges. Within much of the entrance channel, rock/rubble cover alternates with softbottom habitats, creating a habitat mosaic with regularly repeating patterns.

The most obvious biological features of most rock/rubble-based habitats are sponges and macroalgae. If water depth/water clarity is appropriate and there is a nearby source population, such substrates are conducive for reef-building species. The latter case was apparent in the channel zone adjacent to the existing reef tracts (DC&A 2001). Observed sponge species included *Ircinia campana*, *Callyspongia vaginalis*, and *Iotrochota* sp. (possibly *I. birotulata*). Observed soft corals were similar to those of adjacent reefs, and included the genera *Eunicea*, *Plexaura* and *Pseudopterogorgia* (DC&A 2001). Habitats provided by rock and rubble and associated sponges, algae, and soft corals provide significant refugia for many species of small fishes, and larger gamefish species that prey on them.

4.1.6 High and Low Relief Hardbottom and Coral Reefs

The most prevalent hardbottom and reef zones within and adjacent to the project area fall within four areas, a nearshore hardbottom zone and three offshore reef tracts (Fig. 5). The nearshore hardbottom communities typically occur in 0 to 10 feet of water and exist in a physically stressed environment. This hardbottom area is part of the Miami Oolite Formation of Broward and Dade Counties (Hoffmeister et al. 1967). Although sections of the zone may be covered with broken shell and sand, wave action frequently exposes the oolite formations. Nearshore hardbottom

areas east of John U. Lloyd SRA have been characterized using multi-spectral image analysis and ground-truthing (Fig. 5). Depending on distance from shore, these oolitic limestone formations may support communities dominated by algae and sponges with interspersed gorgonians and hard corals.

Seaward of the nearshore hardbottom reef area are three separate parallel reef tracts. The first reef occurs from approximately 100 to 2,000 feet from shore; the second reef is located 3,000 to 6,000 feet offshore; and the third reef is approximately 8,000 feet or more offshore (Corps 1996). There is an extensive sandy area located between the second and third reef lines (Corps 1996). The area between the first and second reef lines is characterized by small isolated hermatypic coral heads and interspersed coral rubble interrupting areas of open sand. These reefs, particularly south of the OEC, are subject to fluxes of decreased water quality due to interior harbor and canal flushing. These reefs are lower profile than the outermost reef.

Limestone rock and rubble remaining from previous dredging events provide hardbottom with variable-depth profiles. Since the previous dredging event, gorgonians, corals and sponges have colonized these substrates. These low and high relief reef areas in the 42-foot-deep OEC are found among softbottom habitats, rock/rubble habitats, and patchy *Halophila decipiens* beds (DC&A 2001). In general, these rock-reefs are not as biologically diverse as undredged reefs outside the channel zone. However, where the channel-bed rock-reefs and channel walls lie adjacent to undredged offshore reef lines, biodiversity and colony density increase. Channel wall habitats have less coral coverage than channel-bed habitats, but provide significant refugia for reef-associated fishes. Even channel wall habitats not associated with reef lines are significant resources. These may be considered "vertical hardbottoms." Seaward from the confluence of the IEC with the AJW, biotic cover of channel bed and wall substrates increase, and undergo a taxonomic progression from scattered algae, sponges, bryozoans, and tunicates, to a more diverse mixture including gorgonians and hard coral. Extensive biotic cover of channel-wall substrates occurs from the jetty to the end of the OEC. This pattern is more pronounced on the north side, in terms of fish species richness and population density.

Hardbottom reef and coral reef communities of Florida's southeast coast are predictably speciose and have been characterized many times (see Dodge et al. 1991 and Seaman 1985). Species composition of the nearshore hardbottom and the three offshore reef tracts depends on depth, distance to shore, exposure to waves and currents, light penetration, and disturbance/dredging regime.

Nearshore Hardbottom Reef. The nearshore hardbottom habitat is very dynamic and the species associated with this habitat are able to quickly recover from the stresses imposed by the environmental conditions. The dominant algae associated with these communities are in the genera *Caulerpa* sp., *Jania* sp., *Laurencia* sp., *Dictyota* sp. and *Halimeda* sp. (Dodge et al. 1991, Vare 1991). Also associated with this nearshore hardbottom are algal mat species of the genera *Cladophora*, *Chaetomorpha*, and *Gelidiopsis* (Corps 2000a). The rock outcrops in this area tend to be covered with sponges of the genera *Ircinia* sp., *Niphates* sp., *Cliona* sp., and *Iotrochoa* sp. Interspersed among these sponges are colonial anemones (*Zoanthus* sp.), and hydrocorals

(*Millepora alcicornis*). This habitat often provides suitable habitat for a variety of other invertebrate species (Corps 2000a).

Hardbottom Within Channel Zone. This area of low relief hardbottom is rock exposed from prior dredging events and supports many quickly colonizing species such as sponges (e.g. *Ircinia* sp., *Niphates* sp., *Cliona* sp., and *Iotrochota* sp.) and gorgonians (e.g. *Eunicea* sp., *Plexaura* sp. and *Pseudopterogorgia* sp.). Species diversity and colony densities are lower within the channel than they are in reefs adjacent to the channel that has not been dredged. Channel walls, like the channel bed, that were created as the entrance channel was dredged, now provide substantial habitats for many species, particularly fishes (see below).

Adjacent Coral Reefs/Hardbottom Reef. The three distinct reef tracts offshore of Broward County are consistent with the overall assemblage of stony corals, sponges, and gorgonians found throughout Dade, Broward, and Palm Beach Counties (Corps 2000a). The most dominant feature of the reef communities near Port Everglades is the high density of gorgonians. These gorgonian corals are primarily of the genus *Eunicea* sp., *Plexaura* sp. and *Pseudopterogorgia* sp. Hard coral species also make up a significant part of the reef assemblages in this area and include *Porites asteroides*, *Diploria clivosa*, *Siderastrea siderea*, and *Montastrea cavernosa* (Dodge 1991, Vare 1991). The most diverse of the adjacent reefs is the outermost reef tract. Also, that reef has the highest density of colonies.

Ichthyofauna. A visual fish survey was conducted in May 2001 at nearshore hardbottom and offshore reef sites along transects within the entrance channel and adjacent areas. The results of these surveys are shown in Table 2 (DC&A 2001). Fish species encountered within the entrance channel to Port Everglades consisted primarily of members of the family Pomacentridae (damselfishes) and Labridae (wrasses). Also abundant were juvenile haemulid (grunt) and lutjanid (snapper) species. These fishes, members of the snapper-grouper complex, are important due to their recreational and commercial value. In total, over 22 species of fish were recorded within the jetty of the entrance channel (DC&A 2001).

Only 10 species of fish were observed in the nearshore hardbottom area (this habitat was the least sampled of all hardbottom/reef areas) in the May 2001 survey. Once again, labrids and pomacentrids were the dominant species present, while scarids (parrotfishes) and acanthurids (surgeonfishes) were also commonly seen. Within this habitat, yellowtail snapper (*Ocyurus chrysurus*) was also observed. Other species of fish that use this nearshore hardbottom area include bar jacks (*Caranx ruber*), hogfish (*Lachnolaimus maximus*), and porkfish (*Anistrotremus virginicus*) (Coastal Systems International 1997).

The offshore coral reef areas observed had the highest number of fishes encountered, with 36 species observed. Once again the most abundant species encountered were wrasses and damselfish. The bluehead wrasse (*Thalassoma bifasciatum*), cocoa damselfish (*Pomacentrus variabilis*) and the beaugregory damsel (*Pomacentrus partitus*) were among the most common. This concurs with similar findings by Spieler (1998). Of particular interest, juvenile red grouper (*Epinephelus morio*), yellowtail snapper, Spanish mackerel (*Scomberomorus maculatus*), and

grunts (Haemulidae), were recorded within these offshore reef habitats. All of these species are listed in SAFMC (1998a).

The Service performed SCUBA inspections of selected areas on October 10, 2001, and March 19, 2002, with DC&A, National Marine Fisheries Service (NMFS), and DEP. Impact area inspections of the channel wall and channel bed habitats revealed mutton snapper (*Lutjanus analis*), hogfish (*Lachnolaimus maximus*), graysby (*Epinephelus cruentatus*), porkfish (*Anisotremus virginicus*), damselfishes (family Pomacentridae), parrotfishes (family Scaridae), wrasses (family Labridae), angelfishes (family Pomacanthidae), and spiny lobster. Rock/rubble (1-2 foot relief with occasional 3 foot high boulders) in the channel bed and crevasses in the channel wall contributed significantly to species diversity, even where coral coverage was sparse.

4.1.7 Essential Fish Habitat

The community types listed above are considered EFH as described in the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267). EFH provisions support the management goals of sustainable fisheries. EFH that may be directly and indirectly impacted by the proposed project are likely to include the water column, littoral zone, sublittoral zone, hardbottom, and seagrass habitats. Specific aspects of EFH that may be adversely affected include spawning, foraging, predator/prey relationships, and refuge habitats for managed species such as the snapper/grouper complex, penaeid shrimp, and spiny lobster. The NMFS is the lead agency responsible for the complete assessment of the possible adverse impacts of the proposed project to EFH.

The SAFMC (1998a) has designated mangrove, seagrass, nearshore hardbottom, and offshore reef areas within the study area as EFH. The nearshore bottom and offshore reef habitats of southeastern Florida have also been designated as EFH-Habitat Areas of Particular Concern (EFH-HAPC) (SAFMC 1998a). Managed species that commonly inhabit the study area include pink shrimp, and spiny lobster. These shellfish utilize both the inshore and offshore habitats within the study area, including macroalgae beds (e.g., *Laurencia* spp.). Members of the 73-species snapper-grouper complex that commonly use the inshore habitats for part of their life cycle include bluestriped grunts (*Haemulon sciurus*), French grunts (*Haemulon flavolineatum*), mahogany snapper (*Lutjanus mahogoni*), yellowtail snapper, and red grouper. These species utilize the inshore habitats as juveniles and sub-adults. As adults, they utilize the hardbottom and reef communities offshore. In the offshore habitats, the number of species within the snapper-grouper complex that may be encountered increases. Other species of the snapper-grouper complex commonly seen offshore in the study area include gray triggerfish (*Balistes capricus*) and hogfish (*Lachnolaimus maximus*). Coastal migratory pelagic species also commonly utilize the offshore area adjacent to the study area. In particular, king mackerel (*Scomberomorus cavalla*) and Spanish mackerel (*Scomberomorus maculatus*) are the most common.

Snook, an important gamefish in the State of Florida, is currently listed as a species of special concern by the State of Florida (FWC 1997). The species is associated with several habitats found within the project area. Another species listed by the State as a Species of Special

Concern is the mangrove rivulus (*Rivulus marmoratus*). These small fish likely occupy mangrove habitats associated within John U. Lloyd SRA and West Lake Park.

As many as 60 corals can occur off the coast of Florida (SAFMC 1998a), all of which fall under the protection of the management plan.

As described in the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), the EFH provisions of the act support the objective of maintaining sustainable fisheries. Mitigation would be required for first-time impacts to seagrass beds and reef/hardbottom habitats. In addition, mitigation will not be required for dredging softbottom habitats lacking seagrasses or for habitats with rubble substrates within the channel since dredging was previously performed in the channel.

The focus of the mitigation policy is to conserve and enhance EFH and to avoid, minimize, and thereafter compensate for impacts to EFH due to development activities. Like other Federal agencies with regulatory responsibilities, the first priority of the NMFS is to advocate avoidance of impacts to natural resources when presented with any development plan. However, when unavoidable impacts to EFH are proposed, NMFS may recommend mitigation measures to compensate for any loss of resource value. Recommendations may include restoration of riparian and shallow coastal areas (*i.e.*, reestablishment of vegetation, restoration of hardbottom characteristics, removal of unsuitable material, and replacement of suitable substrate), upland habitat restoration, water quality improvement or protection, watershed planning, and habitat creation. The preferred type of mitigation is enhancement of existing habitat, followed by restoration, and finally creation of new habitat.

4.2 Threatened and Endangered Species

4.2.1 Sea Turtles

Broward County is within the normal nesting range of the federally threatened loggerhead sea turtle (*Caretta caretta*), the endangered green sea turtle (*Chelonia mydas*), and the endangered leatherback sea turtle (*Dermochelys coriacea*). Within the 38.6 miles of beach from the Palm Beach County line to the Miami-Dade County line, a total of 2,620 sea turtle nests were found in 1999 (Burney and Margolis 1999). From 1990 through 1999, an annual average of 2,446 sea turtle nests was documented on Broward County beaches. Within John U. Lloyd SRA, a total of 212 sea turtle nests were observed during 1999. A summary of sea turtle nesting activity for the SRA is found in Table 3. The majority of sea turtle nesting activity occurred during the summer months of June, July and August, with nesting occurring as early as March and as late as September (Burney and Margolis 1999). The waters offshore of Broward County are also habitat used for foraging and shelter for the three species listed above and possibly the hawksbill turtle (*Eretmochelys imbricata*), and the Kemp's ridley turtle (*Lepidochelys kempii*) (Corps 2000a).

4.2.2 West Indian Manatee

The federally endangered West Indian manatee (*Trichechus manatus*) is found from coastal areas of Beaufort, North Carolina through Florida and the Gulf of Mexico. Manatees frequently inhabit shallow areas where seagrasses are present and are commonly found in protected lagoons and freshwater systems. In winter, they frequently move into areas where water temperatures are mitigated by spring-fed streams or power generation plant effluent, such as the Florida Power and Light (FPL) power plant in Fort Lauderdale. In general, very few manatees are present in the offshore waters from November through April. However, during the remainder of the year, manatees occasionally use open ocean passages to travel between favored habitats (Hartman 1979).

The West Indian manatee is protected under the ESA and the Marine Mammal Protection Act (MMPA) of 1972. The State of Florida provided further protection in 1978 by passing the Florida Marine Sanctuary Act designating the state as a manatee sanctuary, and providing signage and speed zones in Florida's waterways. Though there are not any areas within Broward County that are designated as Critical Habitat for the West Indian manatee, the waterways in Broward County support permanent and transient population of manatee. Some waterways serve as important warm water refugia and caving areas, particularly in the vicinity of Port Everglades and the FPL power plant.

Surveys indicate that during winter months when temperatures decline, manatees from north and south of Port Everglades migrate to canals associated with the FPL power plant at Port Everglades. As many as 290 manatees have been observed near the Port Everglades plant on a single day, according to a 2000-2001 survey (Mezich 2001). During the summer months when the water warms, many manatees return to the counties to the north and south to forage and reproduce. Telemetry and aerial surveys confirm that manatees are present within Broward County year-round (Fig. 6).

4.2.3 American Crocodile

The American crocodile is a State and federally listed endangered species. The current range of the species in the southeastern United States includes coastal and estuarine habitats in the extreme southern Florida peninsula, including Broward County. Females nest primarily on northern Key Largo and from Florida Bay to Turkey Point. Nesting begins in March and extends until late April or early May. Approximately 90 days following fertilization, eggs are buried in sand or marl nests adjacent to deep water. Adult crocodiles feed at night on schooling fish in creeks, open water, and deep channels, and are also known to eat crabs, raccoons, and water birds.

At least one crocodile is known to occur within West Lake Park and one other may be present (Ricardo Zambrano, FWC, email, November 7, 2003).

4.2.4 Johnson's Seagrass

Johnson's seagrass (*H. johnsonii*) was listed as a federally threatened species by NMFS on September 14, 1998 (63 FR 49035) and a re-proposal to designate critical habitat pursuant to Section 4 of the ESA was published on December 2, 1998 (64 FR 64231). The final rule for critical habitat designation for Johnson's seagrass was published April 5, 2000 (Federal Register, volume 65, Number 66). Johnson's seagrass has one of the most limited geographic ranges of all seagrasses, and little is known about its natural history, biology, and ecology. Observations lending evidence for asexual reproduction and a limited capacity to store energy indicate that the plant may especially vulnerable to human activity and natural impacts (NMFS 1998). It is known to occur only in lagoons between Sebastian Inlet and central Biscayne Bay on the east coast of Florida (NMFS 1998).

Johnson's seagrass occurs within the project area, specifically in the AIW east and south of the MTB, and just west of the DCC, and in the DCC (Figs. 3 and 4). Abundance and density values are low and the species is generally associated with *H. decipiens*. Johnson's seagrass also occurs south of the DCC within the historic bed of Whiskey Creek, along the western shore of the AIW and within the West Lake Park embayment (Miller Legg & Associates, Incorporated 2001). Cover abundance and density were higher along the west shore of West Lake Park than was observed within the Port Everglades project area.

4.2.5 Smalltooth Sawfish and Other Protected Fish Species

There are three protected fish species that might occur within the project area. The smalltooth sawfish (*Pristis pectinata*), federally protected as an endangered species, is under the purview of NMFS. It inhabits softbottom estuarine habitats in depths generally less than 30 feet. Its former range in U.S. waters extended from Texas through Maryland. Currently, few are observed outside peninsular Florida. At least one recorded observation has occurred in the vicinity of Broward County (NMFS 2000). Populations likely decreased due to a low intrinsic rate of natural increase, the long interval to time of reproduction, and human impacts, most notably overfishing, incidental take in nets (due in part to its body size and unusual morphology), and habitat loss (development of shoreline and nearshore habitats).

Two other fish species are protected by the State of Florida. Snook, an important gamefish in the State of Florida, is currently listed as a Species of Special Concern by the State (FWC 1997). The species is associated with several habitats found within the project area. Another species listed by the State as a Species of Special Concern is the mangrove rivulus. This small fish utilizes mangrove swamps and high saltmarsh areas (Taylor 1992), and has been identified within John U. Lloyd SRA (Steve Dale, DEP, "Unit Plan" listing protected species, January 12, 2002). Species that are not listed as endangered, threatened, or species of special concern by the State or the Service, but that are managed by the federal government, are discussed in the following subsection.

4.2.6 Whales and Dolphins

The northern right whale (*Eubalaena glacialis*) is a federally listed endangered species and is protected under the MMPA. The current migratory population within the Atlantic Region is less than 350 animals (Humphrey 1992). Right whales are highly migratory and summer in the Canadian Maritime Provinces. They migrate southward in winter to the eastern coast of Florida. The breeding and calving grounds for the right whale occur off of the coast of southern Georgia and north Florida. During these winter months right whales are routinely seen close to shore in these areas. However, only a few sightings and strandings have occurred in/near Miami-Dade and Broward Counties. The NMFS is responsible for the protection of cetaceans. It is unlikely that other cetaceans listed as endangered species, such as fin whales (*Balaenoptera physalus*), humpback whales (*Megaptera novaeangliae*), and sperm whales (*Physeter macrocephalus*) would be observed in project impact areas. However, dolphins common to inshore waters of southeast Florida include the Atlantic spotted dolphin (*Stenella frontalis*), the spinner dolphin (*Stenella longirostris*), the spotted dolphin (*Stenella attenuata*), and the bottlenose dolphin (*Tursiops truncatus*), which is listed as *depleted* under the MMPA.

5.0 DESCRIPTION OF THE RECOMMENDED PLAN AND ALTERNATIVES

The Corps has proposed to widen and deepen most of the major channels and basins within Port Everglades to accommodate longer, wider, and deeper-draft commercial vessels and meet changes in the industry standard. The proposed action resulted from a comprehensive analysis of all the existing and future commercial vessel transit needs within the Port. As a result of this analysis, the following navigation improvements were recommended: (1) widen the OEC flare to allow safer transit for all the larger commercial vessels that sometimes experience troublesome cross currents at the channel entrance; (2) remove the Widener Shoal and widen the Southern Access Channel (SAC) to allow safer transit of containerized cargo vessels past the "knuckles" restriction where new-generation cruise vessels are expecting to berth; (3) widen and deepen the TN to provide turning capabilities for larger vessels and provide berthing for containerized cargo vessels; (4) deepen the STB to provide berthing capabilities for Panamax vessels at Berths 16 to 18; and (5) widen and deepen the DCC, in addition to a turning basin located adjacent to the SAC, to provide a relocation area for smaller and midsize containers, roll on/roll off vessels, and general cargo traffic, thereby reducing congestion in the areas servicing larger vessels (Fig. 7).

Seven alternatives were analyzed by the Corps, which included seven action alternatives and the No-Action Alternative (Table 4). The Recommended Plan, identified as Alternative 7, would deepen, widen, and extend the OEC (Fig. 8); deepen and widen the SAC; deepen and widen the TN (Fig. 9); deepen and widen the DCC; remove material at the Widener Shoal; deepen the IEC (Fig. 10); deepen the MTB (Fig. 11); deepen the STB (Fig. 12). Disposal of dredged materials would occur at approved upland disposal sites. The Recommended Plan would impact 11.55 acres of mangrove wetlands, 0.99 acres of seagrass habitat within the existing channel, 4.01 acres of seagrass habitat outside of the existing channel, 14.89 acres of low relief reef habitat, 10.82 acres of high relief reef habitat, 218 acres of unvegetated bottom habitat, and EFH. Impacts to marine mammals, sea turtles, and fish species may occur due to loss of habitat and blasting

activities due to project construction. Mixed and monoculture beds (2.44 acres) of Johnson's seagrass threatened species would also be impacted by the recommended alternative. The impacts are expected to be temporary, as much of the habitat would either recover or be replaced. The Recommended Plan would also impact water quality by causing increased turbidity during construction activities, although these impacts would be temporary. Mitigation for seagrass, mangrove, and unvegetated bottom habitat is proposed by creating and enhancing mangrove and seagrass habitat at West Lake Park immediately south of the project site. Artificial reef habitat creation is proposed to offset impacts to high and low relief reef habitat.

Construction structures include environmental friendly bulkheads, riprap, and culverts. Bulkhead construction would usually be conducted from barges, and will take place prior to channel, basin, or berth excavation activities. Construction of the USCG basin may incorporate land-based construction support. Concrete caps and facings on bulkheads would take place immediately following bulkhead installation. Riprap will be placed in several areas, and where deemed environmentally beneficial, will be placed atop bulkheads in order to allow tides to penetrate habitats.

Land-based excavation (use of truck-mounted or crawler cranes with clamshell attached, Grapple, loaders, and bulldozers) is planned for easily accessible sites such as the new USCG basin and areas adjacent to the DCC and TN. These methods may be used along the SAC, if necessary, only where there are previously established roads/access points.

Softer substrates (*i.e.*, the majority of substrates planned for removal) will be removed via dredging. Where hard rock is encountered, the Corps anticipates that contractors will utilize other methods, such as blasting, use of a punch-barge/pile driver, or new, large cutterhead equipment. Of these alternatives, the Corps prefers the use of large cutterheads. However, the Corps cannot specify types of dredging/substrate-removal equipment in requests for bids. If contractors do not use large cutterhead equipment, the Corps prefers blasting to the use of punch-barge or pile driver, since the duration of noise impacts from blasting is 20 seconds, twice daily. Compared to the constant pounding of a punch-barge, blasting may have less detrimental indirect impacts on marine mammals. In addition, punch-barge use would be more costly and take considerable more time to achieve destruction of certain rock substrates (Konya 2001).

5.1 Spoil Disposal

The Corps has determined that the unconsolidated excavated materials are not beach compatible, and, consequently, not suitable for beach disposal. Disposal of such substrate will likely consist of pumping materials through a pipeline to one of two candidate disposal sites, "Disposal Site 1" and "Disposal Site 2," both of which will be provided by Broward County. They are located just north of the DCC (Fig. 13). Site 1 is a 62-acre site located on Port property, and Site 2 is a 64-acre site located on airport property.

Site 1 is a previously used disposal site, currently being cleared of previously deposited material to allow for use in the proposed project. This site lacks wetlands and other natural areas. Site 2 is comprised of a construction staging area for the airport and a car rental facility. No wetlands

are found on the site, and only approximately 10 percent of the parcel is currently forested (Dolores Smith, Environmental Coordinator, Fort Lauderdale-Hollywood International Airport, telephone conversation, March 8, 2002). Both sites have undergone a hazardous, toxic or radioactive waste (HTRW) assessment in accordance with ER-1165-2-123, HTRW Guidance for Civil Works Projects. Results of the assessment indicated no evidence of contamination at the two sites.

Disposal may take place in phases (*i.e.*, cycles of dewatering and removal) for Disposal Site 2, whereas there are no plans for removing dewatered materials from Site 1 after the current project. Large rock aggregates will be placed at designated artificial reef locations, probably by a split-hull or similar barge.

A preliminary dike design applicable to both disposal sites has been prepared. Design dimensions include a 3:1 exterior slope, a 12-foot-wide crest, a 2.5:1 vertical interior slope, and a 20-foot-wide berm between the interior toe of the embankment and the top of slope for the excavation. The embankment slope for interior excavation will be 2.5:1.

5.2 Blasting Methodology

During consultation regarding blasting, the Corps agreed to implement the same blasting protection measures and monitoring procedures as proposed for the expansion of the Port of Miami and deepening of the Lummus Turning Basin (Miami Harbor, Phase II), known as the Navy Diver Protocol, plus an additional 500 feet to the safety zone. Furthermore, the Corps agreed to revise the blasting protection measures should the results of the Miami Harbor Phase II indicate the need based on input from State, Federal, and local governmental agencies. In addition, the Corps has agreed to avoid blasting activities during the winter (November 15 to March 15), when manatees typically are present in greater numbers.

The Corps states that to achieve the proposed depths at Port Everglades, pretreatment of the rock areas may be required. Blasting is anticipated for deepening the Main Harbor Area (MTB and STB), South Access Channel, and the TN.

The channel excavation activities may occur in the following manner:

1. Contour dredging with either bucket, hydraulic or excavator dredges to remove material that can be dredged conventionally and determine what areas require blasting;
2. Pre-treating (blasting) the remaining above grade rock, drilling and blasting the "Site Specific" areas where rock could not be conventionally removed by the dredges;
3. Excavating with bucket, hydraulic or excavator dredges to remove the pre-treated rock areas to grade; and

4. All drilling and blasting will be conducted in strict accordance with local, State and Federal safety procedures. Marine Wildlife Protection, Protection of Existing Structures, and Blasting Programs coordinated with Federal and State agencies.

In addition, industry standards and Corps, Safety & Health Regulations typically limit the weight of explosives to be used in each blast to the lowest poundage (approximately 90 pounds or less) possible to adequately break the rock. The following safety conditions are standard and will likely be implemented in conducting underwater blasting:

1. Drill patterns are restricted to a minimum 8-foot separation from a loaded hole;
2. Hours of blasting are restricted from 2 hours after sunrise to 1 hour before sunset to allow for adequate observation for protected species;
3. Selection of explosive products and their practical application method must address vibration and air blast (overpressure) control for protection of existing structures and marine wildlife;
4. Loaded blast holes will be individually delayed to reduce the maximum pounds per delay at point detonation, which in turn will reduce the mortality radius;
5. The blast design will consider matching the energy in the "work effort" of the borehole to the rock mass or target for minimizing excess energy vented into the water column or hydraulic shock.

The U.S. Navy Dive Manual and the FWC Endangered Species Watch Manual calculate the radius (in feet) of the danger zone, R, for an uncontrolled blast suspended in the water column as:

$$R = 260 \times (\text{the cube root of the weight of the explosive charge in pounds}).$$

The Corps contends this formula is conservative for the blasting in the Port because the blast will be confined within the rock and will not suspend in the water column.

5.2.1 Proposed Protection Measures

Because of the potential duration of the blasting and the proximity of the blasting to important habitats, the Corps has indicated that in addition to the *Standard Manatee Protection Construction Conditions*, conservation methods will be included in the project design to reduce possible adverse effects to marine wildlife. The Corps recognizes that it is crucial to balance the demands of the blasting operations with the overall safety of the species. However, a safety radius that is excessively large will result in significant delays that prolong the blasting, construction, traffic and overall disturbance to the area. A radius that is too small puts the animals at too great of a risk should one go undetected by the observers and move into the blast area. Because of these factors, the goal is to establish the smallest radius possible without compromising animal safety and provide adequate observer coverage for whatever radius is

agreed upon. The Service has provided suggestions concerning the blasting protocols in the Recommendations section of this FWCA Report.

The Corps has indicated that aerial reconnaissance of the safety radius, where feasible, will be implemented and added to a boat-based and land support reconnaissance. An observer will be placed on the drill barge for the best view of the actual blast zone and to be in direct contact with the blast contractor in charge. In addition, the Corps will not conduct inshore blasting activities during the winter when manatees are most likely to be concentrated.

5.2.2 Proposed Test Blast

Prior to implementing a blasting program a Test Blast Program (TBP) will be completed. The purpose of the TBP is to demonstrate and/or confirm the following: (1) drill boat capabilities and production rates; (2) ideal drill pattern for typical boreholes, (3) acceptable rock breakage for excavation; (4) tolerable vibration level emitted, (5) directional vibration; and (6) calibration of the environment.

The TBP begins with a single range of individually delayed holes and progresses to the maximum production blast intended for use. Each test blast is designed to establish limits of vibration and airblast overpressure, with acceptable rock breakage for excavation. The final test event simulates the maximum explosive detonation as to size, overlying water depth, charge configuration, charge separation, initiation methods, and loading conditions anticipated for the typical production blast.

The results of the TBP will be formatted in a regression analysis with other pertinent information and conclusions reached. This will be the basis for developing a completely engineered procedure for the Blasting Plan. During the testing the following data will be used to develop a regression analysis: (1) distance; (2) pounds per delay; (3) peak particle velocities; (4) frequencies; peak vector sum; and (5) air blast overpressure.

5.2.3 Other Rock Removal Methods Considered

The Corps has investigated other alternatives to remove the rock in Port Everglades without blasting through the use of a punch-barge. It was determined that the punch-barge, which would work for 12-hour periods, strikes the rock below approximately once every 30 seconds. This constant pounding would serve to disrupt manatee behavior in the area, as well as impact other marine animals in the area. Using the punch-barge will also extend the length of the project temporally, thus increasing any potential impacts to all fish and wildlife resources in the area.

The Corps believes that blasting is actually the least environmentally impacting method for removing the rock in the Port. Each blast will last no longer than 25 seconds in duration, and may even be as short as 2 seconds, and will be spaced 12 hours apart. Additionally, the blasts are confined in the rock substrate. Boreholes are drilled into the rock below, the blasting charge is set and then the chain of explosives is detonated. Because the blasts are confined within the rock structure, the distance of the blast effects are reduced as compared to an unconfined blast.

5.2 Proposed Mitigation

Mitigation for mangrove and seagrass impacts would be provided through the West Lake Park restoration program. Mitigation for reef and hardbottom impacts would be provided through artificial reef creation at existing permitted sites off Broward County.

The Draft West Lake Master Plan (Miller Legg & Associates, Incorporated 2001) was developed by consultation with Broward County's Port Everglades Department, Parks and Recreation Division, and Aviation Department to restore and enhance wetlands and other ecosystems at West Lake Park. Mitigation measures on the West Lake Park property would conform with the approved master plan under development and following agency concurrence. Table 5 provides a summary of conceptual creation, restoration, enhancement, and acquisition opportunities with acreages and benefits for all measures.

5.3.1 Mangrove Mitigation

The Port Everglades Navigation Project Draft Comprehensive Mitigation Plan submitted by the Corps includes the creation, restoration and enhancement of mangrove wetlands and associated estuarine resources through a number of approaches including the restoration of mangroves on 9.0 acres of spoil islands and the restoration of 9.2 acres of shallow water tidal flats. Out-of-kind measures would include shoreline stabilization with riprap to protect over 185 acres of estuarine resources; the restoration of tidal channels and installation of new culverts which would provide water quality and ecological benefits to 118 acres of estuarine resources; maintenance dredging of 25 acres to remove silt and improve tidal flushing; and wetland planting of exposed banks and highly erodible soils (18 acres), which would provide benefits to 56 acres of mangrove habitat.

5.3.2 Seagrass Mitigation

Seagrass habitat would be created through the removal of 8.1 acres of spoil islands and stabilization of shorelines within each excavated area. Three spoil areas would be excavated to an elevation consistent with the depths where seagrass beds occur adjacent along the AIW. It is anticipated that depths would range from -1 foot to -4 feet Mean Sea Level. Seagrass recruitment would occur rapidly by *H. wrightii* and both *H. decipiens* and *H. johnsonii*, all of which commonly occur along the shallow flats adjacent to the mangrove fringe. In the event that natural recruitment has not occurred within 12 to 18 months following excavation, planting of seagrass donor material would be initiated. Submerged aquatic vegetation (SAV) restoration within West Lake Park would occur as a result of enhanced flushing and circulation patterns along the southeastern region of the interior lagoon. Over 12 acres of flushing channels would be expanded, improved or culverts installed, resulting in improved water quality, clarity and substrate conditions more suitable for seagrass propagation in the interior embayment. Based on observed changes in seagrass cover and existing seagrass bed occurrences, it is anticipated that 40 to 60 acres of SAV, including *H. johnsonii* would be restored. Monitoring would be conducted to document physical changes in the lagoon and seagrass recruitment.

5.3.3 Other Proposed Enhancement Measures in West Lake Park

Other measures proposed to protect and/or enhance fish and wildlife and protected species known to occur in the park include enhancement to bird rookeries (2.0 acres), the installation of manatee protection barriers at the entrance to Whiskey Creek and other channels occupying 56 acres of the park land, and the establishment of five osprey towers. Over 100 acres of out-parcels would also be acquired and placed under a conservation easement.

The mitigation plan proposes several activities that may improve water quality and hydraulics in West Lake Park and the surrounding estuary. According to the plan, results may include benefits to existing submerged aquatic vegetation (SAV) habitat and mangroves and benefit through creation of substrates suitable for colonization by SAV and mangroves. Proposed activities include removal of silt in 25 acres of tidal channels and the installation of new culverts to increase circulation/tidal flushing through approximately 12 acres of tidal channels. The complete West Lake Mitigation Plan is presently undergoing interagency review as a Regional Offsite Mitigation Area. The Corps Regulatory Division is reviewing the project under Application No. 2002000072 (IP-BP).

5.3.4 Proposed Mitigation Monitoring at West Lake Park

The following monitoring plan for mangrove wetland restoration was developed by Miller Legg & Associates, Incorporated, on behalf of the Broward County Parks and Recreation Division, and submitted to Broward County Department of Planning and Environmental Protection, the South Florida Water Management District, and the Corps' Regulatory Division as Appendix 13 of an application for the Environmental Resource Permit that will govern compensatory mitigation activities that may take place in West Lake Park (Miller Legg & Associates, Incorporated 2001). Because the current project proposes to utilize West Lake Park for mitigation areas, the Corps similarly proposes this plan for use in mangrove restoration areas developed to compensate for losses of mangrove habitat due to implementation of the Recommended Plan.

- Tree/shrub plantings will be visually monitored to assess survivorship rates. Survivorship rates of planted trees/shrubs in mangrove and maritime hammock areas will be assessed based upon counts of flagged trees randomly placed within plus or minus 2-meter-wide belt transects. Growth rates and overall health will also be assessed for tree/shrub species within the sampling transects;
- Tree/shrub success criteria shall be based upon survivorship rates of 80 percent or greater for planted and/or naturally recruited species. Survivorship rates within sampling transects will be extrapolated to determine tree/shrub survivorship rates for all mangrove areas;
- The success criteria shall also include a target of 5 percent or less coverage by nuisance/exotic vegetative species within the planting areas. The following information will be included in the time zero and semi-annual monitoring reports:

- (1) A summary of visual field observations, including survivorship and percent coverage data obtained from the above-noted sampling activities;
 - (2) Physical conditions during the monitoring event including weather, wind direction and speed, tide direction, water temperature, and turbidity levels;
 - (3) A photographic record taken from fixed photo stations;
 - (4) Staff gauge water level readings from time period of monitoring activities;
 - (5) Incidental observations of fish/wildlife utilization and sampling for aquatic macrofauna. Fish and macro-invertebrates may be sampled using 1-meter² throw traps;
 - (6) Evaluation of the success of the mitigation, maintenance effort; and
 - (7) Comments and/or recommendations for permit compliance.
- Those agencies receiving and reviewing reports include the Broward County Department of Planning and Environmental Protection, the SFWMD, and the Corps;
 - The maintenance shall be performed quarterly for a period 5 years. A survival rate of 80 percent for the installed tree/shrub species in the mangrove planting areas is anticipated through implementation of the mitigation program;
 - The permittee is responsible for the removal of nuisance and exotic vegetation and debris from the mitigation area for a length of the monitoring period and in perpetuity. Exotic vegetation shall include such species currently listed by the Florida Exotic Pest Plant Council. Nuisance vegetation can include, but is not limited to, such species as primrose willow, saltbush, torpedo grass, and cattail. Mitigation areas shall be free from exotic/nuisance vegetation immediately following a maintenance activity. Total coverage of exotic and nuisance species shall not exceed 5 percent between maintenance activities;
 - Maintenance may be conducted quarterly and will use appropriate methods of control which include, but not necessarily limited to, cutting, mowing, chemical treatment, hand-removal, or any combination thereof;
 - Upon completion of the required monitoring period, Broward County Parks and Recreation Department will be responsible for the perpetual maintenance and management of the mitigation areas (Miller Legg & Associates, Incorporated 2001); and
 - In addition to the above, the Service recommends that the Estuarine Wetland Rapid Assessment Procedure (EWRAP) be used as an additional tool to gauge mangrove restoration success. Baseline scores are available from the Service.

5.3.5 High and Low Relief Hardbottom and Coral Reef Mitigation

Direct impacts to reef and hardbottom habitats would be mitigated for by the creation of artificial reef habitat at a 2:1 ratio for high relief reef habitat and 1.3:1 ratio for low relief reef habitat. Mitigation reefs would be constructed in two different designs, to reflect the differences in the habitat structure of the two types of reef/hardbottom habitat to be impacted. The proposed mitigation would be type for type, to reflect the ecological differences between the different reef types impacted. A total of 19.36 acres of low relief/low complexity (LRLC) reef would be created to mitigate for the new low relief reef habitat (7.48 acres for new low relief habitat and 11.88 acres for previously impacted low relief habitat). A total of 21.64 acres of high relief/high complexity (HRHC) reef would be created to mitigate for the high relief impact.

5.3.6 Hardbottom reef and coral reef mitigation plan

The monitoring plan for the created reefs, consists of both physical and biological components. Physical monitoring will assess settling of reef materials, while biological monitoring will assess populations of algae, invertebrates, and fishes, as compared to control sampling of nearby natural reefs. Monitoring would be conducted annually in the summer months. In order to supplement quantitative monitoring, each sampling effort would include a video taken along transects within the area of the mitigation reefs. The mitigation reef monitoring plan, tailored in design and protocols after Broward County's on-going artificial reef monitoring program, is also associated with the Broward County Shoreline Protection Project mitigation. Currently, the Service is working with an interagency team known as the Port Everglades Reef Group is scheduled to meet to address details of mitigation reef siting, design, and monitoring. The initial proposal consists of the following:

1. Five randomly selected locations on each type of mitigation reef will be used as photoquadrat stations to assess sessile invertebrate and algae abundance. Randomly selected stations on high and low relief natural hardbottom reefs will also be established to serve as controls. Locations for a half square-meter photoquadrats will be marked using steel pins and Differential Global Positioning System. Invertebrate and algal abundance will be evaluated from digital photography of each quadrat. Species will be identified to the lowest practical taxon and ranked in order of abundance. Superimposing a grid over the digital image and counting bare and colonized grid squares will assess overall percent cover (Bohnsack 1979). Criteria for success of the mitigation reef will be based upon a comparison of a total percent cover of algae and invertebrates at the new reefs and at control reefs of corresponding relief type. The criteria for success of the mitigation reefs in establishing a similar community structure will be a finding of no significant difference in the rank abundance orders of species between mitigation and control reefs of each type. Statistical comparisons between mitigation and control reefs will be made using the Wilcoxon Rank-Sum (Zar 1984) or similar nonparametric test at $p = 0.05$.
2. Fish population evaluations will be based on visual censuses conducted separately on HRHC and LRLC mitigation reefs and high and low relief control reefs. The point-count

method (Bohnsack and Bannerot 1986) will be used for fish assessment. This method has the advantage of gathering quantitative data in a relatively short time in a very repeatable pattern that is relatively insensitive to differences in habitat structure. Each census will have a duration of five minutes and a radius (the distance from the stationary observer) of 10 feet. Ten censuses will be collected on each of the four reef types. Data from these types of censuses is rarely normally distributed, so the Wilcoxon Rank-Sum or a similar nonparametric test will be used for significance testing. The criteria for mitigation reef success will be a finding of no significant difference at $p = 0.05$ between reef type pairs (HRHC vs. high relief control and LRLC vs. low relief control).

3. Results of all mitigation-reef monitoring efforts would be summarized in an annual report to be completed by December 31 of each year the monitoring program is in place. Copies of the report will be distributed to all concerned agencies and interested parties.
4. Anchors are placed to both sides of the dredge to provide the ability to swing the dredge. The anchors are placed using a crane on a workboat. Implementation of an anchoring and vessel operation plan to effectively minimize anchor and cable impacts to hardbottom habitat would occur through the Request for Proposal (RFP) process and would include incentives to encourage potential contractors to avoid reef impacts. The evaluation criteria in the RFP would consider the technical aspects of the contractor's proposal as the most significant factor. As a result, the vessel operational and anchoring plan that best avoids or reduces impacts to reefs would receive the highest evaluation and the incentives that follow. Potential ideas provided by coordination with the Department of Environmental Resources Management, dredging companies, and other consultants that would probably appear in contractor proposals for evaluation during the RFP process include:
 - Use of surge buoys along the anchor cable to help lift it up off the reef areas during dredging operations to minimize the area impacted by the anchor cable; and
 - Restricted anchor placement, which restricts placement of the anchors for the cutter-suction dredge to within the channel edge limits. That method reduces impacts but almost doubles dredging time since only half of the channel can effectively be dredged at one time.

6.0 EVALUATION OF THE RECOMMENDED PLAN

The evaluation of the Recommended Plan (Alternative 7) examines the likely impacts of project activities to fish and wildlife resources. In addition, both direct and indirect effects on resources are predicted. Effects on habitats are discussed through examining biological communities, while effects of the project on important fish and wildlife taxa, such as protected species and managed species, are discussed in subsequent sections.

6.1 Fish and Wildlife Resources

As stated earlier, the Recommended Plan would impact 11.55 acres of mangrove wetlands, 0.99 acres of seagrass habitat within the existing channel, 4.01 acres of seagrass habitat outside of the existing channel, 14.89 acres of low relief reef habitat, 10.82 acres of high relief reef habitat, 218 acres of unvegetated bottom habitat, and EFII. Mixed and monoculture beds (2.44 acres) of Johnson's seagrass would also be impacted by the recommended alternative. The Corps anticipates the impacts will be temporary, as much of the habitat would either recover or be replaced. The Recommended Plan would also impact water quality by causing increased turbidity during construction activities, although these impacts would be temporary. Mitigation for seagrass, mangrove, and unvegetated bottom habitat is proposed by creating and enhancing mangrove and seagrass habitat at West Lake Park immediately south of the project site. Artificial reef habitat creation is proposed to offset impacts to high and low relief reef habitat.

6.1.1 Coastal Strand

Though impacts to the beaches in the project area are not anticipated, 15.64 acres of coastal strand uplands will occur due to the required relocation and reconstruction of the USCG boat basin and associated facilities. Impacts due to Elements S-5A (modified) and S-9 will occur mostly on previously impacted Port property and canal banks dominated by invasive species, whereas Element S-1B (modified) (1.45 acres) will affect John U. Lloyd SRA lands comprising both invasive species and native coastal scrub communities.

6.1.2 Mangroves

6.1.2.1 *Direct Impacts*

Service biologists examined project area mangrove wetlands on September 12, 2001, to characterize habitat quality and composition. With this information, an EWRAP was completed post-inspection by the Service, to assist in determining functional level of these wetlands (Appendix B). Table 6 lists mangrove impacts based on habitat type and project element.

6.1.2.2 *Indirect Impacts*

Removal of mangrove trees may indirectly impact adjacent land by destabilizing sediments, and dislodging adjacent roots and pneumatophores, potentially destroying additional trees. If these alterations significantly alter substrate elevation and hydrology of microhabitats, various opportunistic invasive species such as Brazilian pepper may proliferate.

The proposed project would allow larger vessels and a greater number of vessels to pass through channels adjacent to mangroves. Increased wave/current energy could prevent propagule establishment, and may impact shallow root systems (Odum and McIvor 1990). In addition, waves prevent the accumulation of fine sediment, which would create anaerobic conditions typical of mangrove substrates, and hence increase the likelihood of vascular plant competition (Mitsch and Gosselink 1986), including exotics. The Recommended Plan does not clearly

indicate if there will be a replacement of the riprap breakwaters that exist to buffer these effects along the west shore of John U. Lloyd SRA. However, the Corps has proposed to construct a submerged environmentally seawall to avoid indirect impacts to mangroves as a result of side slope sloughing along the south side of the DCC, the western boundary of John U. Lloyd SRA of the SAC, and the TN.

Other indirect impacts may occur from bulkhead construction along the DCC. Bulkheads may cause a decrease in water quality and increase erosion (wave reflection and sediment suspension) for to West Lake Park mangroves south of the Canal.

6.1.3 Seagrass Beds

6.1.3.1 Direct Impacts

The Recommended Plan includes the permanent removal of 5.0 acres of seagrass habitats, 0.99 acre within the existing channel and 4.01 acres outside of the existing channel. The Corps anticipates recolonization of *H. decipiens* within the OEC and other channels. The Service believes that post construction depths of the channels will likely limit recolonization of the species. Seagrass species that are most likely to be adversely impacted in other channels include *H. decipiens*, *H. wrightii*, and *H. johnsonii*. These beds are patchy with less than 5 percent coverage and average density values of 0.32, 0.31, and 0.14, respectively (DC&A 2000).

Dredging efforts to deepen and widen the DCC and a section of the AIW for project implementation will include the removal of approximately 0.76 acre of seagrass habitat. These seagrass beds occur along the southern side of the DCC, near a tidal creek, and in the AIW south of its juncture with DCC. Seagrass in the DCC is very patchy with coverage of 0.1000 (less than 5 percent) and a density of 0.0031 (DC&A 2000). Another seagrass bed of similar composition was found in the area where a proposed small turning basin is proposed in the AIW.

In general, seagrass destruction results in loss of refugia and foraging habitat for many invertebrate and vertebrate species, including both protected and managed species. Removal of seagrasses also affects the ecosystem by impeding important processes and functions such as sediment stabilization, nutrient cycling, and oxygen production. In addition, proposed activities will destroy seagrass beds comprising a federally threatened species, Johnson's seagrass.

6.1.3.2 Indirect Impacts

Seagrass beds located adjacent to the MTB, along the eastern shore of the SAC, within the AIW south of the DCC intersection, and in a tidal creek just south the DCC are subject to indirect impacts. Elements S-1B (modified) and S-5A (modified) will likely have greater indirect impacts on seagrass habitats within and adjacent to the project area than Elements S-8 and S-9. The former two elements involve removal of greater volumes of sediment, and involve areas that are situated adjacent to beds that are not proposed for removal. Some of these beds that will be indirectly affected include the threatened Johnson's seagrass.

Indirect effects to seagrass habitat due to dredge activities in the project area may be long-term or temporary, depending on the degree of disturbance and the length of the interval over which the disturbance occurs. Should dredging activities result in re-suspension of high concentrations of fine sediments into the water column, tides and currents may transport these sediments over adjacent seagrass beds where they may be deposited. Potential indirect losses of habitat or a temporary reduction in seagrass productivity and habitat quality may result. Another indirect effect that dredging may have would be the change in benthic hydraulics, or the manner in which currents move over the substrate. Deepening areas adjacent to seagrass beds may alter how currents pass through beds, and thereby change patterns of sediment deposition and other physical variables.

6.1.4 Unvegetated Softbottom Habitats and Rock/Rubble Habitats

The majority of benthic habitat proposed to be dredged is categorized as either softbottom habitat lacking seagrasses or rock/rubble habitats lacking coral communities. These habitats are dominated by a wide variety of substrates, from silt and clays to sand and gravel to rocks and rock outcrops. In many cases, scattered rubble remains from previous dredging activities. Examples of areas including these habitats are the SAC, the DCC, all turning basins, and the majority of the IEC. Therefore, all project elements will directly impact softbottom and rock/rubble habitats. The majority of these habitats proposed for dredging have already been dredged at some time in the past, but there are other areas that are proposed to be dredged for the first time.

Direct impacts to softbottom and rock/rubble communities would result from the removal of benthic organisms and dredged material that contains benthic infauna. In some of the more diverse habitats, sponge-algae communities with interspersed colonial organisms may be destroyed. However, in deeper areas, or where fine silt and silty sand are dominant, these habitats are of lower quality for infauna and are believed to play a less significant role in terms of primary and secondary productivity in the project area.

Impacts to populations of epibenthic fauna and benthic infauna is expected to be temporary in previously dredged areas, as existing depths are presently from 38 to 44 feet. Recolonization by opportunistic species should occur within several months, with significant recovery of present fauna in one to two years. However, impacts to benthic fauna of existing shallow undredged areas, from the proposed dredging, are expected to be permanent and detrimental. Natural shallow water habitat will significantly change in character and productivity to communities colonizing and utilizing unnatural deep dredge channels and basins within this estuary. This degradation was recognized in the planning and implementation of the Fort Pierce Harbor Navigation Improvement Project of the 1990s.

The Service has not been provided data associated with shallow sandy bottom habitat in the project area, however, studies of similar habitat in the Fort Pierce Harbor area by DEP, Continental Shelf Associates, and Harbor Branch Oceanographic Institute in the early 1990s

indicate a diverse and productive faunal assemblage (Service 1994). Benthic macroinfauna accumulate and cycle nutrients and energy, providing food chain support and a direct food source for epibenthic and ichthyofaunal species. The DEP reported both a high number of infaunal organisms (357) and a high number of taxa (51) in their sampling. Continental Shelf Associates reported sampling station taxa ranging from 47 to 75, a Shannon Diversity Index of 2.42 to 3.49, and 12,045 to 66,666 individuals per square meter. Harbor Branch Oceanographic Institute provided species listings, as well, in the FWCA for this project. Function and value of this type of habitat existing in the action area of Port Everglades are expected to be similar. Approximately 42 acres of shallow bottom will be permanently lost by dredging in the Port's Recommended Plan.

Another direct impact of removing shallow sandy bottom is the loss of suitable substrate for seagrasses. Seagrass coverage and species composition is ephemeral in habitats such as these, changing seasonally and from year to year.

6.1.5 High and Low Relief Hardbottom Reef and Coral Reefs

6.1.5.1 Direct Impacts Inside the Existing Channel Zone

Direct impacts to hardbottom and coral reef communities will occur as a result of the dredging process to deepen and widen the OEC. There will be 19.96 acres of impact to reef habitat within the existing channel including 9.14 acres of low relief reef and 10.82 acres of high relief reef. In addition, the proposed project will impact established hardbottom habitat on the limestone walls of the existing channel, where approximately 0.29 acre will be impacted. Inshore channel walls (*i.e.*, within the AIW) also function as hardbottom. Approximately 1.89 acres of inshore wall habitat will be impacted by the widening of the Widener and SAC (a section of the AIW).

Hard substrates such as outcrops, rocks, and exposed hardbottom, and associated reef biota, form the backbone of a diverse, and economically and ecologically important ecosystem. Therefore, impacts to habitats within the existing channel are significant. Although these live-bottom habitats have been dredged in the past, their value to fish and wildlife is considerable. Assemblages of sessile organisms in previously dredged areas may recover and reach a functional value of hardbottom habitats similar to those currently found in the channel in approximately 10 to 15 years.

6.1.5.2 Direct Impacts Outside the Existing Channel Zone

Approximately 5.75 acres of previously undredged low relief coral reef habitat will be impacted by widening and extending the OEC.

The coral reef forming the outermost tract is one of the most important coral reef resources in southeast Florida. Its distance from shore and the harbor result in increased health and less disturbances in comparison to the other two reef tracts. Impact to the reef habitat at the end of the OEC would result in direct removal of many coral species including a high density of

gorgonians. These coral species provide an important habitat for many fish and other invertebrate species. Impacts to this reef habitat will decrease the offshore ecosystem's carrying capacity for many reef-dependent invertebrate and vertebrate species, including managed species. Therefore, loss of coral reef habitat may result in changes at the population level for many species, and possibly an overall change in fish community structure. Individual coral colonies, which may have taken over 100 years to grow to present size, would be lost. With relocation of existing hard corals of six inches or greater, most of the ecological functionality of the remaining coral and sponge assemblages in these undredged areas may return in less than 30 years.

6.1.5.3 Indirect Impacts

Indirect impacts to dredging hardbottom and reef habitat may include temporary changes in adjacent habitats. In particular, reef and hardbottom habitats just outside the new entrance channel may be affected. Potential indirect impacts may include the re-suspension and deposition of sediments on nearby coral reef assemblages. This re-suspension of sediments may also result in temporary periods of increased turbidity within the area. The temporary effects of this turbidity may include a temporary loss of photosynthetic activity on the reef.

Other indirect effects include the displacement of fishes and invertebrates during dredge operations. Disturbances and physiological impacts caused by the acoustic and pressure effects of blasting are not easily anticipated, and may injure or kill proximal individuals.

6.1.6 Essential Fish Habitat

EFH present in the project area includes seagrass beds, hardbottom, reefs, inshore softbottom habitats, the water column, and beds of the red alga genus *Laurencia* (SAFMC 1998a). With the exception of water column habitat and algae beds, anticipated loss of these habitats due to project implementation is quantified in Section 6.1. Decreases in EFH, particularly high-quality habitat and those designated as HAPC, would affect populations of managed fish and invertebrate species.

The most obvious direct impact of the Recommended Plan on managed species in all habitats is the potential for mortality and/or injury of individuals through the dredging and/or blasting processes. Species in any and all of the project area's habitats are susceptible. Fishes and invertebrates are at risk at any life-history stage; eggs, larvae, juveniles, and even adults may be inadvertently killed, disabled, or undergo physiological stress, which may adversely affect behavior or health. Forms that are less motile, such as juvenile shrimp, are particularly vulnerable (they would be sucked into the dredge apparatus, or otherwise directly removed from their habitat).

Blasting will also have a direct impact on managed fish species residing in/migrating through the harbor and associated waterways. Previous studies (Corps 2000b, Keevin and Hempen 1997, Young 1991) have addressed the impacts of blasting on fishes. Fishes with air bladders are particularly more susceptible to the effects of blasting than aquatic taxa without air bladders (e.g., shrimp, crabs, etc.), which are more resistant to the impacts of blasting (Keevin and Hempen

1997). Fish species that are relatively small in size and/or exhibit territorial behavior, are most likely to impact during blasting.

Although dredge operations are likely to directly impact individuals of managed species in observable lethal and sublethal manners, dredging and blasting may have more subtle adverse effects. These subtle effects act on individuals, but may be perceived only at the population level. For example, dredging/blasting activities, particularly in linear corridors (such as Cut 3 and Fisherman's Channel) may interfere with migration patterns of species that require utilization of both inshore and offshore habitats through ontogeny. This is a particular concern for species that travel along shorelines and bulkheads. Therefore, dredging berths and littoral zone habitats is anticipated to have greater effects. These impacts may result in displacement of individuals or disjuncture in the life-cycles of managed species.

Impacts to the water column can have widespread effects on marine and estuarine species. Hence, it is recognized as EFH. The water column is a habitat used for foraging, spawning, and migration by both managed species and organisms consumed by managed species. Water quality concerns are of particular importance in the maintenance of this important habitat. During dredging in substrates comprising coarser materials and rock, water quality impacts are expected to be minimal. However, where silt and/or silty sand are to be dredged, water quality impacts are expected to be significant, and take several weeks/months after cessation of dredging activities to return to background levels. Re-suspended materials will interfere with the diversity and concentration of phytoplankton and zooplankton, and therefore affect foraging success and patterns of schooling fishes and other grazers that comprise prey for managed species. Recent efforts to quantify the dredging impact area incorporate only the waters directly above dredged substrates. However, due to the physical properties of water and the complex hydraulics operating within the harbor and channels, these efforts greatly underestimate the extent of negative effects of dredging.

Adverse impacts to EFH, such as seagrass beds, inshore softbottom, mangroves, hardbottom, and coral reefs result in the loss of substrates used by managed species for spawning, nursery, foraging, and migratory/temporary habitats. The most critical losses of EFH would be those areas additionally designated as HAPC. Coastal inlets are HAPC for shrimps, red drum, and grouper. Inlets are important for these species that prefer estuarine, inshore habitats such as mangroves, seagrass beds, and mudflats. Medium- and high-profile reefs are also considered HAPC for grouper, and the hardbottom existing in 0 to 4 meters of depth off of Broward County is listed as HAPC for corals and coral reefs (SAFMC 1998b).

Significant losses to EFH-HAPC within the area proposed for dredging include destruction of seagrass beds and coral reef. Isolated seagrass beds provide important habitat, but seagrasses in the project area are even more important due to their proximity to reef and hardbottom habitats. Their function is intimately coupled with reefs to provide life-stage-specific habitat for certain managed species. Loss of these two habitats (reef and seagrass) will result in a loss of habitat critical in the spawning and early life-stages for species of the snapper-grouper complex, which consists of 73 species that commonly use the inshore habitats for part of their life cycle. These

include bluestriped grunts, French grunts, mahogany snapper, gray snapper, yellowtail snapper, and red grouper.

Seagrass beds are also intimately coupled with mangroves. These mangrove areas serve a nursery for many managed species including pink shrimp, spiny lobster, and members of the snapper-grouper complex, many of which also rely on seagrass habitats at certain phases during ontogeny.

Impacts to populations of managed species will occur due to dredging softbottom habitats, including those that lack seagrasses. Dredging will remove benthic organisms used as prey by managed species and as a result may temporarily impact certain species, such as red drum, that forage largely on such taxa. Dredged habitats are anticipated to recover, in terms of benthic biodiversity and population density, within 2 years.

Populations of recreationally and commercially important fish species may be affected by turbidity, which may alter the algae and plankton assemblages of the harbor, channels, and nearshore habitats. Entire food webs rely on specific types of algae and plankton. Their absence or decrease in concentration could alter primary consumer populations and cause a ripple effect throughout each trophic level in the food chain.

6.2 Threatened and Endangered Species

The Corps has determined that the proposed expansion and deepening of the Port Everglades Harbor as described in the Recommended Plan “may affect, but is not likely to adversely affect” the endangered West Indian manatee, endangered American crocodile, endangered green sea turtle, threatened loggerhead sea turtle, endangered Kemp’s ridley, endangered hawksbill sea turtle, and endangered leatherback sea turtle, endangered smalltooth sawfish, and endangered whale species which are known to occur along the Atlantic Coast. Possible adverse effects to these species during construction include injury, mortality, or harassment and may affect the life history of these species as a result of the loss or modification of habitats via dredging and/or blasting associated with construction. Indirect impacts would include effects to nearby habitats or species within nearby areas either during dredging, spoil deposition, or blasting activities as a result of turbidity or sedimentation.

6.2.1 Sea Turtles

Beaches along John U. Lloyd SRA provide nesting habitat for federally listed sea turtle species as discussed previously. In addition, other resources comprise important habitats for turtles. Removal of sections of hardbottom, reef, and seagrass habitats will eliminate potential foraging habitat for juvenile and adult turtles and refugia for hatchlings. Also, dredge activities and associated disturbances (noise, lights, etc.) offshore may interrupt the movement of turtles swimming toward or away from nesting beaches to the north or south. Specifically, the highest potential impact to sea turtles may result from the use of explosives to break/dislodge rock substrates in offshore channels. Threshold lethal pressures for sea turtles are probably similar to

those of marine mammals (U.S. Department of the Navy 1998, as cited in Corps 2000b). Therefore, turtles in the immediate vicinity of any detonation site would likely be killed, and individuals existing within 400-600 feet of the blast would likely suffer injury. Additional information is provided in Effects of Blasting below.

Another possible element of the action that may affect sea turtles is the presence of light and/or noise from construction/dredging vessels anchored offshore. These factors may interrupt the movement of adult, nesting, female turtles swimming toward or away from nesting beaches, and may cause disorientation of hatchlings following emergence. However, since the Port is an active facility, offshore lighting is not an unusual feature of the area, and should not appreciably change the ambient conditions of nesting areas in the vicinity of the action. In addition, all construction/dredging vessels are required to adhere to best management practices, such as preventing lights from exposure to shore through use of shields. Therefore, no adverse indirect impacts to sea turtle nesting habitat due to dredging operations are anticipated for the proposed action.

6.2.2 West Indian Manatee

The Service reviewed a biological assessment from the Corps dated March 25, 2002, in which the Corps determined the project “may affect, but is not likely to adversely affect” the endangered West Indian manatee. In response, the Service stated that we could not concur with this determination based on the blasting protection measures proposed at that time. During consultation regarding blasting, the Corps agreed to implement the same blasting protection measures and monitoring procedures as proposed for the expansion of the Port of Miami and deepening of the Lummus Turning Basin (Miami Harbor, Phase II), known as the Navy Diver Protocol, plus an additional 500 feet to the safety zone. Furthermore, the Corps agreed to revise the blasting protection measures should the results of the Miami Harbor Phase II indicate the need based on input from State, Federal, and local governmental agencies. In addition, the Corps has agreed to avoid blasting activities during the winter (November 15 to March 15), when manatees typically are present in greater numbers. Based on this information, the Service concurs with the Corps’ “may affect, not likely to adversely affect” determination.

The Service has not been able to obtain information to quantify manatee mortality by larger commercial vessels. Historically, Port Everglades has taken steps to reduce manatee-human interaction, injury and mortalities within the Port. These steps have included: (1) posting manatee warning and speed zone signs throughout the Port; (2) posting the former “EPA slip” in the FPL discharge canal as a “Manatee Nursery Area” to restrict boaters and the general public; (3) developing and implementing a manatee protection plan for dredging activities; (4) developing and implementing a manatee protection plan for blasting activities; (5) deepening Manatee Lagoon to allow manatees to utilize the area during all tidal stages and increase the flow of warm water; (6) installing floating barricades and signs to prevent access to the manatee nursery area; (7) providing Lagoon Protection at the John U. Lloyd SRA; (8) funding manatee research within the Port by the Service, the Miami Seaquarium, and other researchers including Wilcox, Reynolds, and Fletemeyer; (9) participating in law enforcement to prevent harassment of manatees by swimmers; (10) sending letters to all tug captains prior to manatee season

(November 15 – March 31) to remind them of the upcoming season and manatee protection measures; (11) placing fenders approximately four feet in width throughout the entire Port at 50 foot centers to prevent manatees from being crushed between the ships and the bulkheads; and (12) developing outreach programs and materials such as brochures, seminars and public presentations.

Table 7 shows the annual number of manatee deaths in Broward County as a result of various causes during a 28 year period. The Corps states in their biological assessment that increasing the Port size will not have an adverse effect on manatees because data show that manatees are not using the Port as a primary habitat. Aerial surveys conducted between 1988 and 1992 show that very few manatees prefer the Port area. Manatees aggregate in the Port Everglades power plant canal, as well as in a berth known as the “EPA slip.” The Port has developed a manatee protection plan which includes the placement of 4 foot wide bumpers along the slips to hold ships 4 feet away from the bulkheads, thus reducing the potential for a manatee to be crushed by a ship. In addition, regulations drafted by the State require ships to travel at the slowest speed possible to maintain steerage.

6.2.3 American Crocodile

The Service concurs with the Corps determination that the proposed project “may effect, but is not likely to adversely affect” adults, hatchlings, and/or juveniles of the American crocodile during dredging or blasting operations adjacent to West Lake Park. Since the implementation of protection measures designated to minimize possible adverse effects to frequently observed listed species such as the manatee and sea turtles, these provisions will include the American crocodile.

6.2.4 Johnson’s Seagrass

Dredging will result in the removal of approximately 1.79 acres of seagrass beds, where *H. johnsonii* is the sole constituent or associate of other seagrass species, in the AIW and DCC. Changes in bottom depth through deepening and widening efforts within the Port are expected to make habitats unsuitable for re-colonization of *H. johnsonii*. It is not known if *H. johnsonii* in areas adjacent to dredging zones would be resilient to changes in water quality or to impacts resulting from deposition of sediments on blades. Since this species is extremely limited in range, and relatively little is known about its biology and ecology, any destruction of plants, especially where monospecific beds are involved, is a critical loss. There are only seven seagrass species known in Florida. According to the Federal Register (April 3, 2000, 65:17786-17804), no areas within the project area have been designated as critical habitat for the species.

6.2.5 Smalltooth Sawfish and Other Protected Fish Species

Although seagrass and other softbottom habitats will be removed, the Corps does not anticipate that the proposed project will have any indirect effects on smalltooth sawfish in the vicinity of the action area. These habitats may be utilized by the species. However, loss of seagrass habitats is relatively small with respect to nearby resources, and will be compensated through mitigative measures. Nearshore softbottom areas are also plentiful in and near the action area, and impacts

to them would not limit resource use by sawfish, especially since population density of individuals in the area is extremely low, or nil.

Protected species such as the mangrove rivulus, common snook, and smalltooth sawfish would lose valuable habitat (mangroves, seagrass flats, nearshore softbottoms, etc.) if project elements are carried out. Populations may also be affected by turbidity, which may alter the algae and plankton assemblages of the harbor, channels, and nearshore habitats. Entire food webs rely on specific types of algae and plankton. Their absence or decrease in concentration could alter primary consumer populations and cause a trophic “ripple” up the food chain. The smalltooth sawfish may be affected through dredging nearshore areas in channels that are currently suitable habitats (areas of sand and/or mud bottoms less than 30 feet in depth).

6.2.6 Whales and Dolphins

Adverse effects to species of marine mammals, particularly resident populations of dolphins within the project area, may occur during blasting activities. These effects are described below.

6.3 Effects of Blasting

The highest potential for direct impacts to threatened and endangered marine mammal species may result from the use of explosives to break/dislodge rock substrates in Fisherman’s Channel, where manatees are known to congregate during winter months. Both the pressure and noise associated with blasting can injure marine mammals. Noise and pressure effects on manatees have not been well documented, however, it is assumed that manatees will be impacted similar to dolphins. For the current project, there is a risk that both taxa may be affected during the proposed blasting activities.

Direct impacts on marine mammals due to dredging/blasting and construction activities in the project area include alteration of behavior and autecology. For example, daily movements and/or seasonal migrations of manatees and dolphins may be impeded or altered. In addition, marine mammals may alter their behavior or sustain minor physical injury from detonation of blasts outside the 600-foot safety zone. Although incidental take would not result from sound/noise at this distance, disturbances of this nature (alteration of behavior/movements) may be considered harassment under MMPA and ESA. These are special concerns for resident populations of manatees and bottlenose dolphins.

The use of blasting to break apart substrates in offshore areas, particularly at the outermost reef, is strongly discouraged. Effects of blasting on managed/protected reef and pelagic species would be detrimental (at the individual and population levels), and it is likely that non-target reef structures will be damaged, and there will be direct mortality of fishes up to 140 feet away from each charge (Keevin and Hempen 1997) and turtles and marine mammals up to 400 feet away from each charge. Conducting a test blast with subsequent biological monitoring would help the Service appraise what damages would be to local fish populations, and allow for exploration of mitigative measures that may be employed to decrease impacts. Mortality of sea turtles and

marine mammals can be generally eliminated by ensuring that none pass within 600 feet of the discharge.

Utilizing data from rock-contained blasts such as those at Atlantic Dry Dock North Carolina, the Corps has been able to estimate potential effects on protected species. These data can be correlated to the data from the Environmental Protection Agency (EPA) concerning blasting impacts to marine mammals. The EPA data indicate that impacts from explosives can produce lethal and non-lethal injury as well as incidental harassment. The pressure wave from the blast is the most causative factor in injuries because it affects the air cavities in the lungs and intestines. The extent of lethal effects are proportional to the animal's mass, *i.e.*, the smaller the animal, the more lethal the effects; therefore all data are based on the lowest possible affected mammal weight (infant dolphin). Non-lethal injuries include tympanic membrane rupture; however, given that dolphin and manatee behavior rely heavily on sound, the non-lethal nature of such an injury is questionable in the long-term. For that reason, it is important to use a limit where no non-lethal tympanic membrane damage occurs. Based on the EPA test data, the level of pressure impulse where no lethal and no non-lethal injuries occur is reported to be 5 pounds per square inch pressure during an exposure lasting 1 millisecond.

George Young (1991) noted the following limitations of the cube root method:

Doubling the weight of an explosive charge does not double the effects. Phenomena at a distance, such as the direct shock wave, scale according to the cube root of the charge weight. For example, if the peak pressure in the underwater shock wave from a 1-pound explosion is 1000 pounds per square inch at a distance of 15 feet, it is necessary to increase the charge weight to approximately 8 pounds in order to double the peak pressure at the same distance. (The cube root of eight is two.)

Effects on marine life are usually caused by the shock wave. At close-in distances, cube root scaling is generally valid. For example, the range at which lobster have 90 percent survivability is 86 feet from a 100-pound charge and double that range (172 feet) from an 800-pound charge.

As the wave travels through the water, it reflects repeatedly from the surface and seabed and loses energy becoming a relatively weak pressure pulse. At distances of a few miles, it resembles a brief acoustic signal. Therefore, shock wave effects at a distance may not follow simple cube root scaling but may decline at a faster rate. For example, the survival of swim bladder fish does not obey cube root scaling because it depends on the interaction of both the direct and reflected shock waves. In some cases, cube root scaling may be used to provide an upper limit in the absence of data for a specific effect.

More recently, studies by Finneran et al. (2000) showed that temporary and permanent auditory threshold shifts in marine mammals were used to evaluate explosion impacts. Due to the fact that marine mammals are highly acoustic, such impacts in behavior should be taken into account when assessing harmful impacts. While many of these impacts are not lethal and this study has

shown that the impacts tend not to be cumulative, significant changes in behavior could constitute a “take” under the MMPA.

The effects of blasting on sea turtles and the smalltooth sawfish are described as follows. There have been studies that demonstrate that sea turtles are killed and injured by underwater explosions (Keevin and Hempen 1997). Sea turtles with untreated internal injuries would have increased vulnerability to predators and disease. Nervous system damage was cited as a possible impact to sea turtles caused by blasting (U.S. Department of Navy 1998). Damage of the nervous system could kill sea turtles through disorientation and subsequent drowning. The Navy’s review of previous studies suggested that rigid masses such as bone (or carapace and plastron) could protect tissues beneath them; however, there are no observations available to determine whether the turtle shells would indeed afford such protection. Studies conducted by Klima et al., (1988) evaluated blasts of only approximately 42 pounds on sea turtles (four ridleys and four loggerheads) placed in surface cages at varying distances from the explosion. Christian and Gaspin’s (1974) estimates of safety zones for swimmers found that, beyond a cavitation area, waves reflected off a surface have reduced pressure pulses; therefore, an animal at shallow depths would be exposed to a reduced impulse. This finding, which considered only very small explosive weights, implies that the turtles in the Klima et al. (1988) study would be under reduced effects of the shock wave. Despite this possible lowered level of impact, five of eight turtles were rendered unconscious at distances of 229 to 915 meters from the detonation site. Unconscious sea turtles that are not detected, removed and rehabilitated likely have low survival rates. Such results would not have resulted given blast operations confined within rock substrates rather than unconfined blasts. The proposed action will use confined blasts, which will significantly reduce the area around the discharge where injury or death may occur. The Corps assumes that tolerance of turtles to blast overpressures is approximately equal to that of marine mammals (Department of the Navy 1998), *i.e.*, death would not occur to individuals farther than 400 feet from a confined blast (Konya 2001).

Review of ichthyological information and test blast data indicates that fishes with swim bladders are more susceptible to damage from blasts, and some less-tolerant individuals may be killed within 140 feet of a confined blast (Corps 2000b). Sawfishes, as chondrichthyans, do not have air bladders, and, therefore, they would be more tolerant of blast overpressures closer to the discharge, possibly even within 70 feet of a blast.

Due to conservation safeguards that will be incorporated into the project design, the Corps does not anticipate adverse effects to either sea turtles or sawfish. To avoid or minimize any possibility of direct impacts, blasting is not anticipated to occur offshore where mature females may be migrating to nesting areas in the county. Risk to sawfish will likely be minimal as there are no historic or recent records of the species in the project area.

6.4 Additional Concerns Affecting Fish and Wildlife Resources

6.4.1 Contaminated Sediments

Besides typical concerns associated with contaminants from water-based operations and surface water runoff common to marinas and ports, groundwater sampling on Port Everglades property confirms large areas of gross contamination, reportedly due to storage tank leakage. Observations are documented of significant standing petroleum “free product” floating and mixing on the groundwater table. We understand that although there is a free product recovery initiative, funding has been inadequate for remediation. Underground seepage and introduction into the Port’s waters through a variety of pathways is expected, as is the fallout and adsorption of metals and other fuel elements by underlying sediments. This Port concern is in addition to the suspected elevated contaminants levels in the DCC possibly from this situation, as well as from marinas and the Fort Lauderdale-Hollywood International Airport upstream.

Dredging will cause fine particulate material to become suspended, the magnitude of which depends on dredging methodology. If present in sediments, both pelagic and benthic species may be exposed to a number of petroleum-based contaminants. Various lethal and sublethal effects may result, based on the type and concentration of contaminant and duration of exposure.

The Port Everglades Harbor Marine Protection Research and Sanctuaries Act Tier 1 Evaluation of Dredged Material Disposal (Corps 2002) states that virtually all sediments tested had one or more chemical parameters with concentrations that were higher than reference sediments; therefore, further testing is needed.

The Service has also reviewed documents provided by the Corps on March 7, 2002, entitled *Chemical and Biological Test Data, Port Everglades Harbor, Florida*. Generally, laboratory detection limits utilized for several pesticides, mercury, and cyanide are too high to properly evaluate for potential effects to Service trust resources. Both the Florida Ambient Water Quality Criteria and the Sediment Quality Assessment Guidelines (SQAG) provide screening values based on documented toxicity to invertebrates for freshwater and marine environments. Because data presented in the included *Final Report for Port Everglades and Palm Beach Harbor Florida: 1998 Evaluation of Dredged Material for Ocean Disposal* (Final Report) demonstrate detection limits above these criteria, it is not possible to screen these data for the following analytes:

Detection limits are above Florida SQAG (McDonald 1994) criteria for Dichloro-diphenyl-trichloroethane (DDT) and metabolites, Chlordane, Dieldrin, Lindane, and Endrin.

Detection limits are above Florida Ambient Water Quality Criteria (marine surface water: 62-302.530) for DDT, Dieldrin, Endrin, Endosulfan, Methoxychlor, Heptachlor, Toxaphene, Mercury, and Cyanide.

Data in the Final Report for metals, Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs) were adequate for screening level evaluation. Sample site E-PE98-4 demonstrated SQAG exceeded levels for copper (threshold effects level) and several

PAHs (threshold effects levels). Sample site E-PE98-1 exhibited threshold effects level exceedances for copper. No sample site demonstrated PCB concentrations in excess of SQAG screening levels.

Bioassay results presented in the report are thoroughly documented and do not indicate toxicity throughout sediment elutriate and sediment bioassays performed for all sample sites.

Although bioassays are an important component in a comprehensive study for the determination of toxicity to fish and wildlife from dredging, adequate empirical chemical (water and sediment) data are also important, especially regarding any efforts to correlate toxicity (indicated by bioassays) with any detectable analyte. Several detection limits in this report were too high to detect levels at, or even to some degree, above ecological screening criteria established for the protection and conservation of fish and wildlife. Had any of the bioassays indicated toxicity, re-sampling and subsequent lab analyses would have been necessary to correlate that toxicity with any contaminant or group of contaminants.

The Service has concerns about the applicability of this data in providing conclusions regarding potential impacts to Service trust resources which could result from the proposed dredging project. The sampling design for the only recent study is limited to a relatively small portion of the overall project. A total of four sample sites was selected within the northern-most portion of the project area, roughly comprising one-fifth of the total area to be dredged. The sampling design does not include the DCC, which appears to have high a potential for sediment bound contaminants due to the industrial and commercial nature of adjacent land uses. Though the Corps has been unable to produce any data for the DCC, the DEP has indicated concern due to contaminant sources upstream of the project area (*e.g.*, marinas and the airport).

Due to the limited extent and detection methods of sampling and analysis, and the uncertainty of spoil transport and stockpile methodology, the Service cannot adequately address spoil disposal impacts to uplands, groundwater, or dewatering.

7.0 SERVICE'S MITIGATION POLICY

Potential impacts of the proposed Port expansion project include the following habitat: unconsolidated benthic habitat, seagrasses, nearshore hardbottom, coral reef, rock/rubble, and channel wall. Impacts may include removal as a result of dredging and/or blasting activities, burial from actual fill placement at mitigation and offshore disposal sites, burial and suffocation from suspension and settling generated from dredging and/or blasting activities, dredged material placement at mitigation site, and damage during construction activities.

In developing the Service's Mitigation Policy (Federal Register 46 (15), Pg. 7656), the definition of mitigation contained in the Council on Environmental Quality's National Environmental Policy Act regulations (40 CFR 1508.20[a-e]) was used. This definition recognizes mitigation as a stepwise process that incorporates both careful project planning and compensation for unavoidable losses and represents the desirable sequence of steps in the mitigation planning process. Initially, project planning should attempt to ensure that adverse effects to fish and

wildlife resources are avoided or minimized as much as possible. In many cases, however, the prospect of unavoidable adverse effects will remain in spite of the best planning efforts. In those instances, compensation for unavoidable adverse effects is the last step to be considered and should be used only after the other steps have been exhausted.

The Service's Mitigation Policy focuses on the mitigation of fish and wildlife habitat values, and it recognizes that not all habitats are equal. Thus, four resource categories, denoting habitat type of varying importance from a fish and wildlife resource perspective, are used to ensure that the mitigation planning goal will be consistent with the importance of the fish and wildlife resources involved. These categories are based on the habitat's value for the fish and wildlife species in the project area (evaluation species) and the habitat's scarcity on a national, regional or local basis. Resource Category 1 is of the highest value and Resource Category 4, the lowest. Mitigation goals are established for habitats in each resource category.

The mitigation goal for Resource Category 1 habitats is no loss of habitat value since these unique areas cannot be replaced. The goal for Resource Category 2 habitats is no net loss of in-kind habitat value. Thus, a habitat in this category can be replaced only by the same type of habitat (*i.e.*, in-kind mitigation). The mitigation goal for Resource Category 3 habitats is no net loss of overall habitat value. In-kind replacement of these habitats is preferred, but limited substitution of different types of habitat (out-of-kind mitigation) perceived to be of equal or greater value to replace the lost habitat value may be acceptable. The mitigation goal for Resource Category 4 habitats (considered to be of marginal value) is to avoid or minimize losses, and compensation is generally not required.

Priority habitats in the project area are seagrasses, nearshore hardbottom, and coral reef. These habitats are considered by the Service to be in Resource Category 2, and no net loss of in-kind habitat value is recommended. However, we consider any significant colonies of hard (stony) coral in this area to be Resource Category 1. Research suggests that two species of brain and star coral grow at a rate of approximately 0.5 centimeter per year. Based on this information, we estimate it would take these corals, and likely other hard coral species, at least 100 years to reach 1 meter in diameter.

7.1 Evaluation of Proposed Mitigation

7.1.1 Mangrove

In 2003, the Corps estimated that 11.55 acres of mangrove would be impacted by the proposed project as a result of side slope sloughing. An EWRAP was performed to evaluate proposed mangrove impact areas and proposed mitigation areas in West Lake Park (Appendix B). Calculations indicate that 20.5 acres of restoration of mangrove habitat on West Lake spoil islands would appear to provide compensatory mitigation for the proposed 11.55 acres of mangrove impacts. It should be noted that EWRAP does not adequately address the benefits that mangroves provide, such as water quality, detrital export, and area aquatic food-base. EWRAP is an evolving modification of South Florida Water Management District's WRAP, which primarily concentrates on the state of the wetland rather than its benefits to neighboring

ecosystems. The peripheral benefits can differ in magnitude depending upon habitat character and location.

To further minimize direct impacts to mangrove habitat, the Corps has agreed to construct submerged environmentally friendly seawalls as part of the current Recommended Plan along the constructed channels along the DCC, SAC, and TN to avoid mangrove impacts caused by side slope sloughing.

The proposed mitigation plan consists of the restoration of mangroves on 9.0 acres of spoil islands in West Lake Park, which the Service considers inadequate. Therefore, the plan will also include stabilizing (*i.e.*, riprap) 22.7 acres of mangrove shoreline stabilization (riprap) and increasing mangrove function in the estuary.

The Service supports the removal of dredged material from the West Lake spoil islands for mangrove restoration. As previously recommended by the Service, the 8.48 acres of mangroves on the west side of the TN should not be dredged since this area was set aside as conservation associated with previous Port expansions. The Service objected to the initial dredging of the TN, involving 18 acres of mature mangrove habitat, in a 1987 letter to the Corps (Appendix A).

7.1.2 Seagrass

The Corps has proposed to mitigate for the direct loss of 5 acres of seagrass through the removal of 8.1 acres of spoil islands in West Lake Park. To adequately compensate for the temporal loss of function and value of 5 acres of seagrass, a minimum replacement ratio of 3:1 should be applied and 15.0 acres of seagrass mitigation should be provided. We recommend a minimum 3:1 ratio due to uncertainties in successful establishment, the presence of threatened *Halophila johnsonii* on impact sites, and the potential lack of adequate seagrass seed source adjacent to the mitigation site. The proposed creation of 8.1 acres of seagrass substrate falls short of a 3:1 ratio. Mitigation ratios aside, the Service first recommends minimization of impacts to seagrasses and the sandy shoals that support, and are capable of supporting seagrass, such as those at the Widener Shoal and immediately south of the nearby marina basin. The Corps should reduce the eastern extent of dredging in these areas. The preservation of some of the shallow benthic habitat in these areas could reduce seagrass impacts to less than two acres, including the Dania Canal area, as growth appears to concentrate nearshore at the Widener Shoal. Appropriate mitigation then could be reduced to less than 6 acres.

The Service supports the proposed mitigation methodology of removal of mounded sediments at three spoil islands and stabilization of shorelines within each excavated area. These spoil areas would be excavated to an elevation consistent with the depths where seagrass beds are present in adjacent habitat along the AIW. In the event that natural recruitment has not occurred within 12 to 18 months following excavation, methods to plant seagrass donor material would be initiated (Fonseca et al. 1998). Shoreline and soil stabilization activities may increase production by reducing turbidity within the estuary. Also, several derelict barges in a tidal creek will be removed, making substrate available for colonization.

7.1.3 Low and High Relief Hardbottom Reefs and Coral Reefs

The Recommended Plan involves the dredging of approximately 30.71 acres of high and low relief reef and hardbottom and coral reef, including 2.18 acres of channel wall habitat. The proposed locations for mitigation reefs include previously permitted Broward County artificial reef sites (Fig. 14). HRHC and LRLC reef designs are illustrated in Figure 15. HRHC relief will range in profile from 3 to 6 feet, whereas LRLC will range from 1 to 2 feet. The HRHC reefs are intended to mitigate for impacts to high relief habitat and the LRLC reefs are intended to mitigate for impacts to lower relief habitat and for temporal impacts to hardbottom habitat previously impacted by channel dredging (DC&A in preparation). Limestone rock excavated from the OEC, IEC, MTB, and STB, and, if necessary, supplemental quarried limestone will be used in reef construction.

8.0 RECOMMENDATIONS

Some elements of the Recommended Plan will have significant impacts on ecosystems within the project area. Specifically, these impacts involve the elimination of portions of mangrove systems, seagrasses, shallow benthic habitats, and live hardbottoms including corals. The Service recommends that all efforts to avoid these impacts be thoroughly investigated, and that alternative means of carrying out project objectives be considered through modifications of the Recommended Plan. Specific recommendations are as follows:

1. Design the new DCC turning basin to avoid 0.89 acre of mature mangroves adjacent to the historic spoil area;
2. Avoid impacts to the mature mangroves currently in a conservation easement west of the TN. This would result in the reduction of 8.48 acres of mature mangrove forest impacts. If the mangroves can not be avoided, we recommend a mitigation ratio of 3:1;
3. Avoid the SAC expansion by both minimizing the dredging and using a bulkhead-riprap system planned for the south side of the DCC;
4. Consider reducing the extent of dredging at the Widener Shoal area at the junction of the IEC and the AIW, and the area south of the nearby boat basin. These shallow sandy areas either presently support, or could support seagrasses including *Halophila johnsonii*;
5. Consider maintaining the present 500 foot channel width for the proposed entrance channel extension, in lieu of the proposed widening to 800 feet to avoid impacts to coral reef habitat;
6. Relocate existing hard coral species one foot in diameter or greater that are capable of relocation, within the footprint of dredging, to appropriate nearby hardbottom substrate prior to dredging or blasting in the entrance channel. Or at a minimum, allow researchers or other appropriate entities to harvest the coral to avoid direct impacts;

7. Continue to seek alternative hardbottom and coral reef mitigation options through the multi-disciplinary Port Everglades Reef Group;
8. Develop a water quality monitoring plan with contingency elements. In addition to turbidity and sedimentation measurements, chemical parameter selection should be determined by additional contaminant sampling and analysis. Apply any new information learned to reduced turbidity and sedimentation during construction of projects, such as the Broward County Beach Protection Project and the Key West Harbor Expansion Project;
9. Design dredging to limit the amount of fine sediment suspension, to minimize sedimentation of hardbottom or seagrasses, and to minimize contaminant dispersal;
10. Provide the Service with final details for disposal methods, *e.g.*, waterway transport methods, pipeline corridors, diking, filtering and decanting specifics, turbidity/contaminant containment devices at the outfall, and a habitat characterization of the disposal sites. Utilize existing corridors and right-of-ways to the maximum extent practicable;
11. Implement Best Management Practices to prevent excessive siltation during hopper barge loading. Proper maintenance of dredging equipment, use of silt curtains or gunderbooms, performing operations when protected species are not present, and dredging only when environmental conditions will not contribute to siltation/sediment transport will minimize the impacts to fish and wildlife resources. We recommend that certain protocols be followed, depending on the method used for dredging. If a hopper dredge is used, operators should eliminate or reduce hopper overflow, lower hopper fill-level, and use a recirculation system. If a mechanical dredge is used, operators should increase cycle time and eliminate both multiple bites and bottom stockpiling. For operations where a hydraulic dredge is used, cutterhead rotation speed and swing speed should be reduced, and bank undercutting should be eliminated. When applicable, special equipment, such as pneuma pumps, closed buckets, large capacity dredges, and precision dredging tools and technologies are recommended to further decrease the potential for adverse effects to marine communities (Corps 2001);
12. The use of blasting to break apart substrates in offshore areas is discouraged. Effects of blasting on managed/protected reef and pelagic species may occur. Non-target reef structures may be damaged, and there could be direct mortality of individuals up to 140 feet away from each charge (Keevin and Hempen 1997). Biological monitoring would help appraise damages to local fish and invertebrate populations and allow for contingency and mitigative measures to be deployed to decrease impacts. The NMFS should be contacted for consultation on effects to free-swimming sea turtles;
13. In order to understand what monitoring criteria, special dredging, and disposal methodologies are required, the Corps should expand sediment sampling for contaminants. Sampling should include representative berthing cuts or "fallout zones," the TN, Southport Channel, and especially the DCC. Lab analyses should be performed similar to the analyses in the Port Everglades and Palm Beach Harbor 1998 Evaluation of Dredged Material for Ocean Disposal report contract number DACW17-97-D-0001, but incorporating detection limits consistent

with SQAG screening criteria and Florida Ambient Water Quality Criteria. This should include a representative bioassay(s) from the DCC;

14. Water quality and sedimentation monitoring plans should be designed with Service input. Sedimentation monitoring would target reef habitat adjacent to offshore dredging and seagrass beds near interior Port dredging. These plans should be implemented during project construction. Monitoring should also include contingency plans, identifying triggers for suspending operations;
15. In addition to the previously discussed protocols for manatee protection, the Service encourages biological monitoring and documentation in order to assess damage to populations of managed and protected fish species;
16. A monitoring plan to measure hardbottom habitat recovery, including channel walls, should be implemented. Monitoring parameters and methods should correspond with those of artificial reef monitoring;
17. Monitoring of all mitigation sites, such as seagrass bed restoration, mangrove wetland restoration, and creation of artificial reefs, should be performed as per mitigation plans;
18. In addition to the above, the Service recommends that EWRAP be used as an additional tool to gauge mangrove restoration success. Baseline scores are available from the Service;
19. Nine acres of spoil are proposed to be removed from West Lake Park spoil islands and prepared for mangrove establishment. If mature mangrove acreages associated with the TN and DCC turning basin are not included in impact summation, and the recommended minimizations for the John U. Lloyd SRA shoreline are followed, mitigation for the remaining (less than) 3.49 acres of mangroves impacted would be adequate. Seedlings should be planted following earthwork. It is also recommended that the existing riprap breakwater bordering the TN mangroves, be breached or culverted in several locations, to provide for improved flushing, detrital export, and fish/invertebrate passage and utilization;
20. The Service believes that the proposed 8.1 acres of mitigation for the direct loss of 5.0 acres seagrass is insufficient to compensate for the temporal loss of function and value of the habitat. We recommend avoiding direct loss and compensating unavoidable losses at a ratio of 3:1;
21. Develop a cable and anchoring plan for construction vessels to avoid anchor cable swing damage to coral and hardbottom reefs associated with dredging and blasting. Post-anchoring damage assessments should be performed, and any impacts from anchoring and cable movement should be quantified and compensated for in the same manner as direct dredging impacts;
22. Conduct a Habitat Equivalency Analysis to determine the appropriate mitigation ratio for the temporal loss of function and value of hardbottom reef and coral reef habitat;

23. Create a 51-acre mitigation reef to compensate for direct impacts to high and low relief hardbottom reef habitat;
24. A plan should be submitted to the Service for annual monitoring of hardbottom reef and channel wall biological recovery.

In addition, the Service recommends inclusion of the following items in the project design to further minimize and reduce potential adverse effects of blasting on listed species. These are excerpted from the FWC's Endangered Species Conservation Conditions for Blasting Activities dated June 2001.

1. The FWC and Service must review a blasting proposal prior to any blasting activities. The blasting proposal must include information concerning a watch program and details of the blasting events. This information must be submitted in writing at least 30 days prior to the proposed date of the blast(s) to the FWC, OES-BPS, 620 South Meridian Street, Tallahassee, Florida 32399-1600 and to the Service's South Florida Ecological Services Office, 1339 20th Street, Vero Beach, Florida 32960. At a minimum, the proposal should include the following information:
 - A list of observers, qualifications, and positions for the watch, including a map depicting the proposed locations for the boat or land-based observers;
 - The amount of explosive charge proposed, the explosive charge's equivalency in TNT, how it will be executed (depth of drilling, in-water, etc.), a drawing depicting the placement of the charges, size of the safety radius and how it will be marked (also depicted on a map), tide tables for the blasting event(s), and time tables (days and times) for blasting event(s);
2. A formal watch coordination meeting at least 2 days prior to the first blast event. Attendants should include the designated observers, construction contractors, demolition subcontractors, and other interested parties such as the Service, FWC, and NMFS. All participants will be informed about the possible presence of manatees, dolphins, marine turtles or whales in nearshore areas and that civil or criminal penalties can result from harassment, injury, and/or death of a listed species;
3. The watch program should begin at least 1 hour prior to the scheduled start of blasting to identify the possible presence of manatees, dolphins, marine turtles or whales, if applicable. The watch program shall continue until at least one half-hour after detonations are complete;
4. The watch program shall consist of a minimum of six observers. Each observer shall be equipped with a two-way radio that shall be dedicated exclusively to the watch program. Extra radios should be available in case of failures. All of the observers shall be in close communication with the blasting subcontractor in order to halt the blast event if the need

arises. If all observers do not have working radios and cannot contact the primary observer and the blasting subcontractor during the pre-blast watch, the blast shall be postponed until all observers are in radio contact. Observers will be equipped with polarized sunglasses, binoculars, a red flag for backup visual communication, and a sighting log with a map to record sightings. All blasting events will be weather dependent. Climatic conditions must be suitable for optimal viewing conditions, determined by the observers;

5. The watch program shall include a continuous aerial survey to be conducted by aircraft, upon Federal Aviation Administration approval, or use other suitable means of reconnaissance, to determine the presence of marine mammals and reptiles. The event shall be halted if an animal(s) is spotted within 300 feet of the perimeter of the safety zone or the danger zone as defined by the Corps in their project description. An "all-clear" signal must be obtained from the aerial observer before detonation can occur. The blasting event shall be halted immediately upon request of any of the observers. If animals are sighted, the blast event shall not take place until the animal(s) move out of the area under their own volition. Animals shall not be herded away or harassed into leaving. Specifically, the animal must not be intentionally approached by project watercraft. If the animal(s) is not sighted a second time, the event may resume 30 minutes after the last sighting;
6. The observers and contractors shall evaluate any problems encountered during blasting events and logistical solutions shall be presented to the Service and the FWC. Corrections to the watch shall be made prior to the next blasting event. If any one of the aforementioned conditions is not met prior to or during the blasting, the watch observers shall have the authority to terminate the blasting event until resolution can be reached with the Service and FWC;
7. If an injured or dead marine mammal or turtle is sighted after the blast event, the watch observers shall contact the Service at 772-562-3909 and the FWC through the Manatee Hotline at 1-888-404-FWCC and 850-922-4330. The observers shall maintain contact with the injured or dead marine mammal or sea turtle until authorities arrive. Blasting shall be postponed until the Service and FWC can determine the cause of injury or mortality. If blasting injuries are documented, all demolition activities shall cease. A revised plan shall then be submitted to the Service and FWC for approval; and
8. Within 14 days after completion of all blasting events, the primary observer shall submit a report to the Service and FWC providing a description of the event, number and location of animals seen and what actions were taken when the animals were seen. Any problems associated with the events and suggestions for improvements shall also be documented in the report.

9.0 SUMMARY OF SERVICE'S POSITION

In conclusion, implementation of the Recommended Plan may impact fish and wildlife resources directly and indirectly as a result of dredging and/or blasting activities. The fish and wildlife resources likely to be directly and indirectly affected include seagrass, low relief hardbottom,

high relief coral reefs, rock/rubble habitat, and shallow sandy bottom habitat. The Corps has proposed to avoid and minimize potential adverse effects through the redesign or exclusion of certain project elements and the implementation of listed species protection plans during construction activities.

The Service has provided several recommendations in this document to further minimize or avoid possible adverse effects of the harbor expansion project on fish and wildlife resources. Specifically, the Service recommends the following to better compensate for the temporal loss of function and value of the impacted habitats by: (1) significantly increasing the mitigation ratio (*e.g.*, to 3:1) for mangroves if the 8.48 acres in the conservation easement can not be avoided; (2) increasing the mitigation ratio for impacted seagrass habitat from 1:1 to 3:1 for a total of 15 acres; (3) developing a Seagrass Monitoring Plan that contains success criteria that are consistent with Fonseca et al. (1998); (4) creating a 51-acre mitigation reef to compensate for direct impacts to high and low relief hardbottom reef habitat; (5) providing adequate mitigation for the temporal loss of function and value associated with the low relief hardbottom habitat located within the previously dredged channels, particularly the channel walls; and (6) continuing to seek alternative methods to mitigate for reef impacts through the Port Everglades Reef Group. In addition, the Service recommends the development of a comprehensive (pre, during, and post project) environmental monitoring program to verify that project impacts occurred within the levels anticipated and to ensure that the mitigation areas are performing to a level where habitat replacement values are maintained.

We encourage the Corps to continue to work with the Port Everglades Reef Group to develop alternative mitigation for coral reef impacts and to use "lessons learned" from other projects and look forward to our ongoing cooperation in determining suitable impact minimization actions. We appreciate the Corps' commitment to maintaining open lines of communication and the mutual exchange of ideas and recommendations through the planning process of this controversial project.

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Table 1. Previous Port modification projects.

Year	Project	Agency Permit Number	Impact	Mitigation
1983	Berth 29 Bulkhead and SAC from "Knuckle" (bend) to FPL canal	USACE 81L-0624 FDER 060419139	Unvegetated bottom, 311,000 cubic yards (cy) of material	Creation of 0.4 acre mangroves ¹
1984	Pier 7 Channel Dredging between MTB and SAC	USACE 83D-2441 FDER 060257779	Unvegetated bottom, 242,222 cy of material	None
1984	East SAC dredging from FPL canal to adjacent to Berth 32	USACE 84D-0385 FDER 060748269	Dredge 46 acres unvegetated bottom, fill 4.73 acres of unvegetated bottom	None
1987	Construct TN	USACE 84R-4146 FDER 060924019	18.27 acres of mangrove wetlands	Creation of 45 acres of mangroves ² , preservation of 48 acres of mangroves ³ , designation of manatee refuge ⁴
1989	Construct Berth 33	USACE 84Y-4246 FDER 061407349	2.0 acres of mangrove wetlands	Creation of 4.5 acres of mangroves ⁵

¹Located across SAC from Berth 26.

²Located along east shore of SAC north of John U. Lloyd boat launch, south to across from Berth 32.

³Wetlands located north and west of TN.

⁴Located in West Lake Park: Area 1, along property just north of Dania Beach Boulevard, approximately 500 feet west of AIW, and Area 2, approximately 500 feet west of Intracoastal Waterway, south of Sheridan Street.

Table 2. Relative abundance of fish species observed during visual surveys conducted in May 2001 at nearshore hardbottom and offshore reef sites along transects within the entrance channel and adjacent areas (adapted from DC&A 2001). A = abundant, C = common, O = occasional, R = rare.

Common Name	Scientific Name	Channel	Hard Bottom	Offshore Reef
Bar jack	<i>Caranx ruber</i>	O	-	O
Beaugregory	<i>Pomacentrus partitus</i>	A	-	A
Bermuda chub	<i>Kyphosus sectatrix</i>	O	-	-
Blenny	<i>Malacoctenus spp.</i>	-	O	O
Blue tang	<i>Acanthurus coeruleus</i>	C	C	C
Bluehead wrasse	<i>Thalassoma bifasciatum</i>	A	C	C
Bluestriped grunt	<i>Haemulon sciurus</i>	-	-	O
Checkered puffer	<i>Sphoeroides tetradineus</i>	R	-	-
Cocoa damselfish	<i>Pomacentrus variabilis</i>	A	C	A
Dusky damselfish	<i>Pomacentrus fuscus</i>	C	-	C
Foureye butterflyfish	<i>Chaetodon capistratus</i>	-	-	O
French angelfish	<i>Pomacanthus paru</i>	O	-	O
French grunt	<i>Haemulon flavolineatum</i>	-	-	O
Gray triggerfish	<i>Balistes capriscaus</i>	-	-	O
Green moray	<i>Gymnothorax funebris</i>	R	-	-
Grev angelfish	<i>Pomacanthus arcuatus</i>	O	-	O
Hairy blenny	<i>Labrisomus nuchipinnis</i>	R	-	-
Hamlet	<i>Hypoplectrus unicolor</i>	-	-	O
Harlequin bass	<i>Serranus tigrinus</i>	-	-	O
Highhat	<i>Equetus acuminatus</i>	R	-	-
Hogfish	<i>Lachnolaimus maximus</i>	-	-	O
Juvenile grunts	<i>Haemulon spp</i>	A	-	-
Juvenile snapper	<i>Lutianus spp</i>	A	-	-
Ocean surgeon	<i>Acanthurus bahianus</i>	C	C	C
Porkfish	<i>Anisotremus virginicus</i>	-	-	O
Princess parrotfish	<i>Scarus guacamaia</i>	O	C	O
Purplemouth moray	<i>Gymnothorax vicinus</i>	-	-	R
Queen angelfish	<i>Holocanthus ciliaris</i>	O	-	O
Red grouper	<i>Epinephelus morio</i>	-	-	O
Reef butterflyfish	<i>Chaetodon sedentarius</i>	-	-	O
Rock beauty	<i>Holocanthus tricolor</i>	-	-	O
Scrawled cowfish	<i>Lactophyrus quadricornis</i>	-	-	O
Sergeant major	<i>Abudefduf saxatilis</i>	A	C	-
Sharpnose puffer	<i>Canthigaster rostrata</i>	R	-	R
Sheepshead	<i>Archosargus probatocephalus</i>	R	-	-
Slippery dick	<i>Halichoeres bivittatus</i>	A	C	C
Spanish mackerel	<i>Scomberomorus maculatus</i>	-	-	O
Spotfin butterflyfish	<i>Chaetodon ocellatus</i>	-	-	O
Spottail pinfish	<i>Diplodus holbrooki</i>	C	-	-
Spotted goatfish	<i>Pseudopeneus maculatus</i>	-	-	O
Stoplight parrotfish	<i>Sparisoma viride</i>	O	C	O
Tobaccofish	<i>Serranus tabacarius</i>	-	-	O
Yellow stingray	<i>Urolophus jamaicensis</i>	-	-	O
Yellowhead jawfish	<i>Opistognathus aurifrons</i>	-	-	R
Yellowhead wrasse	<i>Halichoeres garnoti</i>	-	-	C
Yellowtail snapper	<i>Ocyurus chrysurus</i>	-	O	O

Table 3. Number of nests for three species of sea turtles at John U. Lloyd SRA during 6 years (adapted from Burney and Margolis 1999).

	1994	1995	1996	1997	1998	1999
Loggerhead	190	248	206	181	253	210
Green	14	10	18	5	21	2
Leatherback	1	0	0	2	3	0

Table 4. Project alternatives and recommended plan.

Alternative Number	Combined Elements	General Description
1	S-1A S-5A S-8 S-9	Deepen and widen OEC, SAC, TN, DCC, Widener. Deepen IEC, MTB, and STB. Bulkhead along John U. Lloyd SRA and West Lake Park.
2	S-1A S-5B S-8 S-9	Deepen and widen OEC, SAC, TN, DCC, Widener. Deepen IEC, MTB, and STB. Bulkhead along John U. Lloyd SRA. Side slope along West Lake Park.
3	S-1B S-5A S-8 S-9	Deepen and widen OEC, SAC, TN, DCC, and Widener. Deepen IEC, MTB, and STB. Side slope along John U. Lloyd SRA. Bulkhead along West Lake Park
3A	S-1B (modified) S-5A (modified) S-8 S-9 Extend OEC	Same as Alt 3 except greater impacts to USCG facility, reduced impacts to John U. Lloyd SRA. Impacts to NSU. Greater impacts to West Lake Park. Greater extent in DCC. Includes extension of OEC an additional 2,200 feet.
4	S-1B S-5B S-8 S-9	Deepen and widen OEC, SAC, TN, DCC, and Widener. Deepen IEC, MTB, and STB. Side slope along John U. Lloyd SRA and West Lake Park
5	NA	No-Action Alternative. Port would continue operations under existing parameters.
6 (NED Plan)	S-1A (revised) S-5A (revised) S-8 (revised) S-9 (revised)	Deepen and widen OEC, SAC, TN, DCC, Widener. Deepen IEC, MTB, and STB. Bulkhead along John U. Lloyd SRA and West Lake Park. Includes extension of OEC an additional 2,200 feet. Spoil disposal to upland site 1 and ODMDS.
7 (Recommended Plan)	S-1A (revised) S-5A (revised) S-8 (revised) S-9 (revised)	Deepen and widen OEC, SAC, TN, DCC, Widener. Deepen IEC, MTB, and STB. Bulkhead along John U. Lloyd SRA and West Lake Park. Includes extension of OEC an additional 2,200 feet. Spoil disposal to upland sites 1 and 2.

Table 5. Habitat restoration and enhancement elements at West Lake Park.

Element	Area Footprint (acres)	Area Benefit (acres)
Mangrove restoration from spoil island	9.00	18.00
Mangrove protection	4.70	185.00
Shallow water tidal flat creation	9.20	18.00
Channel/circulation Improvements	11.40*	23.00*
Seagrass enhancement by removal of barges	3.00	3.00
Hydrologic/circulation/water quality improvement.	n/a*	95.00*
Manatee protection barriers	n/a	58.00
Maintenance dredging- remove silt - improve water quality	25.00*	100.00*
Wetland planting to stabilize eroding soils	18.00	56.00
Enhance and protect bird rookeries	0.50	2.00
Establish osprey towers	5 towers	12.00
Outparcel acquisition/conservation easement	100.00	100.00

*Circulation/flushing/dredging improvements estimated to restore 40 to 60 acres of SAV in West Lake embayment.

Table 6. Recommended Plan impact (acres) by mangrove habitat type.

	S-1B (mod)	S-5A (mod)	S-8	S-9	Berths	Total
Mixed species habitat	0.64	0.00	0.00	0.00	0.00	0.64
Mature red mangroves at AIW	0.68	0.00	0.00	0.00	0.00	0.68
Created mangroves	0.64	0.00	0.00	0.00	0.00	0.64
Mangrove habitat bordered by riprap	0.41	0.00	0.00	8.48	0.00	8.89
Stunted mangroves	0.00	1.05	0.00	0.00	0.00	1.05
Mature red mangroves at Dania Canal	0.00	0.84	0.00	0.00	0.00	0.84
Scattered/mixed mangroves on Dania north shore	0.00	0.50	0.00	0.00	0.00	0.50
Total	2.37	2.39	0.00	8.48	0.00	13.24

Table 7. Annual number of manatee deaths in Broward County as a result of various causes during a 28 year period.

	Watercraft	Flood Gate/ Canal Lock	Other Human	Perinatal	Cold Stress	Natural	Undetermined	Unrecovered	Total
1974	0	0	0	0	0	0	1	0	1
1975	1	0	0	0	0	0	0	0	1
1976	1	0	0	0	0	0	0	0	1
1977	0	0	1	1	0	0	2	0	4
1978	0	0	0	1	0	0	0	1	2
1979	0	0	0	0	0	0	2	0	2
1980	2	1	0	2	0	0	1	4	10
1981	1	0	0	0	0	0	1	0	2
1982	2	1	0	0	0	0	1	0	4
1983	1	0	0	0	0	1	0	0	2
1984	2	0	0	0	0	0	3	0	5
1985	0	1	2	0	0	0	1	0	4
1986	2	0	0	2	1	0	0	1	6
1987	5	0	0	0	0	0	1	0	6
1988	2	0	1	0	1	1	0	0	5
1989	3	0	0	1	0	0	0	0	4
1990	1	0	0	0	0	0	0	0	1
1991	2	1	0	0	0	0	0	0	3
1992	2	0	0	5	0	0	2	0	9
1993	2	0	0	1	0	0	1	0	4
1994	3	0	0	1	0	0	0	0	4
1995	0	1	0	4	0	0	0	0	5
1996	1	0	0	2	0	1	2	0	6
1997	0	0	0	1	0	0	2	0	3
1998	2	1	0	2	0	0	2	0	7
1999	5	0	0	4	0	1	5	0	15
2000	2	0	0	1	0	0	1	0	4
2001	4	0	0	3	1	0	0	0	8

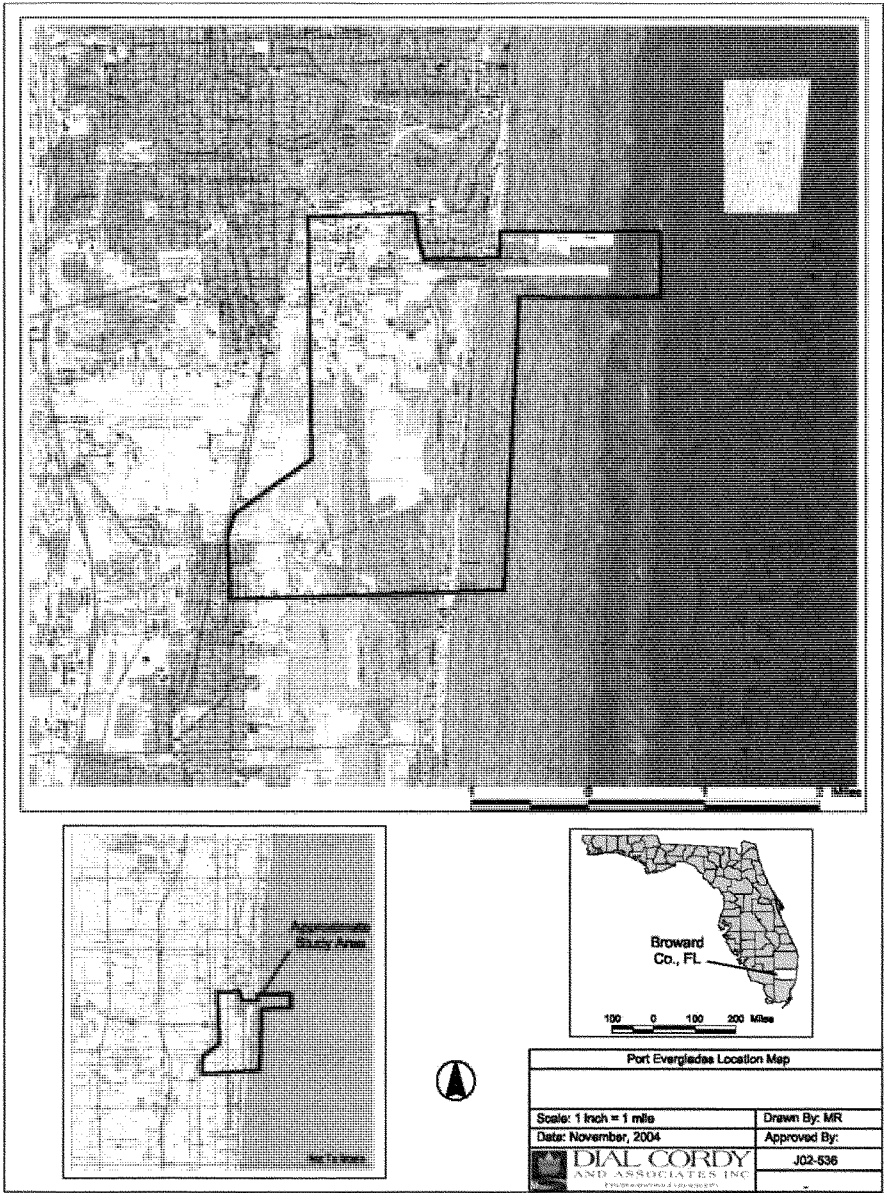


Figure 1. Port Everglades project location.



Figure 2. Mangrove communities in the vicinity of Port Everglades.



Figure 3. Seagrass distribution in the northern portion of the project area.

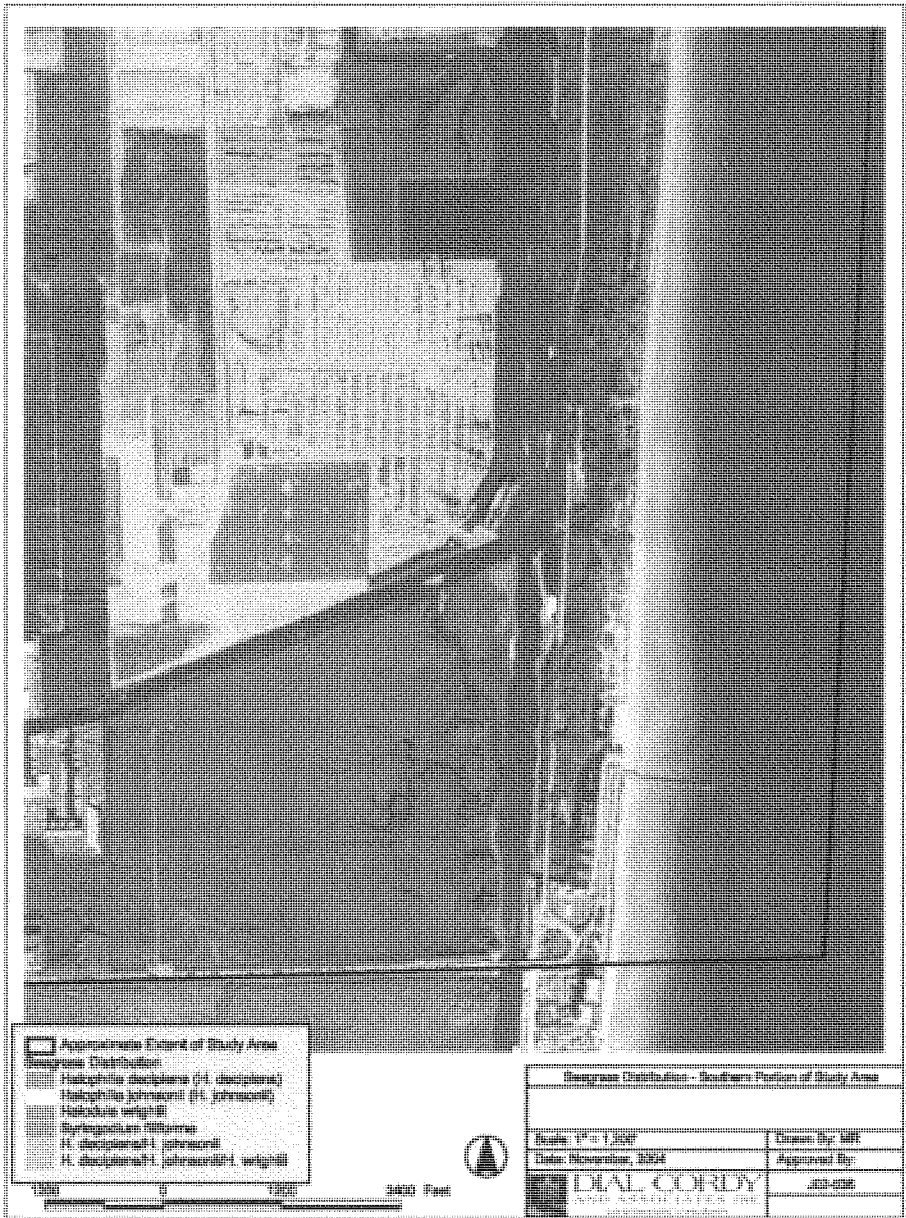


Figure 4. Seagrass distribution in the southern portion of the project area.

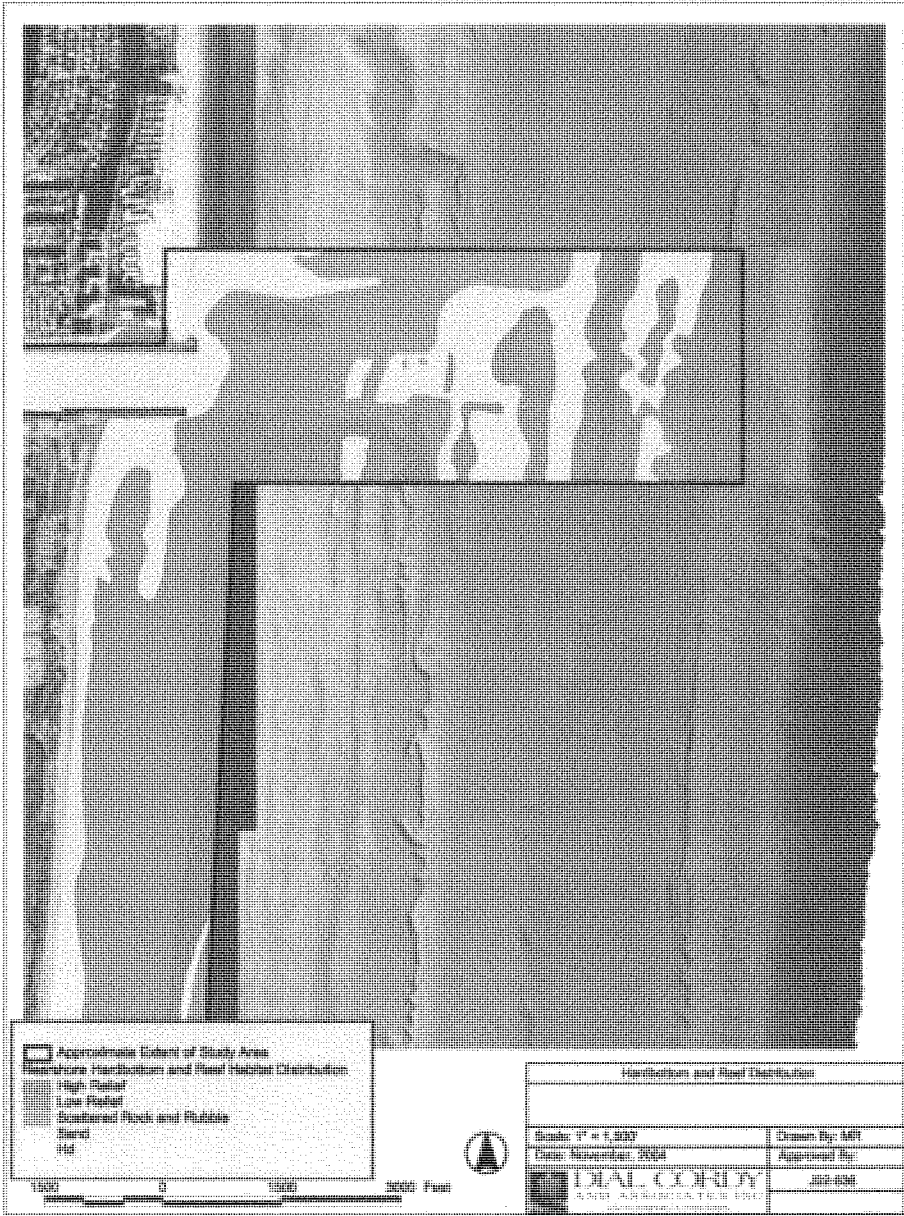


Figure 5. High and low relief hardbottom and coral reef distribution in project area.

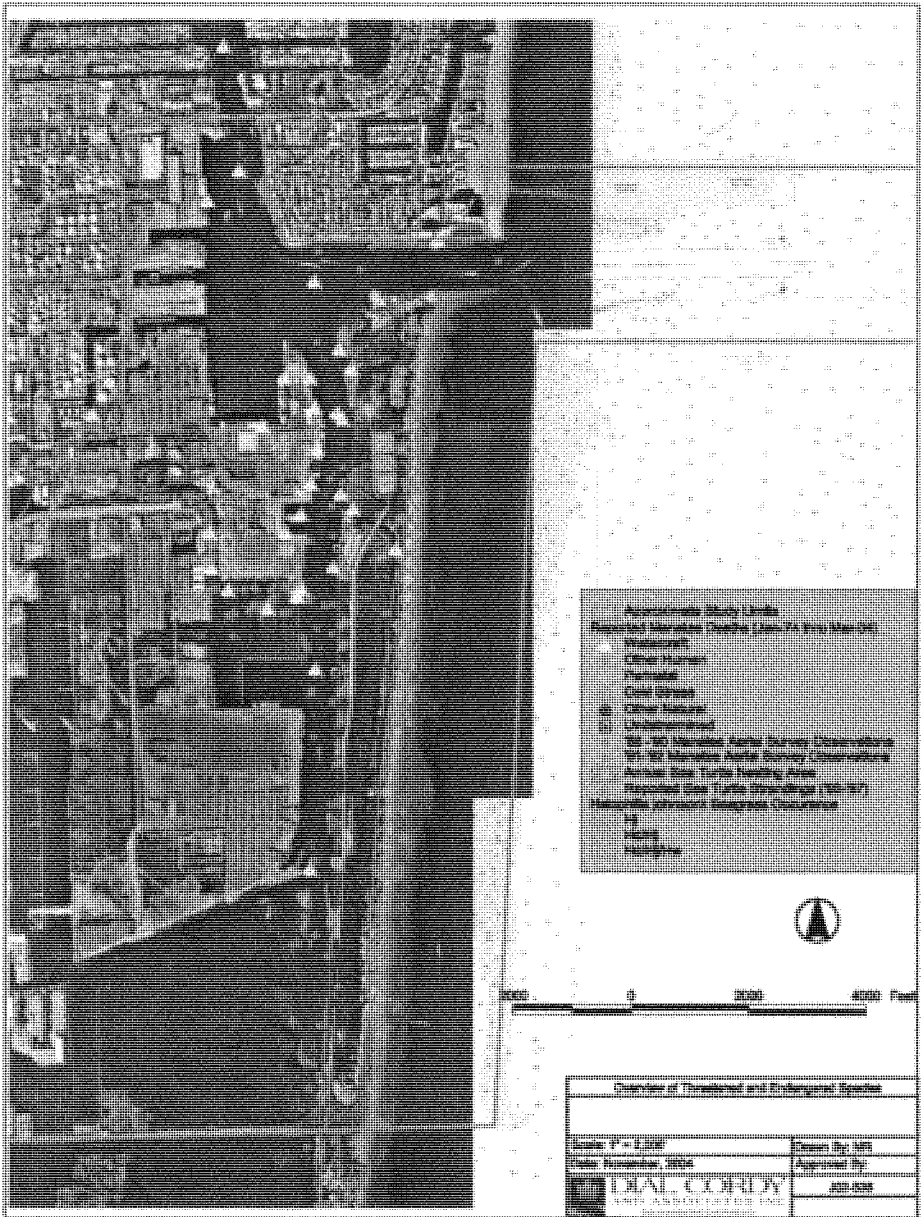


Figure 6. Threatened and endangered species observations and occurrence.

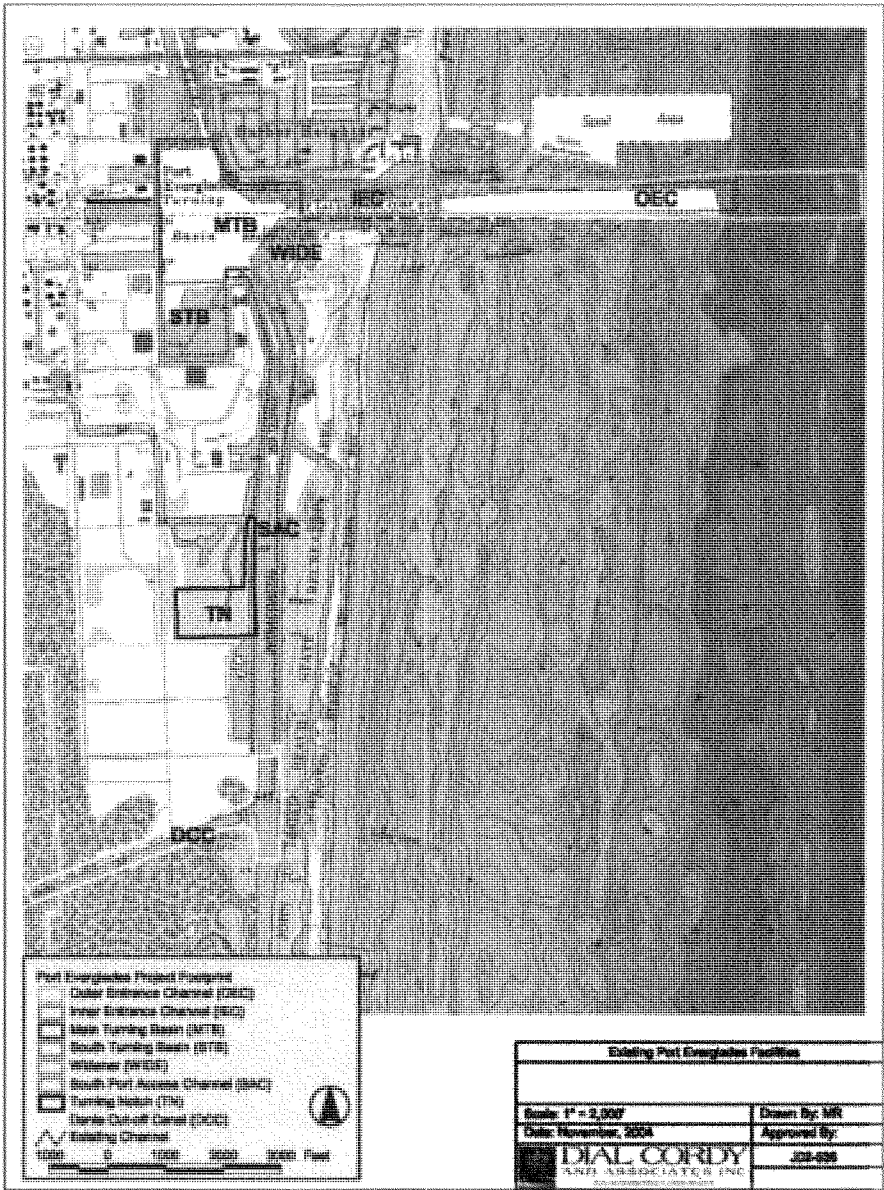


Figure 7. Existing facilities at Port Everglades.

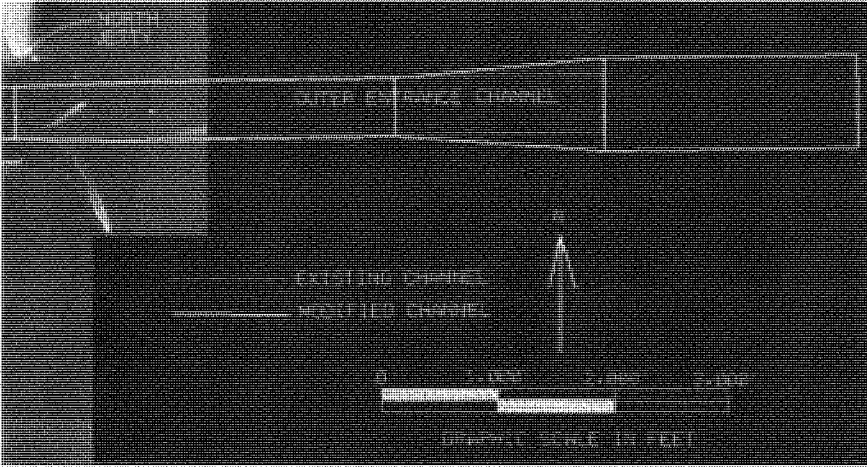


Figure 8. Proposed plan to deepen, widen, and extend the OEC.

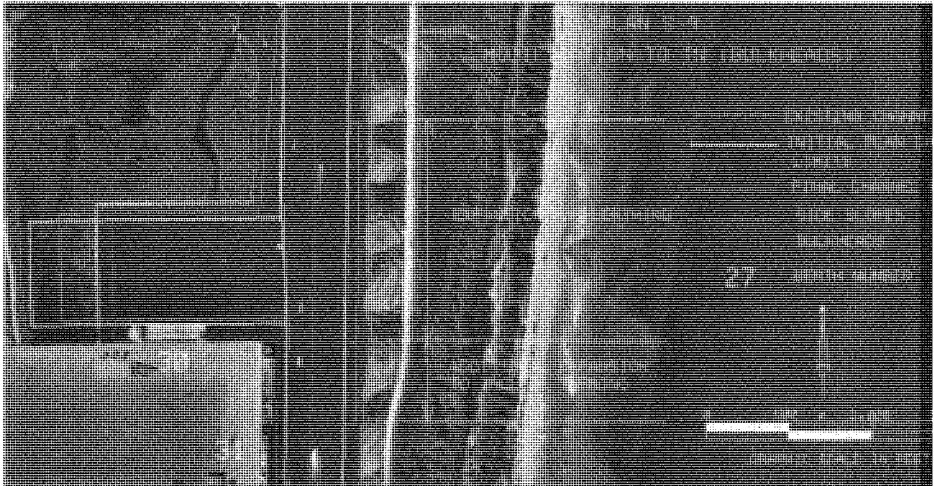


Figure 9. Proposed plan to deepen and widen the TN.

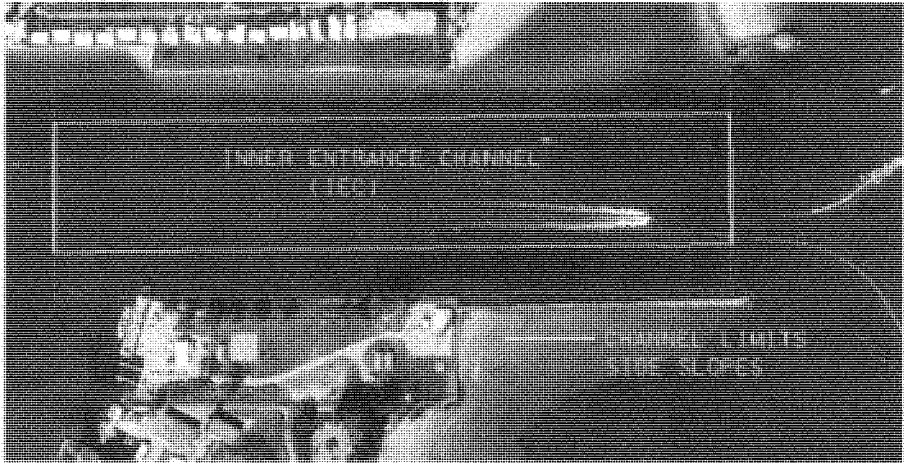


Figure 10. Proposed plan to modify the IEC.



Figure 11. Proposed plan to modify the MTB.

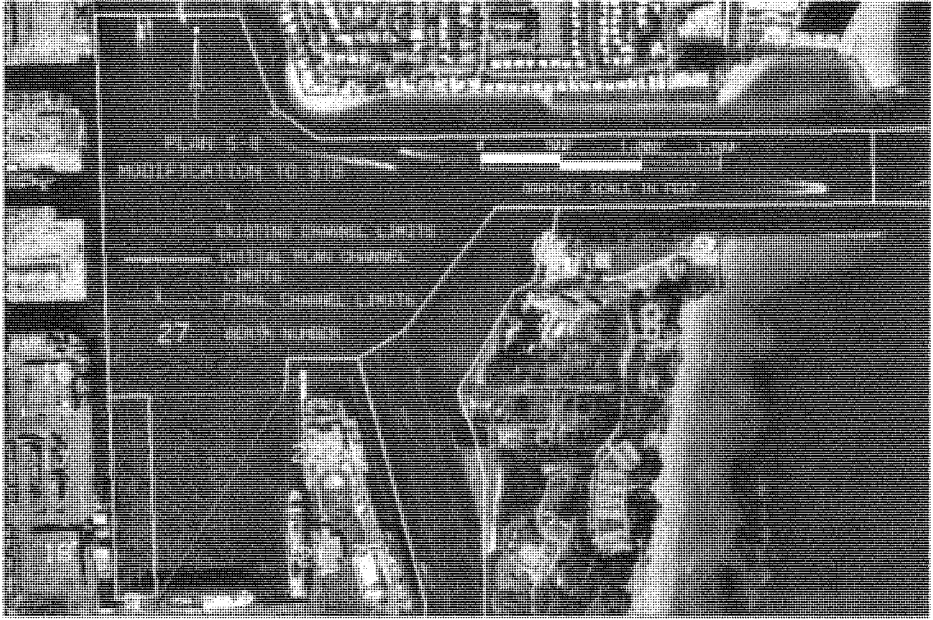


Figure 12. Proposed plan to modify the STB.

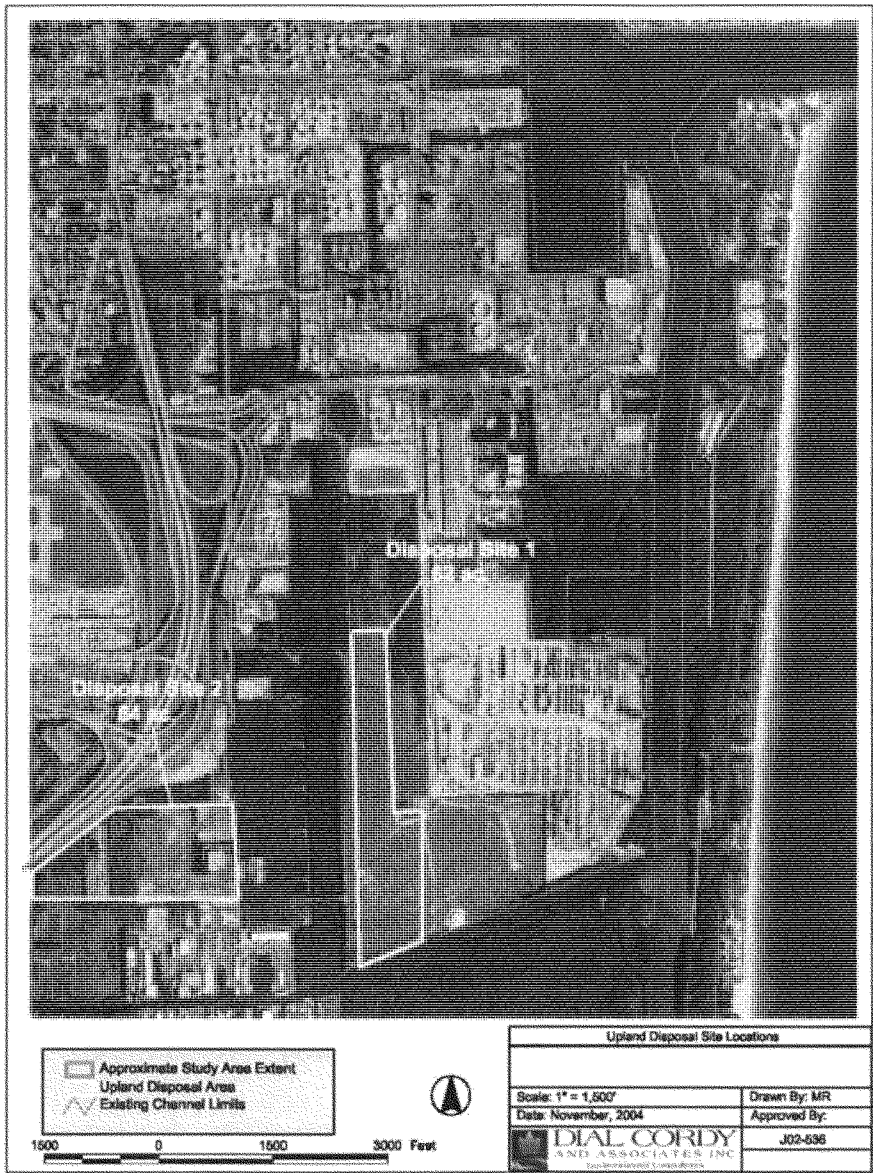


Figure 13. Two potential disposal sites for material excavated during the Port project.

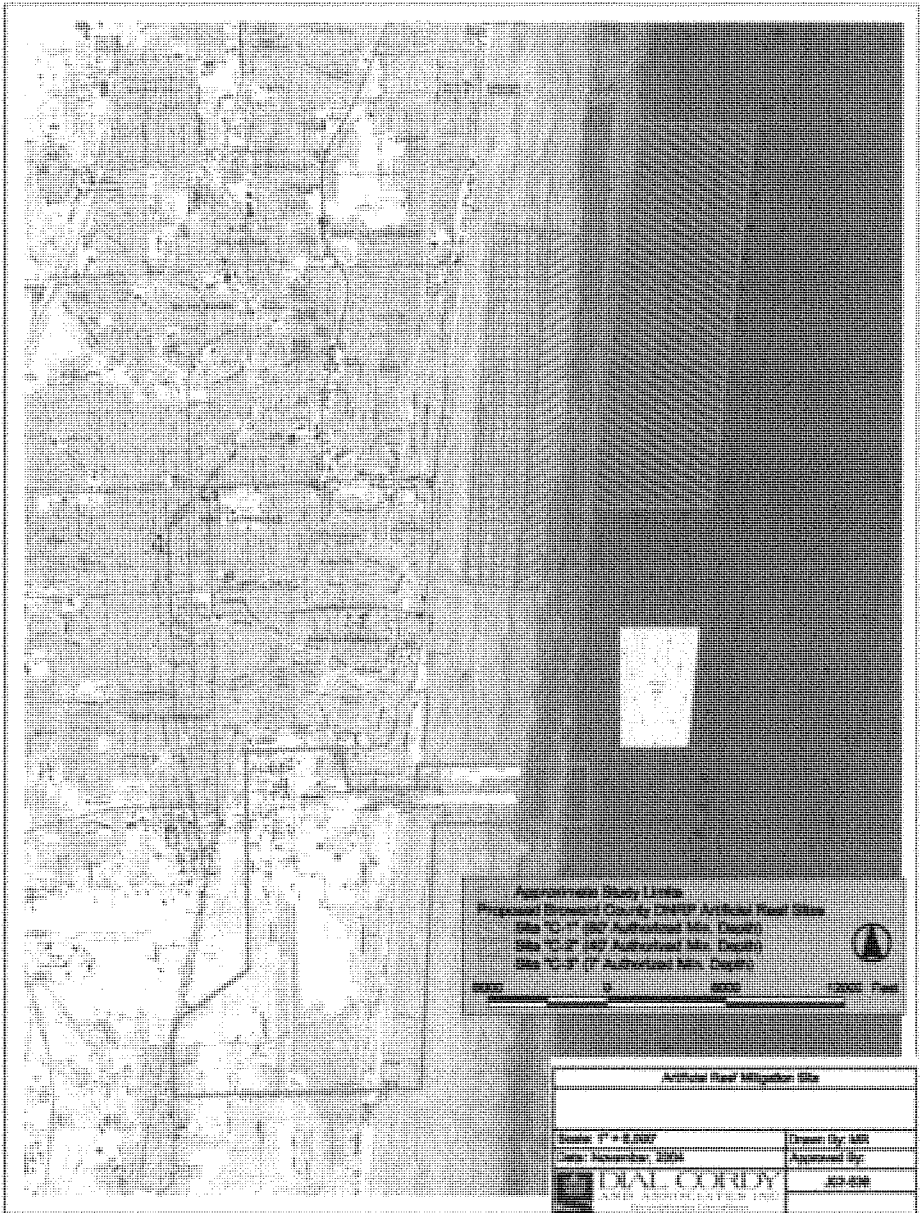


Figure 14. Proposed locations for mitigation reefs.

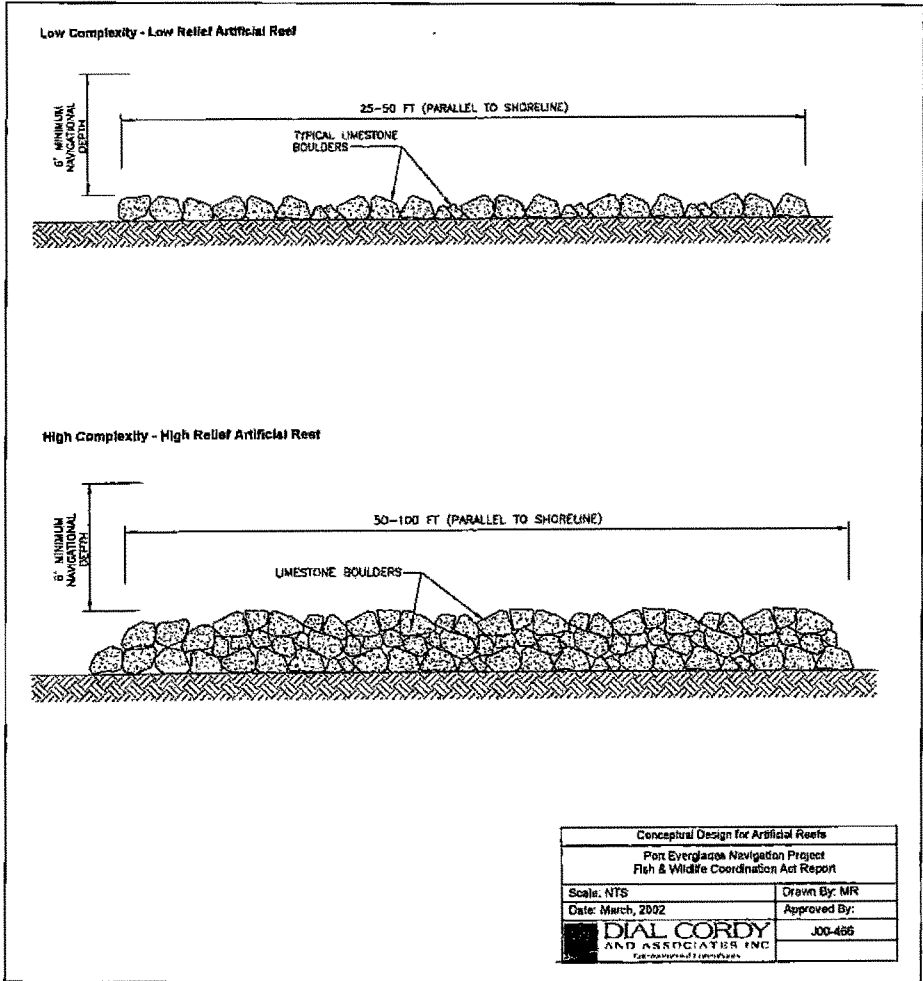


Figure 15. Conceptual design for artificial reef sites.

APPENDIX A

Previous Correspondence from U.S. Fish and Wildlife Service



**United States Department of the Interior
FISH AND WILDLIFE SERVICE**

3100 University Blvd. South
Suite 120
Jacksonville, Florida 32216

October 28, 1987

Mr. A.J. Salem
Chief, Planning Division
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Mr. Salem:

This represents the Biological Opinion of the U.S. Fish and Wildlife Service in accordance with Section 7 of the Endangered Species Act of 1973, as amended, regarding permit application 848-4146 (FWS Log No. 4-1-85-026). This opinion satisfies the consultation requirements of Section 7(a)(2) of the Endangered Species Act of 1973, as amended, and does not address the requirements of other environmental statutes such as the National Environmental Policy Act or the Fish and Wildlife Coordination Act. A complete administrative record of this consultations is on file in this office.

PROJECT DESCRIPTION

The applicant, Port Everglades Authority, proposes to construct a turning notch or slip to facilitate use of a container Port being developed northwest of the intersection of the Dania Cut Off Canal and the Atlantic Intracoastal Waterway in Broward County, Florida (Figure 1). The applicant also intends to dredge, deepen, and backfill a portion of the Intracoastal Waterway to construct a bulkhead and return wall along the Intracoastal Waterway and a portion of the Dania Cut Off Canal.

The turning notch will require excavation of approximately 400,000 cubic yards of organic soils and 800,000 cubic yards of limerock to minus 46 feet mean low water to form a basin with a bottom width of 800 feet by 900 feet. The bulkhead will be on the western side of the deepened waterway, and will extend about 900 feet south of a previously permitted bulkhead to the north.

To mitigate the proposed wetland fill, the applicant proposes to improve wetlands in the John U. Lloyd State Park, create new wetlands in the park, create a manatee refuge at the park and provide the State with a perpetual conservation easement to the 52 acres of mangrove wetlands remaining within the applicants property. To allow manatees

to access the refuge, an existing channel will be dredged to minus 5 feet NGVD. Boat barriers will be placed at each end of the channel to exclude boats.

CONSULTATION HISTORY

The Corps evaluated the impact this project would have on the West Indian manatee (*Trichechus manatus*), and by letter of July 21, 1987, notified the Service that this project would have no effect on this species. The Service was unable to concur with this determination, and notified the Corps on August 18 that a Biological Opinion would be prepared.

The Fish and Service Field Station in Vero Beach, in accordance with the Fish and Wildlife Coordination Act, recommended on June 30, 1987, that the permit be denied because it would result in the loss of the mangrove wetlands, and because there were more appropriate sites on Port Authority property to locate a facility of this nature.

The Florida Department of Natural Resources commented that either an alternate site should be selected to reduce the impacts to manatees, or that tugs assisting the containerized ships should be required to have Kort nozzles or ducted propellers.

BIOLOGICAL OPINION

Manatees use the waterways of Broward County throughout the year and congregate at discharges from the Florida Power and Light Company's power plants at Port Everglades and Ft. Lauderdale during winter months. These two warm water refugia are the only known winter aggregation sites used by manatees in Broward County, with the Port Everglades power plant being the most significant and most heavily used concentration source. At Port Everglades the warm water discharge canal is 12 feet deep, approximately 100 feet wide, one mile in length, and flows to the Intracoastal Waterway (Figure 1). Manatees do not feed in the general area of the power plant canal, but use the canal for resting. The canal is also used heavily by recreational fisherman; and there is a commercial marina on the canal with dry storage facilities. The Intracoastal Waterway at the Port is approximately 600 feet wide with a depth of 44 feet with a 2-foot overdepth.

Mr. John E. Reynolds, from Eckard College, conducted aerial manatee surveys at the Port Everglades power plant from 1977 through 1985. Based on his reports, the maximum number of animals observed during each winter period was: 1977-78, 114; 1978-79, 125; 1979-80, 86;

1980-81, 110; 1981-82, 57; 1982-83, 56; 1983-84, 28; and 1984-85, 234.

Currently, the majority of Port activity has been north of the discharge canal. On July 10, 1984, the Corps issued the Port a permit to construct a 1900-foot bulkhead (PN 84K-0385) from a point just north of the discharge canal to the north of the Dania Cut Off Canal. This proposed action will increase Port activity to the south with or without the turning notch. The turning notch will be located south of the discharge canal (Figure 1). The annual number of port vessel movements, which is defined as a single trip, averaged 3,584 from 1978 to 1985. The single highest year was 1978 with 4,006 movements; the lowest was 1983 with 3,206. The construction of the turning notch, if approved by the Corps, will enable the Port to expand its capability to handle larger containerized ships. At the present time, about 20 container ships of between 400 to 700 feet in length use the north end of the Port per month (240 per year). When the south end of the Port is completed, many of these ships will relocate to this area. It is estimated that about 300 of these vessels will use the Port, including the new facility, which is an increase of 60 vessels per year. In addition the Port expects about 54 of the newer class container ships, measuring 950 feet in length, to use the new facilities at the south end. With the turning notch in place, a container ship will be escorted by 2 tugs, under its own power. Without the notch, the ship will be under dead tow, with the possibility of one or more additional tugs required.

Since 1974, there has been a cooperative effort between the State and the Service to salvage dead manatees and to determine the cause of death. The distribution of manatee mortality is disproportionate between the east and west coasts of Florida, the east coast having a significantly higher incidence of overall mortality. One category of manatee mortality is from boat/barge collisions, of which 69 percent occurred on the east coast and 31 percent on the west coast. The statewide average for boat/barge mortality is 23 percent. Broward County has recorded a total of 46 dead manatees since 1974, of which 16 have died as a result of boat/barge collisions.

In the Port Everglades zone, defined to be from the Dania Cut Off Canal to the 17th Street Bridge, there have been eight manatee fatalities attributed to boat collisions from 1974 through April 1987 (Figure 1). One fatality (M8308) is not shown on the map as the exact recovery coordinates are not available. Five of the eight animals were determined to be crushed with no indication in the report of propeller wounds. The remaining three animals were crushed but with propeller wounds as well. All eight deaths occurred in January and February when manatees were congregated at the warm water discharge. In 1981 there was one recorded fatality; 1983, 1; 1984, 1; 1986, 1;

and 1987, 4. Outside of the Port Everglades zone, which includes the Dania Cut Off Canal, New River Canal, Stranahan River, and New River, there have been eight reported boat/barge fatalities. Four of the deaths occurred between November and March, the balance (4) outside of this time period.

In the Port zone, there is a State-established manatee idle and slow speed zone from November to March. The turning notch will be located in the slow speed zone area. Just how effective the speed zone is in reducing boat-related manatee mortality is difficult to judge. The effectiveness of the speed zone is related to the degree of enforcement effort and the motivation of the officers. This reach of the inland waterway is very active with recreational boat traffic, in particular during the winter period when the human population increases in the area. There has been, and continues to be, controversy on who is responsible for boat-related manatee mortality in the general Port area. We believe that in the majority of cases it is not possible to identify the class of ship inflicting the injury, except to say that it was either caused by a large or small boat. We can only note that in 50 percent of the boat-related manatee fatalities in Broward County which have been recovered in the Port zone the cause of death has been attributed to massive injury.

Port Everglades is in the process of expanding its capability for handling more cargo, which will result in increased Port traffic. The development of the turning notch will shift the activity from the northern area of the Port to a more southern area that has repeatedly documented a winter concentration of manatees. One mitigating factor is that larger container ships will be moving very slowly in the center of the channel, which should provide a manatee the opportunity to avoid the ship. Unfortunately there is no information on how manatees use the Port area and the surrounding inland waterway. We know that manatees are in the discharge canal and use the mangrove lagoon off the canal, but how they move in the Port is not known. Information provided by the applicant, from 1978 to 1985, shows no association between the number of commercial boat movements in the Port and the number of boat-related manatee fatalities in the general Port area. Data were not available from 1986 to present. In addition to the potential increase in Port activity to the south of the discharge canal, the Dania Cut Off Canal continues to experience increased growth with the addition of several new marinas. In the Dania Cut Off Canal there is also another active port, Port Dension, which handles cargo. Presently, up to two freighters use this port on a daily basis, as well as ocean going tugs. The water depth in this canal is about 10 feet. It is possible that manatees are being hit in

this canal, and either float into the Port Everglades area on prevailing currents, or die in the Port.

The Service is concerned that the potential for increased Port traffic south of the discharge canal will contribute to an already serious situation that exists in this area. The mortality occurs during the winter period when manatees are congregated at the warm water discharge. Five of the eight boat-related deaths in the Port area resulted from crushing with no apparent propeller cuts. The depth of the Intracoastal Waterway would preclude animals from being crushed between the hull of the vessel and the bottom of the channel; therefore, these animals were killed either by collisions with vessels, or from being caught against bulkheads. Large recreational boats moving slowly or small boats moving fast can inflict an injury on impact that will result in death. The Service does not believe, however, that increasing use of the Intracoastal Waterway south of the discharge canal by one ship per day, will significantly increase the threat to manatees over what currently exists at the present time. The container ships will be moving very slowly in the middle of the channel, partially assisted by tugs throughout the length of travel. As a result of our review of this project and discussions with the Port Authority, it is the Service's Biological Opinion that the construction of the turning notch is not likely to jeopardize the continued existence of the manatee. The standard manatee precautions will be added to the permit, if issued.

CONSERVATION RECOMMENDATIONS

We recommend that the following actions be taken in order to further reduce the likelihood of additional boat-related manatee mortality:

1. The Port should select another site for the turning notch north of the discharge canal to reduce the hazard to manatees. This would require either modifying existing facilities or excavating the notch from uplands.
2. The Port Authority, through an ongoing educational program, should stress to the owners of the tug boats the need to watch for manatees in the channel and turning notch. Manatees will probably use the basin from time to time as a refuge, and with the maneuvering of tugs, there is the possibility of an incident. The operators should be aware of this, and should check the stern of the tug before engaging the propeller or backing.
3. The Florida Department of Natural Resources shall increase its law enforcement capability in the Port Everglades speed zone. This

area should be given high priority based on the recent upsurge in boat-related mortality.

4. The Port should require tug boat owners operating in the Port to have their boats equipped with a propeller protection device in order to protect manatees, or convert their vessels to Kort nozzles or jet drive.

INCIDENTAL TAKE

In meeting the provisions for incidental take in Section 7 (b)(4) of the Endangered Species Act, we have reviewed the biological information and other available information relevant to this action. Based upon our review, incidental take is not authorized for the manatee during implementation of this project. If an incident involving a manatee occurs, all work should cease and our office should be notified immediately (904-791-2580).

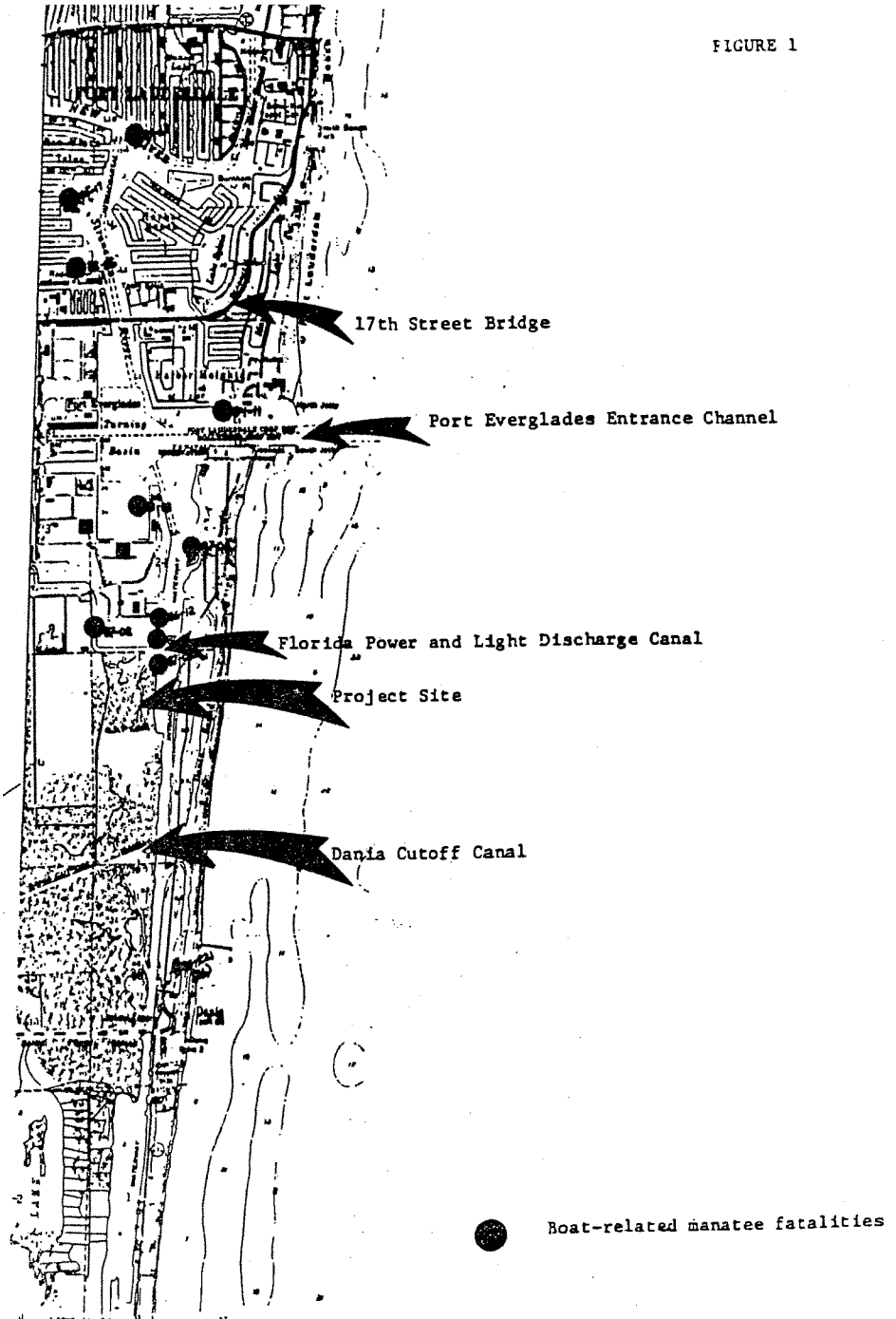
This concludes consultation under Section 7 of the Act, as amended. If modifications are made in the project, or if additional information becomes available relating to threatened or endangered species, reinitiation of the consultation may be necessary. Please provide our office with a copy of the permit, if issued.

Sincerely yours,

John L. Paradiso
for David J. Wesley
Field Supervisor

Enclosure

FIGURE 1





United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. BOX 2676

VERO BEACH, FLORIDA 32961-2676

June 30, 1987

Colonel Charles T. Meyers
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Colonel Meyers:

The Fish and Wildlife Service has reviewed permit application 84B-4146, dated June 10, 1987. The applicant, Port Everglades Authority, has applied for a permit to dredge a turning basin, construct a bulkhead with backfill in wetlands and deepen the Intracoastal Waterway. Mitigation is also proposed by recreating wetlands at Port Everglades. The project is located at Port Everglades, Ft. Lauderdale, Broward County, Florida. Our comments are submitted in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

Fish and Wildlife Service biologists have repeatedly visited this site. The project entails excavating a turning notch in predominantly red mangroves. Approximately 18 acres of mangrove swamp will be eliminated as a result of this proposed turning notch. In addition, a 100 foot wing wall is proposed along the northwestern shore of the Dania Cutoff Canal for anchoring and stabilizing the bulkhead. Two additional acres of mangrove wetlands will be lost as a result of the wing wall and bulkhead. Deepening of the Atlantic Intracoastal Waterway to minus 44 feet mean low water, south to its intersection with the Dania Cutoff Canal is also being considered. This will result in the removal of another acre of wetlands. In all, approximately 21 acres of well established, prolific, mangrove wetlands will be lost as a result of this project. These mangroves represent the last large tract of well developed mangroves along the Intracoastal Waterway between West Palm Beach and Miami.

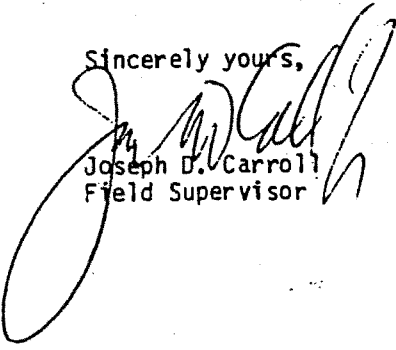
These mangrove wetlands are an essential part of the marine food chain. Their tangle of roots serve as a nursery for fish and shrimp, and decaying leaves provide nourishment. Mangroves further protect upland areas from storms and tidal surges. The applicant has presented a comprehensive mitigation plan providing for creation of wetlands in the nearby John U. Lloyd State Park. There is the scientific uncertainty associated with the success of manmade, artificially created wetlands. They generally do not compare with the productivity of well established natural wetlands. This is particularly relevant in this instance where the natural wetland loss is avoidable.

Our Mitigation Policy requires that such losses be avoided if at all possible before compensation is considered. Although we have worked with the applicant from the first stages of project planning, we cannot ascribe to the applicant's view that these mangroves are expendable. In our opinion, the proposed mitigation, although it is equally sized, is inappropriate because the losses can be avoided by relocation of the turning notch to uplands.

We recommend that this permit be denied and the applicant pursue other, less damaging alternatives.

This report represents the views of the Department of the Interior. Please contact this if we may provide further information regarding this permit application.

Sincerely yours,


Joseph D. Carroll
Field Supervisor

CC:

EPA, Atlanta, GA
NMFS, St. Petersburg, FL
NMFS, Panama City, FL
FG&FWFC, Tallahassee, FL
FG&FWFC, Vero Beach, FL
DER, Tallahassee, FL
AWE, FWS, Atlanta, GA
SE, Jacksonville, FL



United States Department of the Interior
FISH AND WILDLIFE SERVICE
 P.O. BOX 2676
 VERO BEACH, FLORIDA 32961-2676

October 2, 1989

Colonel Bruce A. Malson
 District Engineer
 U.S. Army Corps of Engineers
 P.O. Box 4970
 Jacksonville, FL 32232-0019

Attn: Planning Division

FWS Log No: 4-1-89-238
 Project: Port Everglades
 Maintenance Dredging
 Dated: August 28, 1989
 County: Broward

Dear Colonel Malson:

This is a response to the above-referenced letter from Mr. A. J. Salem, Chief of your Planning Division, regarding a report being prepared by the Jacksonville District Corps of Engineers (Corps) proposing Federal assumption of maintenance dredging of locally constructed port facilities at Port Everglades Harbor, Florida. These comments are submitted in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and the Endangered Species Act of 1973, as amended.

Mr. Salem's letter indicates that the Corps is proposing to adopt a November 1987 Final Environmental Impact Statement (FEIS) on the excavation of a turning notch at the Port Everglades Harbor and that this document includes coordination, performed under the Fish and Wildlife Coordination Act and Section 7 of the Endangered Species Act, for the Federal action of assuming periodic maintenance dredging of the locally constructed works.

Our review of the FEIS referenced above reveals that assumption of maintenance dredging of the Port area, as proposed, is not directly discussed in that document. In fact, the map of the area to be assumed by the Federal government, attached to Mr. Salem's letter, is not found in the FEIS. A description of the proposal is also not in the text of the document. The Fish and Wildlife Service (Service) Section 7 Biological Opinion, dated October 28, 1987, included in the FEIS addresses only construction of the turning notch along the southwest shore of the Port, and does not address the maintenance of the entire Port facility. In addition, a Fish and Wildlife Coordination Act report is not included in the FEIS.

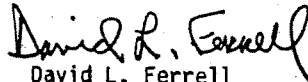
The Service has, therefore, concluded that in accord with 40 CFR 1506.3(b), the FEIS and the proposed Federal action are not substantially the same, and that your responsibilities under the Fish and Wildlife Coordination Act, the Endangered Species Act and the National Environmental Policy Act have not been fulfilled.

Since a project of this magnitude in Port Everglades, a documented manatee concentration area, has the potential to adversely affect the endangered West Indian manatee, we believe that Section 7 consultation regarding maintenance dredging of the Port will be necessary. In addition, if the dredged material is proposed to be disposed on the beach and listed sea turtles would be affected, Section 7 consultation for sea turtles would also be necessary.

In conclusion, the Service recommends that the Jacksonville District prepare a supplemental EIS fully describing the proposed action and that you solicit public input and fulfill your responsibilities under the above-referenced environmental laws and regulations.

We look forward to working closely with you on the supplemental EIS.

Sincerely yours,


David L. Ferrell
Field Supervisor

cc:

EPA, Atlanta, GA
NMFS, St. Petersburg, FL
NMFS, Panama City, FL
FG&FWFC, Tallahassee, FL
FG&FWFC, Vero Beach, FL
DER, Tallahassee, FL
FWE, Jacksonville, FL
DNR, Tallahassee, FL



United States Department of the Interior
FISH AND WILDLIFE SERVICE
P.O. BOX 2676
VERO BEACH, FLORIDA 32961-2676

January 15, 1991

Colonel Bruce A. Malson..
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Att: Planning Division

Dear Colonel Malson:

In accordance with the Fish and Wildlife Coordination Act, this represents a Planning Aid Report on the Port Everglades, Broward County, Florida, Maintenance Dredging Project. The Corps has requested an evaluation of the environmental effects of assuming responsibility for the maintenance dredging of a channel approximately 400 feet wide by 8,000 feet long and a turning notch 750 feet wide (north to south) by 900 feet wide (east to west). This information is needed to enable the Corps to evaluate the project to assure that it conforms to current environmental needs and criteria.

This report is presented in partial fulfillment of the Fish and Wildlife Coordination Act (16 U.S.C. 1531 et seq.), and does not represent the Secretary of Interior's report to Congress as required by that Act.

Sincerely yours,

David L. Ferrell
David L. Ferrell
Field Supervisor

cc:

EPA, Atlanta, GA
NMFS, St. Petersburg, FL
NMFS, Panama City, FL
FG&FWFC, Tallahassee, FL
FG&FWFC, Vero Beach, FL
DER, Tallahassee, FL
DNR, Tallahassee, FL
FWS, Jacksonville, FL
Palm Beach County D.E.R.M.

**PLANNING AID REPORT
PORT EVERGLADES, FLORIDA
MAINTENANCE DREDGING PROJECT**



**PREPARED BY
U.S. Department of the Interior
Fish and Wildlife Service
Vero Beach, Florida**

January 1991

Port Everglades
Broward County
Maintenance Dredging Project

Fish and Wildlife Service
Planning Aid Report

Submitted to Jacksonville District
U.S. Army Corps of Engineers
Jacksonville, Florida

Prepared by: Charles W. Sultzman, Project Biologist
Approved by: David L. Ferrell, Field Supervisor

Vero Beach, Florida, Field Office
U.S. Fish and Wildlife Service
Vero Beach, Florida

January, 1991

List of Tables and Figures	iii
Executive Summary	iv
I. Introduction	1
II. Description of Study Area	1
III. Project Description	1
IV. Fish and Wildlife Resources and Anticipated Impacts	3
A. Community Descriptions	3
B. Taxa and Important Species	4
VII. Fish and Wildlife Service Recommendations	8
A. Project Design	8
B. West Indian Manatee	8
C. Sea Turtles	8
VIII. Summary	9
IX. Literature Cited	10

List of Tables and Figures

Figures

Fig. 1. Vicinity Map and Project Limits	2
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EXECUTIVE SUMMARY

The Corps of Engineers has requested comments from the Fish and Wildlife Service regarding Federal assumption of maintenance dredging of Port Everglades Southport Channel and Turning Notch. Dredged material is expected to be deposited at an offshore disposal site. The disposal site is under study by the Environmental Protection Agency and approval for disposal of dredged material is anticipated to occur prior to the first dredging operations by the Corps.

The Port is a winter refuge for manatees due to the warm water effluent of the Port Everglades Power Plant. To avoid adverse impacts on the manatee during dredging, the Service recommends that no maintenance dredging be conducted during the winter months from November 14 through April 1.

If fill suitable for beach disposal is found, the Corps proposes to renourish local beaches with that material. In this event, the Service should be notified of the location and quality of the material and proposed disposal site. This would enable the Service to assess the potential for the fill to damage nearshore reef habitat. In addition, beach deposit could interfere with nesting by threatened and endangered sea turtles if deposit of such fill should occur during sea turtle nesting season. Thus, the Service recommends that if beach fill is to be deposited during the nesting season (May 15 to October 15) that the Corps initiate consultation for sea turtles under Section 7 of the Endangered Species Act.

I. INTRODUCTION

Port Everglades was initially named Hollywood Harbor. Construction was under an agreement between the Cities of Hollywood and Fort Lauderdale. The River and Harbor Act of 1930 authorized Federal maintenance of the locally constructed project. The areas considered for maintenance dredging are recent expansions and additions to the Port. These include the Southport Channel which was recently deepened to 42 feet and widened to 400 feet by the Port Everglades Authority and the turning notch which is a 750 by 900 foot embayment on the western shore of the Southport channel (see Figure 1.).

II. DESCRIPTION OF STUDY AREA

The deep water harbor of Port Everglades is located in southeastern Broward County, Florida. Portions of the Port adjoin the municipalities of Ft. Lauderdale, Dania, and Hollywood. The Port begins to the southwest of the landward extreme of Everglades Inlet in Lake Mabel, where there is a large turning basin. To the south of this, the Intracoastal Waterway creates a narrow inland passage to Dade County. The Southport Channel is an 8,000-foot reach of this waterway from the main turning basin to the Dania Cut-off Canal, which branches off to the west. North of the Dania Cut-off Canal, on the western shore of the Southport Channel, there is a turning notch under construction. A cooling canal from the Port Everglades Florida Power and Light Power Plant empties into the Southport Channel approximately 1200 feet north of the turning notch (see Figure 1.).

III. PROJECT DESCRIPTION

The areas considered for future maintenance dredging by the Corps of Engineers are shown in Figure 1. They consist of the Southport Channel and Turning Notch constructed by the Port Everglades Authority under Federal and State permits and described in the November 27, 1987 FEIS. Current projections indicate that the maintenance cycle for this slow-shoaling harbor would be at 4-year intervals with the first maintenance dredging estimated to occur in 1996. The estimated amount of material to be excavated during the initial maintenance would be 45,000 to 60,000 cubic yards.

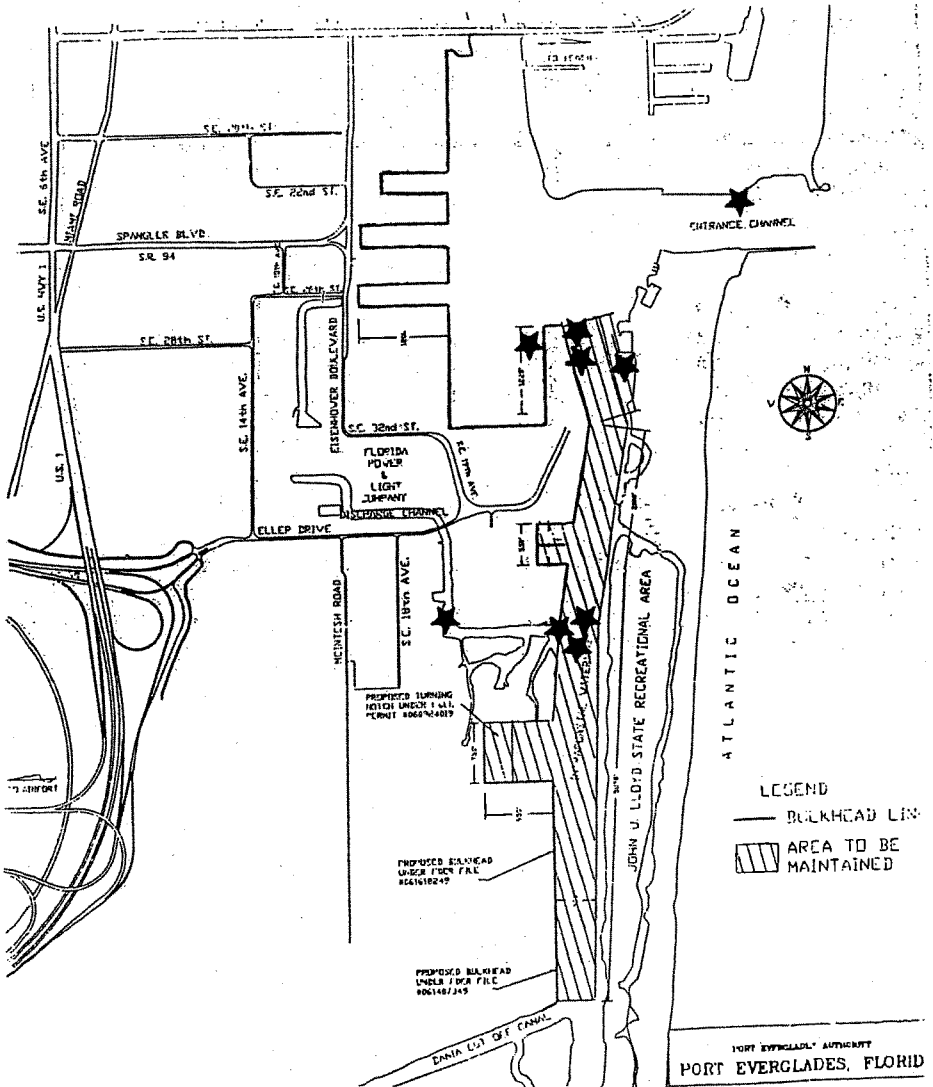


Figure 1. Project Vicinity and Project Limits.

★ Boat/Barge manatee mortalities

Should some of the dredged material be found suitable, the Corps will pursue the measures required by the Clean Water Act and Endangered Species Act to obtain approval for beach deposit. However, most of the material is expected to consist of fine grained silt and clay with shell and to be unsuitable for beach deposit. This material will then be deposited at an ocean disposal site which is expected to be approved for disposal of dredged material by the EPA prior to the subject dredging operations. The site is approximately 3.5 miles eastnortheast of Everglades Inlet and ranges in depth from 625 to 712 feet. If approval is not granted in time, the interim disposal site, which has been used for past disposal, would be used.

IV. FISH AND WILDLIFE RESOURCES AND ANTICIPATED IMPACTS

Fish and wildlife habitats in the project area which could be affected by the project include the benthic area or bottom of the channel and turning notch, the water column within the turbidity plume, the ocean or inland waterway bottom where suspended sediment settles, the benthic habitat at the ocean disposal area, and possibly the supralittoral beach which serves as nesting habitat for four species of threatened and endangered sea turtles.

A. Community Descriptions

Benthic habitat. Numerous species of sessile macro-invertebrates are likely to inhabit the dredge area. These would include coelenterates, hydrozoans, bivalves, gastropods, annelids, crustaceans, sea cucumbers, brittlestars, etc. These will be unavoidably lost during dredging. However, this habitat is not unique and the area will likely recover in a short time. Motile fauna expected to utilize the dredge area bottom would include penaeid shrimp, callinectid crabs, stingrays, and flounder. These species should easily avoid the dredge and no adverse effects to them are anticipated.

Water column. Maintenance dredging will result in the suspension of fine sediment temporarily reducing water quality in the dredge area and down current from the dredge area. The reduction in water clarity which occurs during dredging would impair feeding and reproduction of the fishes which inhabit the waters of Port Everglades. These effects would be temporary and may be avoidable by more motile species.

During ebb tide, suspended sediment would be transported out to sea through Everglades Inlet. Ocean currents are expected to disperse the sediment over a wide area reducing the negative effects to bottom organisms which would otherwise result when the sediment settles to the sea floor. Similar impacts due to settling of sediment could occur when dredging is conducted during an incoming tide. However, severe adverse impacts are unlikely due to the scarcity in Broward County of bottom vegetation such as sea grasses which would be vulnerable to such effects.

Offshore disposal area bottom. The bottom at the offshore disposal area was mapped by side-scan sonar and video under contract to the Environmental Protection Agency (Continental Shelf, 1986). Official designation of the site as an offshore disposal area is expected to be accomplished under the Marine Protection, Research, and Sanctuary Act of 1972 by EPA in 1993, prior to the first anticipated maintenance dredging operations.

B. Taxa and Important Species

Fishes. Some of the fish species which inhabit the dredge area and that area expected to lie within the area of the turbidity plume are the jack crevalle, sea cat, mullet, ladyfish, tarpon, snook, stingrays, needlefish and barracuda. All of these species are non-territorial and would leave the area where living conditions are made intolerable by the proposed dredging. Some individuals of territorial species such as the damselfishes and gobies may be lost during dredging.

Sea Turtles. Should beach disposal of dredged material occur, the supralittoral beaches, which serve as nesting habitat for threatened and endangered sea turtles could be adversely impacted. Four species of sea turtle are known to nest on the beaches of Broward County. The loggerhead turtle (*Caretta caretta*) nests primarily on beaches from North Carolina to Florida. Approximately ninety percent of loggerhead nesting within the U.S. occurs in Florida. Green turtle (*Chelonia mydas*) nesting within the U.S. occurs principally along east central Florida beaches. Nesting densities are much lower than for the loggerhead. The leatherback (*Dermochelys imbricata*) rarely nests in the continental U.S. The hawksbill (*Eretmochelys imbricata*) is also a rare nester on southeastern U.S. beaches with only 1-2 nests recorded annually in Florida.

As part of a sea turtle conservation project, Broward County routinely surveys for sea turtle nests and relocates those nests determined to be endangered to safer locations (Broward County, 1988; 1989). The following information was obtained from reports on the results of the 1988 and 1989 relocations. Nesting activity during 1988 lasted 119 days (May 1- August 28) resulting in a total of 1397 nests laid. Nesting activity lasted 141 days in 1989 and resulted in 1695 nests. County-wide nesting success (nests laid per total number of crawls) was 50.6 percent in 1988 and 55.0 percent in 1989. In 1988, a total of 796 nests were relocated to hatcheries or safer beach locations. This number increased to 1392 in 1989. Hatching success for the 1988 relocated nests was 83.2 percent as compared to 82.6 percent for the 270 "in situ" nests that were monitored. Hatching success declined sharply in 1989 for both relocated and "in situ" nests to 69.9 percent and 66.7 percent, respectively.

Some adverse effects on sea turtles could result from this project should the Corps elect to deposit dredged material on local beaches. These include:

1. Scarp development at the edge of the beach fill, rendering the beach inaccessible to nesting turtles,
2. Entrapment of the hatchlings from unrelocated nests in the vehicle tracks while the project is under construction,
3. Alterations in moisture levels or other aspects of the microhabitat within the nest cavity,
4. Alteration of unknown beach signature components which may disrupt nest site fidelity,
5. Compaction and cementation of beach sediments which causes reduced nesting success (nesting emergences/total emergence x 100), and aberrant nest cavity construction which in turn can result in broken eggs.

West Indian manatee. Manatees use the waterways of Broward County throughout the year and congregate at discharges from the Florida Power and Light Company's power plants at Port Everglades and Ft. Lauderdale during winter months. These two warm water refugia are the only known winter aggregation sites used by manatees in Broward

county, with the Port Everglades Power Plant being the more significant and most heavily used of the two. As many as 251 manatees have been sighted in the Port Everglades cooling canal during winter cold spells.

Because of the potential for this project to adversely impact the manatee, the Service has prepared the following Biological Opinion.

Biological Opinion

The Fish and Wildlife Service and the Florida Department of Natural Resources have compiled manatee mortality records throughout the species' range since 1974. Over the last 15 years (from 1974 through December 1990), approximately 24 percent of the reported manatee mortalities were caused by collisions with boats and/or barges. The difference between the east and west coasts of Florida in this category is significant. Of the total mortality due to boat or barge collisions, 69 percent has occurred on the east coast, while only 31 percent has occurred on the west coast. Over 80 percent of all manatees observed in Florida carry boat-caused scars. In addition to lethal wounds, non-lethal scarring injuries may impair feeding, reproduction, and parenting activities of manatees.

Since the manatee salvage program began in 1974, 56 manatee deaths have been recorded in Broward County. Of these deaths, 22 are directly attributed to boat/barge collisions. An additional 13 manatees have died from undetermined causes, possibly including some boat-related causes.

Nine boat-related manatee deaths have been reported from the area between the project site and the mouth of Everglades Inlet since 1974. Mortalities are concentrated near two areas which pose a particular threat to manatees. Four of these animals were recovered in front of the Port Everglades Power Plant, four more manatees were recovered near the commercial port at the main turning basin, and one other was recovered from within the Inlet (See Figure 1). All of these mortalities occurred during the period of lower ambient water temperatures, between December and March when manatees are concentrated near the warm water effluent of the Port Everglades Power Plant. Six of these have occurred since 1987.

The risks posed to manatees by this project will be incurred by 1) the alteration of boat traffic which will be forced into a narrower portion of the Intracoastal Waterway, around the dredge and barge, and 2) the danger of a collision with manatees by the dredge, barge, tenders, or tug boats during dredging operations. The area of increased risk will extend from the mouth of the Dania Cut-off Canal at it's intersection with the Intracoastal Waterway, north through the Intracoastal Waterway to the Inlet channel and east to the mouth of the Inlet.

The Fish and Wildlife Service is concerned about the potential for this dredging project to adversely affect the manatee due to the proximity of the project to an area which has already been documented to be hazardous to manatees. However, it is our Biological Opinion that since these operations have already been carried out in the past by the Port Authority (except within the turning notch which is not yet constructed), that the assumption of dredging responsibilities by the Corps of Engineers will not increase existing risks to manatees and, therefore, is not likely to jeopardize the continued existence of the West Indian manatee.

Conservation Recommendations

The following conservation recommendations are provided to reduce the potential for adverse impacts on the manatee:

1. All work will be conducted from April 1 through November 14 to avoid the period of highest manatee concentrations.
2. The Corps will strictly adhere to the standard manatee construction precautions.
3. All boats associated with maintenance dredging operation will be equipped with propeller guards or kort nozzels for the protection of the manatee.

Incidental Take

In meeting provisions for incidental take in Section 7(b)(4) of the Act, we have reviewed the biological information and other available information relevant to this permit action. Based upon our review, incidental take is not authorized for the manatee during implementation of this project. If an accident involving a manatee occurs, all work should cease, and our Vero Beach, Florida, Field Office should be notified immediately (1360 U.S. Highway 1, Suite 5, Vero Beach, Florida 32960 - 407/562-3909).

This concludes consultation under Section 7 of the Act, as amended. If there are modifications made to the project or if additional information becomes available relating to threatened or endangered species, re-initiation of consultation may be necessary.

VII. FISH AND WILDLIFE SERVICE RECOMMENDATIONS

The Fish and Wildlife Service recommends that the following be included in future project planning:

A. Project Design

1. Should material suitable for beach disposal be found within the dredge area, the Service should be notified before that material is deposited on Broward County beaches.
2. The Corps should supply the Service with the results of all silt/clay analyses of the material, the precise locations from which the material for analysis was taken, and the area selected for beach deposit. This would enable us to evaluate the potential for adverse impacts on nearshore reefs by deposit of the fill.
3. In general, we recommend that suitable fill, if found, be deposited on the northernmost beaches of John U. Lloyd State Recreation area above M.H.W. This would create a feeder beach which would gradually move seaward to replace sand from below M. H.W. which is eroded by storms or transported to the south by littoral drift.

B. West Indian manatee See Conservation Recommendations made in the Biological Opinion section of this report.

C. Threatened and Endangered Sea Turtles

1. To minimize the need for nest relocation and, therefore reduce the possibility of nest burial, crushing of missed nests, and disturbance to nesting females, deposit of dredged material on beaches should be started after October 15 and completed before May 15 (preferably after November 5 and before May 1). Otherwise, we recommend that the Corps of Engineers initiate consultation under Section 7 of the Endangered Species Act to address the possible impact of the project to endangered sea turtles.

VIII. SUMMARY

The Corps of Engineers has requested comments from the Fish and Wildlife Service regarding assumption of maintenance dredging of the Southport Channel and Turning Notch at Port Everglades by the Corps.

The Port is a winter refuge for manatees due to the warm water effluent of the Port Everglades Power Plant. To avoid adverse impacts on the manatee during dredging, the Service recommends that no maintenance dredging be conducted during the winter months from November 14 through April 1.

If fill suitable for beach disposal is found, the Corps proposes to renourish local beaches with that material. In this event, the Service should be notified of the location and quality of the material and proposed disposal site. This would enable the Service to assess the potential for the fill to damage nearshore reef habitat. In addition, beach deposit could interfere with nesting by threatened and endangered sea turtles if deposit of such fill should occur during sea turtle nesting season. Thus, the Service recommends that if beach fill is to be deposited during the nesting season (May 15 to October 15) that the Corps initiate consultation for sea turtles under Section 7 of the Endangered Species Act.

LITERATURE CITED

- Broward County Environmental Quality Control Board. 1988. Sea Turtle Conservation Project Broward County, Florida, 1988 Report. Broward County E.Q.C.B, Ft. Lauderdale, Florida.
- Broward County Environmental Quality Control Board. 1989. Sea Turtle Conservation Project Broward County, Florida, 1988 Report. Broward County E.Q.C.B, Ft. Lauderdale, Florida.
- Continental Shelf Associates, Inc. 1986. Field Studies in Nearshore Areas at Port Everglades, Palm Beach County, and Brevard County, Florida. Unpublished Report Prepared for the Environmental Protection Agency. Continental Shelf Associates, Jupiter, Florida.

APPENDIX B

Functional Assessment of Mangrove Habitats

Functional Assessment for Compensatory Mitigation for Impacts to Mangrove Wetlands at Port Everglades, Broward County

Impact Site Location and/or Mangrove Type	Average Height	EW RAP Valuation	Acreage	Functional Units
Mixed habitat	20'	0.70	0.64	0.448
John U. Lloyd SRA-mature	20'	1.00	0.68	0.680
John U. Lloyd SRA-mature w/ riprap	20'	0.97	0.41	0.398
Previous restoration sites	10'	0.92	0.64	0.590
Turning Notch preservation site	25'	0.85	8.48	7.210
Dania Cutoff Canal-mature	15'	0.90	0.84	0.756
Dania Cutoff Canal-stunted	4'	0.55	1.05	0.577
Dania Cutoff Canal, north side- scattered	10'	0.53	0.50	0.265
Total Functional Units Lost (i.e., Debits)				10.924

West Lake spoil island valuation = 0.21

$$(\Delta T)A = FU$$

where Δ = functional improvement of system from time of implementation to full function
 T = temporal loss factor (value from table body)
 A = minimum area of compensation necessary (does not include risk factor)
 FU = functional units

Assumptions:

- (1) 1 ft/yr growth
- (2) average current tree height: 56% at 25', 44% at 14', therefore overall mean: 20.16'
- (3) 20-year temporal lag in functionality (year finish, YF , = 20)
- (4) compensation initiated in year of habitat removal (year start, YS , = 0)
- (5) $\Delta = 0.97 - 0.21 = 0.76$
- (6) $FU = 10.92$

Table (version 4.2) value for YF_{20} and $YS_0 = 0.7324$ (based on 3% discount rate)

$$(0.76)(0.7324)A = 10.92$$

$$A = 19.57$$

To account for uncertainty (risk), necessary acreage is expanded to 105% of calculated A :
 $19.57 \times 1.05 = 20.55$ acres (required to compensate for loss of 10.92 FU at Port Everglades)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960



February 15, 2001

Colonel James G. May
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Colonel May:

Thank you for your letter dated February 5, 2001, regarding scoping for delivery of Fish and Wildlife Coordination Act (FWCA) reports for several beach renourishment and navigation projects in south Florida.

The U.S. Fish and Wildlife Service (Service) shares your concerns about the cumulative magnitude of the work being required for this fiscal year. Your letter suggested that the Army Corps of Engineers (Corps) could increase the amount of work that would be conducted by private contractors to complete this work in keeping with your schedule for these projects. Over the past few years, we have discussed this situation with Mr. Hanley Smith of the Corps, and the Service agreed that additional field surveys by contractors would be necessary, with the Service spending a reduced number of days in the field to essentially review the accuracy and completeness of the contractor's findings prior to the Service's preparation of draft and final FWCA reports. The timing of our ground-truthing field inspections might vary among different projects, but would typically occur after the contractor has been able to conduct their field work and has made preliminary findings about the impact of the project on fish and wildlife resources. In addition to our previous recognition of this situation, the current hiring freeze in the Department of the Interior will, in the short term, make it even more difficult to dedicate Service personnel to any more than the limited field checking described above for the projects you listed in the table enclosed with your letter. You anticipated delivery of several draft FWCA reports in April to August of this year.

The Service agrees that the Corps should obtain the necessary field surveys for fish and wildlife resources and their initial assessment of project impacts from contractors. We request that the Corps provide us the opportunity to review draft scopes of work to ensure that they include elements (e.g. maps of seagrass beds with estimates of percent cover and species composition, maps of coral reefs and other hard bottom communities, assessment of the effects of turbidity in dredging areas, etc.) that the Service considers necessary for completeness.

Ren —
Mike —
Yvonne —

Bill L —

Revise SOW w/F
and contract

See
exam
etc

2

Rea B. Port Everglades expansion

Project development/evaluation meetings	
5 days x 1 biologist	\$ 2,305
Resource assessment: field days	
2 days x 2 biologists	\$ 1,844
Resource assessment: information review and research	
5 days x 1 biologist	\$ 2,305
Prepare/review FWCA report	
20 days x 1 biologist	\$ 9,220
Subtotal, Biologist Days	\$15,674
Service Overhead (38%)	\$ 5,956
Subtotal, Biologist Days, with overhead	\$21,630
Supplies, miscellaneous	\$ 200
Total	\$21,830

Rea C. Intracoastal Waterway expansion, Lake Worth Lagoon

Project development/evaluation meetings	
5 days x 1 biologist	\$ 2,305
Resource assessment: field days	
3 days x 2 biologists	\$ 2,766
Resource assessment: information review and research	
5 days x 1 biologist	\$ 2,305
Prepare/review FWCA report	
20 days x 1 biologist	\$ 9,220
Subtotal, Biologist Days	\$16,596
Service Overhead (38%)	\$ 6,306
Subtotal, Biologist Days, with overhead	\$22,902
Supplies, miscellaneous	\$ 200
Total	\$23,102

**EIS
SUB-APPENDIX H**

**CHARACTERIZATION OF ESSENTIAL FISH HABITATS
IN THE PORT EVERGLADES EXPANSION AREA**

**FINAL
FEASIBILITY REPORT
AND ENVIRONMENTAL IMPACT STATEMENT
PORT EVERGLADES HARBOR NAVIGATION STUDY
BROWARD COUNTY, FLORIDA**



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

AUG 14 2014

Planning and Policy Division
Environmental Branch

Dr. Roy Crabtree, Ph.D.
Regional Administrator
National Marine Fisheries Service
263 13th Avenue South
St. Petersburg, Florida 33701-5505

Dear Dr. Crabtree:

The purpose of this letter is to provide an update to the National Marine Fisheries Service on proposed changes to the proposed Port Everglades Harbor Deepening Project and updated responses to the Service's Essential Fish Habitat (EFH) Conservation Recommendations. We appreciate the collaborative efforts of your staff in the development of significant beneficial revisions to the proposed project, including the blended coral reef mitigation plan.

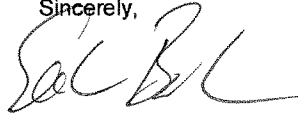
Under the applicable provisions of the Magnuson-Stevens Act, the Service provided EFH Conservation Recommendations by letter dated August 13, 2013. Jacksonville District responded by letter to those recommendations by letter dated October 11, 2013. However, since that time, the project has undergone significant modifications, including an updated functional impact assessment and development of the blended (artificial reef construction plus coral propagation and outplanting) mitigation plan offsetting unavoidable impacts to hardbottom areas.

As discussed with members of your staff by conference call June 20, 2014, I am providing updated responses to the Service's August 13, 2013 Conservation Recommendations, taking into account revisions to the project since that date. To assist your review, copies of the revised mitigation plan and survey drawings from Corps maintenance dredging performed in 2005 and 2013 are provided. These updated responses and information complete the Jacksonville Districts' requirements under the Magnuson-Stevens Act and we consider the consultation to be concluded.

The draft feasibility report and draft EIS are still being reviewed internally for technical and policy compliance by the Corps. Although we do not expect substantive changes, some of the information and analyses contained in the draft report/EIS may be updated further as a result of final technical and policy reviews. In addition, revisions to some sections and appendices are still being developed.

The complete revised report, including a discussion of the path forward for continuing coordination efforts on the monitoring plan, will be provided to your office once we receive approval from our headquarters. Please contact me at 904-232-1517 or Mr. Jason Spinning, telephone 904-232-1231 for further information or assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric L. Bush".

Eric L. Bush
Chief, Planning and Policy Division

3 Encls

1. Responses to Conservation Recommendations
2. Updated Coral Reef Mitigation Plan
3. Survey Drawings of Maintenance Dredging (2005, 2013)

Copies Furnished:

Mr. Mark Thomasson, Florida Department of Environmental Protection, 2600 Blair Stone Road, M.S. 3560, Tallahassee, Florida 32399
Ms. Danielle Irwin, Florida Department of Environmental Protection, 2600 Blair Stone Road, M.S. 3560, Tallahassee, Florida 32399
Ms. Lauren Milligan, Florida Department of Environmental Protection, 2600 Blair Stone Road, M.S. 3560, Tallahassee, Florida 32399

RESPONSES TO CONSERVATION RECOMMENDATIONS

1. The USACE shall provide a mitigation plan that assumes no less than 21.66 acres of direct impacts to coral reef and hardbottom habitats.

The Corps has revised the hardbottom impact assessment to reflect a total impact area of 21.70 acres of potential impacts in the Outer Entrance Channel (OEC) footprint. Through coordination with NMFS and other resource agencies and after policy review by our higher headquarters, we revised the Habitat Equivalency Analysis (HEA) and Mitigation Plan/Incremental Cost Analysis to reflect this impact and associated mitigation.

Of the 21.70 acres of coral reef within the area to be dredged, the Corps believes 15.33 acres will be 100% impacted through total removal of habitat, whereas 6.37 acres of reef may be subjected to impacts from sediment loading or impacts from rubble moving from the construction area down-slope to areas below dredging depth. The mitigation plan provides compensation for the 100% functional losses associated with 15.33 acres of direct habitat removal and 100% functional loss for 10% of the 6.37 acres of potential impacted area below dredging depth. Construction monitoring will determine the need for and extent of additional compensation necessary to offset impacts greater than the 10% already addressed. Per the Terms and Conditions listed in the March 7, 2014 Biological Opinion issued by NMFS, the Corps will work with NMFS and other agencies to refine the plan for monitoring impacts to the remaining 5.73 acres of coral reef located deeper than the authorized depth.

2. The USACE shall provide a mitigation plan that assumes no less than 19.31 acres of anchor impacts, in the case that the dredge equipment selection requires anchoring outside the federal channel.

While the extent of potential impacts to coral reef and hardbottom habitat from dredging equipment anchoring outside the channel and the amount of mitigation needed have not been determined, should dredging equipment anchor outside of the area to be dredged, monitoring will be conducted to determine actual impacts outside the channel and the Corps has committed to mitigate as needed to offset functional losses. We have included a contingency line-item in the total project cost estimate to provide mitigation for impacts caused by anchor-cables. The mitigation would be achieved by increasing the number of propagated/transplanted corals consistent with the HEA-based coral plan.

3. The USACE shall provide a monitoring plan to evaluate physical and biological impacts that may occur outside the channel. This plan shall reflect substantial input by NMFS.

The Terms and Conditions of the Biological Opinion issued by NMFS require the Corps to work with NMFS and other resource agencies to refine the monitoring plan and evaluate its effectiveness during project implementation.

The Corps is committed to incorporating lessons learned from the monitoring at Port of Miami and other similar projects into the monitoring plan for the Port Everglades project. See the response to CR 1 for coral reef impact monitoring of areas deeper than the authorized depth.

4. The USACE shall provide a mitigation plan that reflects no less than 111.87 acres of indirect impacts that would occur in the 150 meter zone surrounding the federal channel. The final EIS should clearly describe how the amounts of indirect impacts to coral reefs are determined.

Inclusion of indirect impacts in the updated HEA report addresses this issue.

5. In the case that blasting is required; USACE shall work with NMFS and other resource trustees to develop a monitoring program. Substantial input from NMFS shall be reflected in the final blasting monitoring plan.

The Corps included a monitoring plan to evaluate the potential effects associated with confined underwater blasting in the Draft EIS as part of Appendix E-5, beginning on page 9. This monitoring plan was based on the previously permitted and constructed Miami Harbor Phase II project, where confined underwater blasting was conducted, as well as the Miami Harbor expansion project (currently underway). The monitoring plan was previously coordinated with FWC, USFWS, and NMFS-PRD for their input regarding protected species that may be in the project vicinity. The proposed Port Everglades plan replicates the plan prepared for the Miami Harbor expansion, permitted by the state and previously consulted on under the Endangered Species Act by USFWS and NMFS. As stated on page 1 of the confined underwater blasting monitoring plan, any lessons learned from Miami Harbor will be incorporated into the monitoring plan prior to construction activities at Port Everglades to ensure the most recent information is utilized.

6. The USACE shall update the HEA with scientifically defensible inputs on equivalency of natural coral reefs and boulder piles, recovery rates of dredged coral reef habitat, recovery rates of boulder piles, and discount rates. The final HEA shall reflect actual costs of boulder piles with substantial input from NMFS.

Updated values for the HEA were agreed upon by NMFS and the Corps during the April 17, 2014 meeting in St. Petersburg, FL. The Corps will provide NMFS with the updated HEA and mitigation plan reflecting these changes. In addition, the Corps agrees to acknowledge in the final EIS that NMFS has a different view on discount rates than Corps policy.

7. The USACE shall adopt a compensatory mitigation plan that is the most technically sound approach to offsetting the loss of coral, coral reef, and hardbottom habitat. The final coral reef mitigation plan shall not take credit twice for coral relocation. The final coral reef mitigation plan shall reflect input from NMFS.

See response to EFH CR 6.

8. As a project minimization measure, the USACE shall relocate all corals in accordance to Table 2 in the draft EIS Appendix E-4. Coral relocation shall occur in expansion areas and previously dredged areas. The Coral relocation plan should include clearly defined performance standards, monitoring protocols, and schedule.

The blended mitigation plan includes relocation of all corals ≥ 10 cm that are within the area of direct impacts. These corals will be relocated to both constructed boulder reefs and/or adjacent natural hardbottom areas prior to dredging.

The Corps acknowledges NMFS' request to relocate corals < 10 cm. The Corps appreciates NMFS sharing publications that examine the feasibility of such relocation, but the Corps has concluded it is cost-prohibitive and not practicable (based on survival rates) to move corals smaller than 10 cm. If credible new information becomes available to better assess the practicability of this relocation, the Corps will consider it and coordinate further with NMFS and other resource agencies.

Also, see response to CR1.

9. The USACE shall update the EIS to evaluate the potential for the deepening and widening of the OEC to create a "sink" or trench whereby coral fragments and larvae moving northward or southward along the reef line fall into the channel and become no longer viable. This update to the EIS shall reflect significant input from NMFS.

Jacksonville District does not agree with NMFS' determination that the deepening and widening of the OEC would create a "sink" adversely affecting coral reproduction. We included a detailed assessment of this concern in Section 4.5.10.2.2 of the draft EIS as well as in the September 2012 Biological Assessment provided as part of the ESA consultation. These actions address this recommendation.

10. The USACE shall update the EIS to describe no less than 8.45 acres of seagrass habitat impacts. The EIS shall be updated to include historically mapped and ground-truthed seagrass habitat areas that would be eliminated by dredging and no longer available as contraction and expansion habitat.

At the meeting between NMFS and the Corps on April 17, 2014, the Corps agreed to a base mitigation plan compensating for 4.01 acres of impact to vegetated areas and to include a contingency cost estimate to mitigate for up to 8.45 acres of impact (including areas within the project footprint previously consulted on and currently unvegetated seagrass habitat not within prior maintenance-dredged areas). The amount of mitigation is to be based on future pre-construction surveys.

All credible scientific information regarding the functional value of ephemeral seagrass habitat will be considered at that time to determine the amount of additional mitigation, if any. The Feasibility Report and EIS will be revised to reflect this commitment. The Corps is also providing NMFS with survey drawings of areas that have been maintenance-dredged by the Corps relative to locations where seagrass has been observed in or near the project footprint.

11. The USACE shall update the EIS to describe indirect impacts to seagrass habitat. This update shall reflect input from NMFS. Specifically, NMFS requests USACE update the EIS to identify each seagrass impact polygon on a map and provide a narrative that explains how the impact area was calculated for each seagrass impact area.

The Draft EIS discusses the potential for indirect effects to seagrasses in Sections 4.4.1.2. The Corps will include electronic maps of each seagrass polygon on the CD with the final EIS as an appendix and provide separately to NMFS; however, these will not be printed in the EIS. Each of the individual seagrass assessment reports includes a description of the methodology utilized to map these habitats.

12. The USACE shall develop supplementary compensatory mitigation for seagrass impacts to account for the loss of all seagrass habitat that has been historically mapped and ground-truthed and will become unavailable as habitat after the dredging occurs. The additional mitigation shall appropriately address seagrass impacts that occur closer to or within the inlet. The plan shall address how the site selection for mitigation locations is supported by the best available literature. This plan should include clearly defined performance standards, monitoring protocols, and schedule. The mitigation amounts shall be based on a functional assessment that reflects NMFS and other resource trustee input.

The Corps acknowledges the amount of seagrass mitigation is contingent upon the outcome of CR 10. The Corps also acknowledges the amount of seagrass credits available at West Lake Park may not be sufficient to meet mitigation obligations. Once the final seagrass impact acreage is determined the Corps will work with NMFS and other resource agencies to develop other mitigation alternatives, if required. This commitment will be included in the final EIS.

13. The USACE shall update the cumulative impacts section and description of cumulative impacts to coral reefs and water quality. The EIS should be updated to acknowledge the findings of Walker et al. (2012) that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef as dredged material disposal, which resulted in the loss of over six million corals and approximately 180 acres of live coral tissue area.

The Corps agrees to update the EIS to include findings presented in Walker et al. (2012); however, the Corps believes the coral cover estimates presented in that study are high and refer to habitat burial not caused by port dredging. Regardless of the cause of the impact, the Corps agrees that the impacts should be included in a discussion of cumulative impacts in the final EIS.

14. The USACE shall require use of best management practices (BMP) to avoid and minimize the degradation of water quality and minimization impacts to hardbottoms an seagrass habitat, including the use of staked turbidity curtains around the work areas marking of seagrass and hardbottom habitat to facilitate avoidance during construction, and prohibiting staging, anchoring, mooring, and spudding of work barges and other associated vessels over seagrass and hardbottom. These BMPs shall be coordinated with NMFS for approval prior to commencement of work.

The Corps requires contractors to utilize best management practices (BMP) in all construction projects, and the EIS specifically listed BMPs that would be employed in Section 4.4.2.2 of the EIS. However, by federal law, only the Contracting Officer or the Contracting Officer's Representative may approve contractor's submittals and plans, and as such, NMFS can not be given approval authority over any aspect of the construction associated with Port Everglades. However, the Corps will work with NMFS and other resource agencies to provide opportunities to review draft plans and specifications developed for the project, as we have previously done to address specific resource concerns on other projects.

Port Everglades Navigation Improvements- Final Comprehensive Mitigation Plan and Incremental Cost Analysis

Prepared for



Jacksonville District
U.S. Army USACE of Engineers
Jacksonville, Florida

by



Dial Cordy and Associates Inc.
Jacksonville Beach, Florida

With Input by NOAA-Fisheries as a Cooperating Agency under NEPA



Revised – July 2014

TABLE OF CONTENTS

	Page
LIST OF FIGURES.....	IV
LIST OF TABLES.....	IV
FRAMEWORK	1
1.0 PROJECT OVERVIEW	1
2.0 HABITAT IMPACTS DUE TO PROJECT CONSTRUCTION	4
3.0 MITIGATION PLANNING AND POLICIES.....	7
4.0 MITIGATION FOR UNAVOIDABLE IMPACTS TO SEAGRASS HABITATS	9
4.1 Determining Mitigation Needs for Seagrasses	9
4.2 Seagrass Mitigation Alternatives.....	10
4.3 Incremental Cost Analysis Results for Seagrasses Mitigation Alternatives	14
4.3.1 Expected Cost of Alternative Seagrass Mitigation Plans.....	14
4.3.2 Seagrass Mitigation Benefits	14
4.3.3 Construction/ Initial Cost per Seagrass Functional Unit.....	14
4.3.4 Cost-Effective Seagrass Mitigation Plan.....	15
4.4 Proposed Mitigation Plan for Seagrasses.....	15
4.5 Monitoring and Adaptive Management for Seagrass Mitigation.....	17
4.6 Seagrass Mitigation Success Criteria	18
4.7 Adaptive Management/Contingency Plan for Seagrass Mitigation	18
5.0 MITIGATION FOR UNAVOIDABLE IMPACTS TO MANGROVE WETLANDS	19
5.1 Determining Mitigation Needs for Mangrove Wetlands	19
5.2 Mangrove Wetland Mitigation Alternatives.....	20
5.3 Incremental Cost Analysis Results for Mangrove Wetland Mitigation Alternatives	20
5.3.1 Expected Cost of Alternative Mangrove Wetland Mitigation Plans	20
5.3.2 Mangrove Wetland Mitigation Benefits	20
5.3.3 Construction/ Initial Cost per Mangrove Wetland Functional Unit.....	20
5.3.4 Cost-Effective Mangrove Wetland Mitigation Plan	21
5.4 Proposed Mitigation Plan for Mangrove Wetlands.....	21
5.5 Monitoring and Adaptive Management for Mangrove Wetland Mitigation.....	22
5.6 Mangrove Wetland Mitigation Success Criteria	22
5.7 Adaptive Management/Contingency Plan for Mangrove Wetland Mitigation	22
6.0 MITIGATION FOR UNAVOIDABLE IMPACTS TO HARDBOTTOM HABITATS	23
6.1 Determining Mitigation Needs for Hardbottom Habitats	23
6.2 Hardbottom Habitat Mitigation Alternatives	24
6.3 Incremental Cost Analysis Results for Hardbottom Habitat Mitigation Alternatives	33
6.3.1 Expected Cost of Alternative Hardbottom Habitat Mitigation Plans	33
6.3.2 Hardbottom Habitat Mitigation Benefits	34

6.3.3	Construction/ Initial Cost per Hardbottom Habitat Functional Unit	35
6.3.4	Cost-Effective Hardbottom Habitat Mitigation Plan	37
6.3.5	Hardbottom Habitat Mitigation Cost Based on Selected OEC Depth Option	37
6.4	Proposed Mitigation Plan for Hardbottom Habitats	38
6.4.1	General Artificial Reef Considerations	38
6.4.2	Location, Materials, and Design	39
6.4.3	General Reef Enhancement Considerations (<i>NMFS – NEPA Cooperating Agency</i>) 42	
6.4.4	Location, Materials, Design (<i>NMFS – NEPA Cooperating Agency</i>)	43
6.5	Monitoring and Adaptive Management	44
6.5.1	Hardbottom Habitat Artificial Reef Mitigation	44
6.5.2	Outplanted Nursery Corals	46
6.6	Hardbottom Habitat Mitigation Success Criteria	46
6.7	Adaptive Management/Contingency Plan for Hardbottom Habitat Mitigation	46
6.7.1	Artificial Reef	46
6.7.2	Outplanted Nursery Corals	47
7.0	MITIGATION SUMMARY	48
8.0	REFERENCES	49

APPENDIX E-1 Environmental Permits for Improvements at West Lake Park

APPENDIX E-2 Mitigation Requirements Analysis for Impacts to Hardbottom Resources

APPENDIX E-3 Draft Compensatory Mitigation Recommendations of the Port Everglades
Reef Group for Navigation Improvements at Port Everglades Harbor (2004)

APPENDIX E-4 NMFS-Developed Mitigation Plan for Impacts to Reefs and Hardbottom Habitats

APPENDIX E-5 Mitigation, Monitoring and Adaptive Management Plan

APPENDIX E-6 UMAM Assessments – Impact Areas Seagrasses and Mangroves

LIST OF FIGURES

	<u>Page</u>
Figure 1 Project Area and West Lake Park Location	3
Figure 2 West Lake Park Mitigation Measures	12
Figure 3 West Lake Park Seagrass Survey	13
Figure 4 Ocean Floor Covered with Tires: "Osborne tire-reef"	25
Figure 5 Previously Impacted Area on Outer Reef, South of the Planned OEC Expansion	27
Figure 6 Location of Groundings Offshore of Port Everglades (Gilliam and Moulding 2012)	29
Figure 7 Location of Spoil Shoal Parallel to Port Everglades OEC (Olsen Associates 2004)	30
Figure 8 Proposed Artificial Reef Installation Sites, Broward County	41
Figure 9 - Outplanting and Monitoring scheme	46

LIST OF TABLES

	<u>Page</u>
Table 1 Approximate Acreages of Direct Impacts of Locally Preferred Plan (OEC 48-foot Authorized Depth Option) Implementation by Construction Element and Habitat Type6	6
Table 2 Uniform Mitigation Assessment Methodology Scores for Seagrass Habitats within Impact Area	11
Table 3 Construction/ Initial Cost per Functional Unit of Seagrass Mitigation	15
Table 4 Habitat Restoration and Enhancement Elements at West Lake Park	16
Table 5 Braun-Blanquet Cover Class Definitions	18
Table 6 - Mitigation Costs with Adaptive Management Added	19
Table 7 Uniform Mitigation Assessment Methodology Scores for Mangrove Habitats Within Proposed Impact Areas	19
Table 8 Construction/ Initial Cost per Functional Unit of Mangrove Mitigation	21
Table 9 - Mitigation Costs with Adaptive Management Added	23
Table 10 Hardbottom Impact Components and Associated Required Mitigation	24
Table 11 Total Cost of Mitigation Alternatives Based on Habitat Equivalency Analyses for OEC Impacts under Component 1 with Indirect Impacts: 48-foot <i>authorized</i> depth/ 57-foot <i>actual</i> depth	36
Table 12 Construction/ Initial Cost per Acre of Hardbottom Mitigation	37
Table 13 Incremental Mitigation Construction/ Initial Costs for LPP (Plan 2E) Reef Impacts	38
Table 14 - Site Selection Criteria for Outplanting Sites	44
Table 15 - Mitigation Costs with Adaptive Management Added – Artificial Reefs	47
Table 16 - Mitigation Costs with Adaptive Management Added – Coral Propagation	47
Table 17 Proposed Compensatory Mitigation by Habitat/Impact Type	48

FRAMEWORK

In accordance with Section C-3(b)(12)(e) of ER-1105-2-100 (ER-100), mitigation opportunities are under consideration to compensate for effects caused by the proposed project. The Jacksonville District began the mitigation process early in feasibility study, by determining a rough estimate of the potential impacts followed up with potential mitigation measures and a rough order of magnitude cost for those measures. The Jacksonville District worked with other resource agencies and the local sponsor to develop a variety of mitigation alternatives to address the specific impacts associated with the project. .

From a broad perspective, mitigation planning consists of the following three major steps: 1) Avoid Impacts, 2) Reduce Impacts, and 3) Replacement/Compensation. Mitigation (or Replacement/Compensation) can include restoration, enhancement, establishment, and preservation. Whichever option is chosen it should offset impacts, it should be practicable, and it should be environmentally preferable. The hierarchy for mitigation alternatives from the Mitigation Rule (33 CFR 332) is as follows:

1. Mitigation Bank credits
2. In-Lieu fee program credits
3. Permittee-responsible mitigation under a watershed approach
4. On-site and/or in-kind permittee-responsible mitigation
5. Off-site and/or out-of-kind permittee-responsible mitigation

Although the Corps intends to avoid adverse impacts to the environment, rarely can a major construction project be implemented without causing some adverse effects. The type, location, and level of these impacts must be known before actions can be evaluated to avoid those impacts, reduce those impacts or provide appropriate mitigation. Most impacts that could be expected to occur from this proposed project would result from either loss of wetlands adjacent to the (expanded) navigation channel or turning basins, a transition from one wetland type to another upstream of the project, or changes to the aquatic environment within the harbor. Other potential impacts could also result, such as changes in shoreline erosion, salinity intrusion into the groundwater, air emissions, etc. The following summaries describe the preliminary rough estimates of the project impacts and potential measures to mitigate those impacts. All numbers and costs are intended to be used for preliminary planning and rough order of magnitude benefit cost analysis only.

1.0 PROJECT OVERVIEW

The Port Everglades (Port) is a major seaport located on the southeast coast of Florida (Figure 1). The Port has immediate access to the Atlantic Ocean, and is located within parts of the cities of Hollywood, Dania Beach, and Fort Lauderdale. To the east of the Port is a barrier island that contains a U.S. Navy (USN) facility, a Nova Southeastern University (NSU) facility, a U.S. Coast Guard (USCG) facility, and John U. Lloyd Beach State Park (JUL) and its adjacent beaches. South of the Port's Dania Cutoff Canal (DCC) is the West Lake Park (WLP) area. West of the Port is Federal Highway (U.S. 1) which is flanked by the Fort Lauderdale International Airport (FTL). North of the Port is a mixture of small-craft waterways (Intracoastal Waterway and canals) and commercial and residential development.

The existing federal channel depth of 42 feet at Port Everglades does not provide an adequate, safe depth for large tankers and container ships currently visiting the harbor. Those ships must light-load or wait on tides to enter the harbor resulting in transportation inefficiencies and additional expenses. Additionally, the next generation of container ships requires significantly more channel depth to operate efficiently and safely. Specifically, the next generation of container ships comprises post-Panamax vessels, such as the *MV Susan Maersk* with an overall length of 1,138 feet, an extreme breadth of 141 feet, and a maximum draft of 47.6 feet. In contrast, the current largest Panamax

container ships have overall lengths of 965 feet, an extreme breadth of 106 feet, and a maximum draft of 44.3 feet.

Economic analyses have shown that improvements to most of the channels and basins serving the Port are required to achieve efficient transit of the existing fleet and to accommodate the future fleet. Avoiding light-loading of ships, allowing for port calls at all tides, and promoting a fewer number of calls with larger vessels (rather than more calls with smaller vessels) will improve the efficiency of port operations and mitigate the costs of products brought in through the Port.

The Port Everglades pilots have expressed significant concern regarding the safety of navigation to and within the existing federal channels. The entrance channel has dangerously strong cross currents which vary in strength and are unpredictable in direction. These currents generally run at right angles to the direction of the narrow entrance channel making transit hazardous, without local knowledge, for deep draft vessels. These currents have been reported to be as much as 5 knots (National Ocean Service 2010). A wider and deeper entrance channel and deeper inner entrance channel will greatly improve the safety of navigation.

The primary objectives of the federal project are to provide for existing and future vessel movements, resolve navigation restriction problems (including those related to navigation safety); and present opportunities for national economic development.

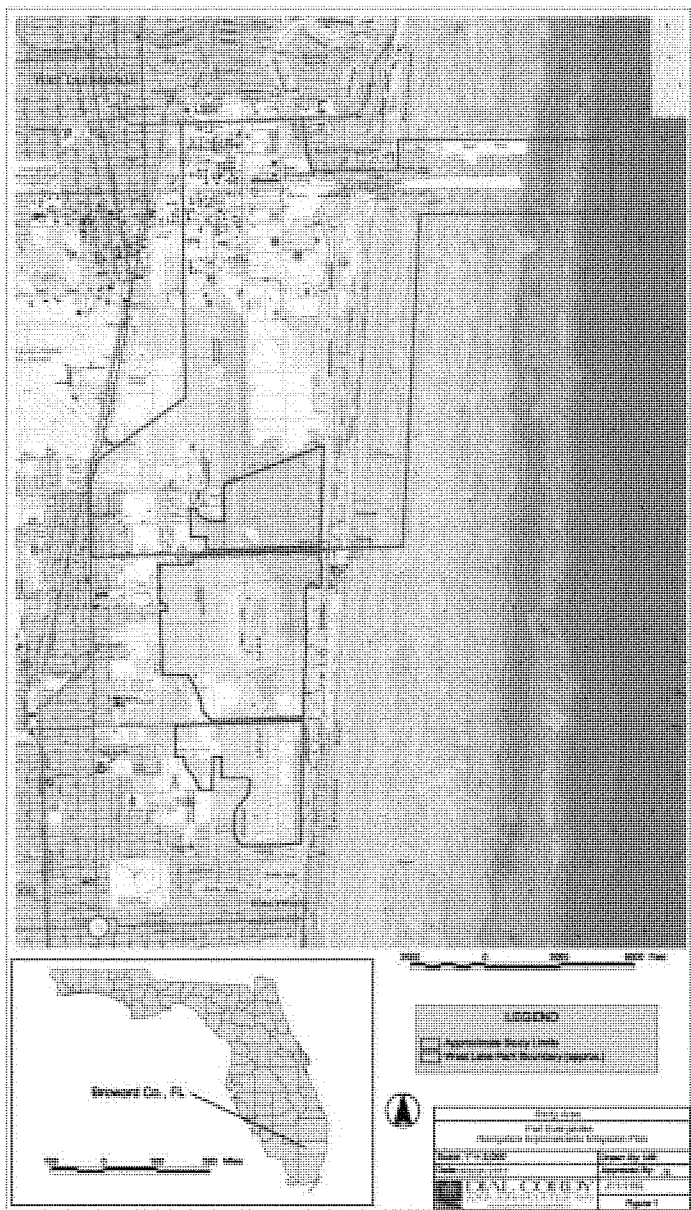


Figure 1 Project Area and West Lake Park Location

2.0 HABITAT IMPACTS DUE TO PROJECT CONSTRUCTION

The existing authorized Port Everglades Federal Navigation Project comprises an Outer Entrance Channel (OEC), an Inner Entrance Channel (IEC), a Main Turning Basin (MTB), a North Turning Basin (NTB), a South Turning Basin (STB), a Southport Access Channel (SAC), and a Turning Notch (TN). The deepening and widening of various components (see main text of EIS for details and maps) will achieve project objectives. The locally preferred plan (LPP) consists of the following navigation improvements (see the EIS for figures):

- a. increase the authorized depth of the OEC from 45 feet (actual existing depths vary) to 48 feet (-48 feet MLLW) (i.e., an *actual* depth of up to 57 feet due to engineering and safety requirements), widen the seaward end of it from 500 feet to 800 feet, and extend the channel 2,200 feet seaward;
- b. increase the authorized depth of the Inner Entrance Channel (IEC) from 42 feet to 48 feet (resulting in an actual depth of 50 feet);
- c. increase the authorized depth of the Main Turning Basin (MTB) from 42 feet to 48 feet (resulting in an actual depth of 50 feet);
- d. widen the rectangular shoal region (the Widener, or "WID") by approximately 300 feet to the southeast of the MTB and deepen it to a new authorized depth of 48 feet (resulting in an actual depth of 50 feet);
- e. widen the Southport Access Channel (SAC) in the proximity of berths 23 to 26, referred to as the knuckle, by about 250 feet and relocate the United State Coast Guard (USCG) facility, a General Navigation Feature (GNF), easterly on USCG property;
- f. shift the existing 400-foot wide SAC about 65 feet to the east from approximately berth 26 to the south end of berth 29 to provide a transition back from the expanded Widener area in the north to the existing federal channel limits to the south;
- g. increase the authorized depth of the SAC from 42 feet to 48 feet (from the area adjacent to berth 23 to the south end of berth 32), resulting in an actual depth of 50 feet;
- h. deepen the Turning Notch (TN), including an area currently being expanded and incorporated into the TN by the local sponsor, from 42 feet to 48 feet (resulting in an actual depth of 50 feet); widen the SAC to the east (across from the TN) by an additional 100 feet over a length of about 1,845 feet; and widen the western edge of the SAC from near the south end of berth 29 to a width of up to approximately 130 feet at the north edge of the TN;
- i. conduct environmental mitigation (see below);
- j. pre-treat rock substrates as necessary and take appropriate measures to safeguard protected species during that process;
- k. dispose of dredged material east of the Port at the Offshore Dredged Material Disposal Site (ODMDS), which is currently proposed for expansion by USEPA. If it is not expanded, the maximum amount of material that can be placed within the existing site will be deposited, and alternatives will be explored for the deposition of remaining material (NEPA coordination to that effect are currently underway).

The Port's 20-year Master/Vision Plan agreement with the Florida Department of Environmental Protection (FDEP) includes expansion of the TN to increase berth capacity. This 400-foot expansion includes the release from the existing 48.27-acre conservation easement of approximately 8.68 acres west of the TN, and deepening the entire notch to 42 feet MLLW. The notch expansion is considered a future without-project condition, and is the sole responsibility of the sponsor, the Port

To achieve the above expansion and reconfiguration in accordance with the LPP, several resource types will be impacted. These are listed below in Table 1. The existing condition and value of the impacted resources, and anticipated future-without-project condition of these resources, are discussed in detail in the Environmental Impact Statement (Sections 3.5.2, 3.6.1, and 3.6.2; and Sections 4.3.1, 4.4.1.1, and 4.4.2.1, respectively).

USACE guidance on mitigation states that mitigation will be conducted for "significant" ecological resources compared to the future without plan condition. The habitat types noted in Table 1 classified as "Resources for which mitigation is proposed" are jurisdictional mangrove wetlands, seagrass beds, and hardbottom/reef habitats that have not been previously dredged. For areas within the LPP's footprint that were previously dredged and which will return to their current state in a relatively short time period, such as silt/sand bottom, and channel walls, mitigation will not be provided (USACE ER 1105-2-100, *Appendix C (Environmental Evaluation and Compliance) Appendix C (Paragraph C-3.d (4)(b))*).

To compensate for unavoidable impacts to these habitat types, USACE has proposed a mitigation plan that will restore the ecosystem functions lost due to removal of wetland, seagrass, and hardbottom habitats in areas that were not previously dredged. The functional value of each of these is briefly discussed below. Additional details may be found in the Environmental Impact Statement.

Mangroves. Mangroves are the dominant wetland type within the study area. Mangroves also represent the largest natural habitat within the project boundaries, and are found in both natural and created wetlands. These habitats comprise either stands of red mangrove (*Rhizophora mangle*) or mixed stands of red mangrove and black mangrove (*Avicennia germinans*). Major associates include white mangrove (*Languncularia racemosa*) and buttonwood (*Conocarpus erectus*). Mangroves are important for shoreline protection and stabilization. In addition, mangrove habitats provide many important ecological functions, including providing refugia for juvenile stages of managed fish species, and have been identified as significant resources for seven federally protected species, and four federally protected subspecies (Odum and McIvor 1990). These systems also provide organic matter that forms the basis of a littoral-zone, marine food web. Sloughs (channels of slow-moving water) penetrate mangrove wetlands adjacent to channel areas. Some of these sloughs are natural, while some are man-made. These are extremely important areas that provide species with passageways for movement into and out of interior mangrove areas. They are also important for refuge and feeding areas for various fishes and invertebrates. These habitats are important within Broward County since the County is urbanized and most of the previously existing mangrove habitat has been removed.

The largest (by area) mangrove habitats in the project area occur along the western shore of JUL and north and west of the TN. Some fringing mangrove wetlands in JUL comprise habitat created by the Port as mitigation for previous impacts to native areas of mangrove. Mangroves to the north and west of the TN fall under a FDEP conservation easement. Sloughs, both manmade and natural, are associated with both of these major mangrove areas.

Table 1 Approximate Acreages of Direct Impacts of Locally Preferred Plan (OEC 48-foot Authorized Depth Option) Implementation by Construction Element and Habitat Type

Resources for which NO mitigation is proposed	Habitat Type	Turning Notch	Southport Access Channel	Midener	Main Turning Basin	Inner Entrance Channel	Outer Entrance Channel	Subtotal per Habitat Type
-----Resources for which mitigation IS proposed-----	Uplands: forest and scrub-shrub		0.37					0.37
	Previously dredged Inlet channel					26.76	52.99	79.75
	Unconsolidated substrates: soft bottom	26.03	119.28	10.94	120.48	4.12		280.85
	Unconsolidated substrates: sand					3.39	9.44	12.83
	Seagrasses: non-special-status		0.15	0.21	*	0.08		0.44
	Seagrasses: <i>Halophila johnsonii</i> only (special-status)		1.77	1.39				3.16
	Seagrasses: <i>H. johnsonii</i> with other species		0.18	0.23				0.41
	Wetlands: mangroves		1.16					1.16
	Hardbottom: shallow colonized pavement						0.02	0.02
	Hardbottom: deep colonized pavement						4.725	4.725
	Linear reef: middle tract						4.555	4.555
	Linear reef: Middle reef below dredge depth						1.882	1.882
	Channel walls: middle reef						0.36	0.36
	Linear reef: outer tract						4.138	4.138
	Linear reef: Outer tract below dredge depth						1.117	1.117
	Spur and groove reef: outer tract						0.734	0.734
	Indirect effects due to sed/tur during const.						109.08	109.08
	Subtotal per Component	26.03	122.91	12.77	120.48	34.35	179.601	505.211

* Approximately 87 square feet for the sum of two areas. (Data based on Arcinfo GIS analysis conducted in January 2014, LADS 2008.)

Seagrasses. The Port project area supports sub-tropical and tropical seagrass communities including *Halophila decipiens* (paddle grass), *Halodule wrightii* (shoal grass), *H. johnsonii* (Johnson's seagrass), and associated green calcareous and brown algae, such as *Penicillus* spp., *Halimeda* spp. and *Caulerpa* spp. Seagrasses colonize soft sediments, generally at the edge of the channel, starting in the IEC, going south to beyond the DCC. These seagrass beds are valuable to fish, manatees and invertebrates which use them as nursery and foraging grounds within Broward County. Since most of the marine inland waters within Broward County are artificially constructed and channelized, suitable habitat for seagrass beds is limited within Broward County.

Hardbottom and Coral Reef. The reef complex within the project area is comprised of a nearshore ridge complex, and a seaward succession of three shore-parallel reefs referred to as the "inner," "middle," and "outer" reefs, or the "first," "second," and "third" reefs, respectively (Goldberg 1973; Moyer *et al.* 2003; Banks *et al.* 2007). The nearshore ridge complex runs parallel to the shore and is made up of carbonate/quartz sandstone and coquina rock (Banks *et al.* 2007). The nearshore ridge complex occurs in 0-12 feet (0-4 m) of water and hosts a hardbottom community of algae, sponges, encrusting octocorals, and hard corals (CSA 2009). These hardbottom communities exist in a dynamic environment, and may be periodically covered and uncovered by sands as a result of storms and/or littoral transport. Seaward of the nearshore ridge complex, the inner reef occurs from approximately 100 to 2,000 feet (30 to 610 m) from shore and crests at 26 feet below MHW (8 m); the middle reef is located 3,000 to 6,000 feet (914 to 1,829 m) from shore in 49 feet (15 m) of water (MHW); and the outer reef is approximately 8,000 feet (2,438 m) or more offshore and crests at 52 feet below MHW (16 m) (USACE 1996; Banks *et al.* 2007). The troughs between the inner and middle, and middle and outer reefs are characterized by sand and coral rubble with isolated patches of hardbottom and hard corals (USACE 1996).

Hardbottom and coral reefs in the project area are dominated by fauna typical of the wider-Caribbean basin (Goldberg 1973). These include in order of abundance, octocorals, sponges and hard corals (DC&A 2009; Moyer *et al.* 2003; Goldberg 1973). These reefs have been characterized as octocoral dominated reefs (Moyer *et al.* 2003; Goldberg 1973). Goldberg (1973) described the rich diversity of octocoral species characteristic of this reef system. Thirty-nine species of octocorals were found to be represented including *Eunicea*, *Plexaura*, and *Pseudopterogorgia*, and twenty-seven species of scleractinian corals have been documented (Goldberg 1973). The predominant hard coral genera in S. Florida include *Siderastrea*, *Montastraea*, *Stephanocoenia*, and *Porites* (DC&A 2009). Recently, 45 hard coral species were documented in Broward County by Banks *et al.* (2009), while, Moyer *et al.* (2003) found 30 across the county. Nineteen hard coral species were found on the middle and outer reefs within and adjacent to the project area in 2006 (DC&A 2009). Typical sub-tropical sponges are found along the reefs, including, but not limited to members of *Ircina*, *Agelas*, *Iotrochota*, *Verongula*, and *Xestospongia* genera (DC&A 2009). Associated sub-tropical fish species use the reef for foraging, shelter, and breeding habitat.

3.0 MITIGATION PLANNING AND POLICIES

Compensatory mitigation is intended to replace the ecological services that are lost as a result of unavoidable impacts to resources affected by a given project. "Ecological services" refer to the services performed by a resource for the benefit of other resources or the public. The baseline for quantifying lost ecological services is the full complement of services that would have been provided absent project implementation. Lost ecological services are quantified as the reduction in the provision of services below this baseline. Compensatory mitigation must restore services

commensurate with the character of lost services. The amount of compensatory mitigation needed to replace lost services depends, in part, on the ability of the affected resources to return to their baseline conditions. Factors relevant in that regard include the quantity of affected resources and how fast and how completely they return to their baseline conditions. The amount of compensatory mitigation also depends on the ability of the selected compensatory mitigation measures to replace lost services. Relevant factors for replacement include how fast the compensatory mitigation measures become fully functional and the relative degree to which they provide additional ecological services (King 1997).

USACE mitigation policies are stated in Section 2036(a) of the Water Resources Development Act (WRDA) of 2007 and implementation Guidance for Section 2030 of WRDA 2007 dated August 31, 2009. The *Memorandum for Commanders, Major Subordinate Commands regarding Implementation Guidance for Section 2036(a) of the Water Resources Development Act of 2007- Mitigation for Fish and Wildlife and Wetlands Losses* (31 August 2009) emphasized that "ER 1105-2-100 requires that mitigation planning be an integral part of the overall planning process," in accordance with the USACE/EPA rule issued on March 31, 2008 discussed above. Section 2036(a) of the 2007 Water Resources Development Act (WRDA '07) amends Section 906(d) of the WRDA of 1986 to:

- Ensure that any report submitted to Congress for authorization has specific recommendations for mitigating fish and wildlife losses;
- Ensure that other habitat types [i.e., non-wetland] impacted by a project are mitigated to not-less-than in-kind condition, to the extent practicable;
- Require that mitigation plans include (1) "monitoring-until-successful" language; (2) criteria for determining ecological success; (3) a description of available lands for mitigation and the basis for the determination of availability of said lands; (4) development of contingency (adaptive management) plans; (5) identification of parties responsible for monitoring; and (6) establishment of a consultation process with appropriate federal and state agencies in determining the success of mitigation.

Furthermore, USACE requires plans to include information regarding the minimum monitoring actions necessary to evaluate success, including key project-specific parameters.

The USACE *Memorandum for Commanders, Major Subordinate Commands regarding Implementation Guidance for Water Resources Development Act of 2007-- Section 2036(c) Wetlands Mitigation* (6 November 2008) noted the importance of use of a mitigation bank to compensate for wetland impacts that occur within the service area of an existing, approved bank. Regarding the proposed project, there are no existing mitigation banks in the watershed to address impacts to mangrove wetlands, seagrass beds or coral and hardbottom communities (www.usace.army.mil/Portals/2/docs/civilworks/Project%20Planning/wrda/2007/sec_2036c.pdf).

USACE will provide compensatory mitigation for functional losses of significant habitats, these being jurisdictional wetlands, seagrass beds, and hardbottom/reef habitats that are outside of the existing (and maintained) channel limits. The significance of the affected resources in the study area is based on the technical, institutional and public recognition of the ecological, cultural, and aesthetic attributes of the subject resources. Resource scarcity and/or uniqueness (from a national, regional, state, and local perspective) are important considerations in determining significance (Paragraph C-3.d (4)(a) of Appendix C, "Environmental Evaluation and Compliance" of ER 1105-2-100).

WRDA 2007 required USACE to be consistent with regulatory rules 33 CFR 332.3 (regarding type and location of compensatory mitigation) which states the following:

"the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, and compatibility with adjacent land uses. When compensating for impacts to marine resources, the location of the compensatory mitigation site should be chosen to replace lost functions and services within the same marine ecological system (e.g., reef complex, littoral drift cell). Compensation for impacts to aquatic resources in coastal watersheds (watersheds that include a tidal water body) should also be located in a coastal watershed where practicable. Compensatory mitigation projects should not be located where they will increase risks to aviation by attracting wildlife to areas where aircraft-wildlife strikes may occur (e.g., near airports)."

The proposed mitigation for unavoidable impacts due to improvements at Port Everglades meets all of these requirements.

4.0 MITIGATION FOR UNAVOIDABLE IMPACTS TO SEAGRASS HABITATS

4.1 Determining Mitigation Needs for Seagrasses

Seagrass mitigation requirements were determined using the State of Florida's Uniform Mitigation Assessment Method (UMAM) assessment. UMAM is a method used to determine mitigation needs based upon a number of quantitative and qualitative factors. UMAM has been used in other USACE-SAJ projects to help determine mitigation requirements, and its application in this project has been approved for "single-use" for this project by the USACE National Ecosystem Planning Center of Expertise (<http://el.erdc.usace.army.mil/ecocx/index.cfm>).

Due to the implementation of the LPP, a total of 7.41 acres of seagrass habitat (occupied and unoccupied) falls in the project footprint. Of that, a total of 4.01 acres of occupied seagrass habitat has been determined to require mitigation during the Feasibility Stage of the project. A pre-construction seagrass survey will be conducted prior to construction to determine the final acreage of occupied seagrass habitat that will be impacted and will require mitigation. UMAM calculations indicated that compensation of 2.483 seagrass functional units will offset that impact (Table 2) for the occupied habitat. All credible scientific information regarding the functional value of ephemeral seagrass habitat will be considered at that time to determine the amount of additional mitigation, if any. However, because mitigation construction has already been initiated by the local sponsor under the regulatory permit, revised UMAM calculations during the upcoming Preconstruction Engineering and Design (PED) phase of the project will likely indicate that fewer functional units will be required. This potential decrease is due to the time lag and risk factors (time to which mitigation reaches full function) in UMAM will be reduced or nearly eliminated by the time impacts occur due to the decrease in time lag due to the construction being conducted by the County prior to construction of the Feasibility Study project. Additionally, Broward County is working on a permit modification to slightly increase the amount of area to be used for seagrass creation as a contingency in case there are additional sea grasses above the already mapped 4.01 acres of occupied habitat. This modification will increase the available credits from 2.4 to 2.9 in West Lake Park.

4.2 Seagrass Mitigation Alternatives

Broward County has very limited options for seagrass mitigation. Most of the saline/estuarine water bodies in Broward County are man-made canals used for navigation or flood water management where specific depths must be maintained and filling for mitigation would not be a viable option.

To locate seagrass mitigation options, USACE queried the Broward County Parks department during their development of the West Lake Park Restoration Project (Figure 2). The Parks Department originally planned to create open mud flats (by removing exotic species) for birds to utilize along the east side of the park bounded by the IWW. After discussions with USACE and the Port, some of the mud flat areas were modified by removing more substrate and allowing natural recruitment of seagrasses into the area from adjacent seagrass beds (Figure 3). The details of this mitigation option (WLP project) are described below in Section 4.4.

In addition to the West Lake Park Restoration project, the USACE looked at two other seagrass mitigation options: 1) filling previously dredged holes in Biscayne Bay, Miami-Dade County (19-25 miles south depending on location of dredge hole) or Lake Worth Lagoon (42 miles north) in Palm Beach County or 2) filling prop scars in the same water bodies. While the sites are in the same watershed as the project area ("Southeast Coastal"), the distance from the impact sites to the alternative mitigation sites is fairly excessive and would result in a net loss of seagrass habitats available to the fisheries and protected species that utilize seagrass and mangrove habitats in/near the project area. The Miami-Dade mitigation site is in Biscayne Bay, which is dominated by climax seagrass species, turtle grass and manatee grass, neither of which has been located in the Port Everglades project footprint, while the seagrasses in the project area are pioneer species, mainly Johnson's seagrass and paddle grass (*Halophila sp.*). There has been some success with filling old dredge holes for mitigation/restoration in both Miami-Dade and Palm Beach Counties: Snook Islands Restoration Project (<http://www.pbcgov.com/erm/lakes/estuarine/snook/>) and the Miami-Dade County dredge-hole demonstration project (Milano and Deis 2006). Dredge-hole filling projects are good for large scale mitigation needs, and would require transporting dredged material from Port Everglades to Biscayne Bay or Lake Worth Lagoon and identifying a dredged hole that could have the material placed in it with sufficient access for shallow water bottom dump barges. This would result in a significant increase in costs associated with seagrass mitigation when compared to utilizing the West Lake Park restoration project, which is less than one mile to the south of the project. Additionally no dredged material transport would be required as part of mitigation construction at West Lake Park. An analysis of the associated costs is included in the Incremental Cost Analysis below.

Table 2 Uniform Mitigation Assessment Methodology Scores for Seagrass Habitats within Impact Area

Impact Polygon	LS Before	LS After	WE Before	WE After	CS Before	CS After	Impact (ac)	Functional Loss
SHD-00818	6	0	6	0	3	0	0.018779	0.0093893
SHD-05641	6	0	6	0	3	0	0.129500	0.0647497
SHJ-77084	6	0	6	0	10	0	1.769605	1.2977104
SMX-01202	6	0	6	0	4	0	0.027594	0.0147168
SMX-00515	6	0	6	0	4	0	0.011823	0.0063054
SMX-02944	6	0	6	0	4	0	0.067585	0.0360453
SMX-00900	6	0	6	0	4	0	0.020661	0.0110192
SMX-02192	6	0	6	0	10	0	0.050321	0.0369023
WHD-08612	6	0	6	0	2	0	0.197704	0.0922620
WHD-00416	6	0	6	0	1	0	0.009550	0.0041383
WHJ-53469	6	0	6	0	3	0	1.227479	0.6137396
WHJ-06911	6	0	6	0	4	0	0.158655	0.0846158
WHJ-10206	6	0	6	0	4	0	0.234298	0.1249586
MHD-00037	6	0	6	0	1	0	0.000849	0.0003680
MHD-00039	6	0	6	0	1	0	0.000895	0.0003879
IHD-03618	6	0	6	0	2	0	0.083058	0.0387603
OEC grass	8	6	8	6	6	0	0.25	0.083
Total							4.26	2.483

Positions of polygons within the project area are shown in figures in Section 4.0 of the main text of the Environmental Impact Statement.

Key: LS: Landscape Support; WE: Water Environment; CS: Community Structure.
 "Before"/"After" is relative to impact.

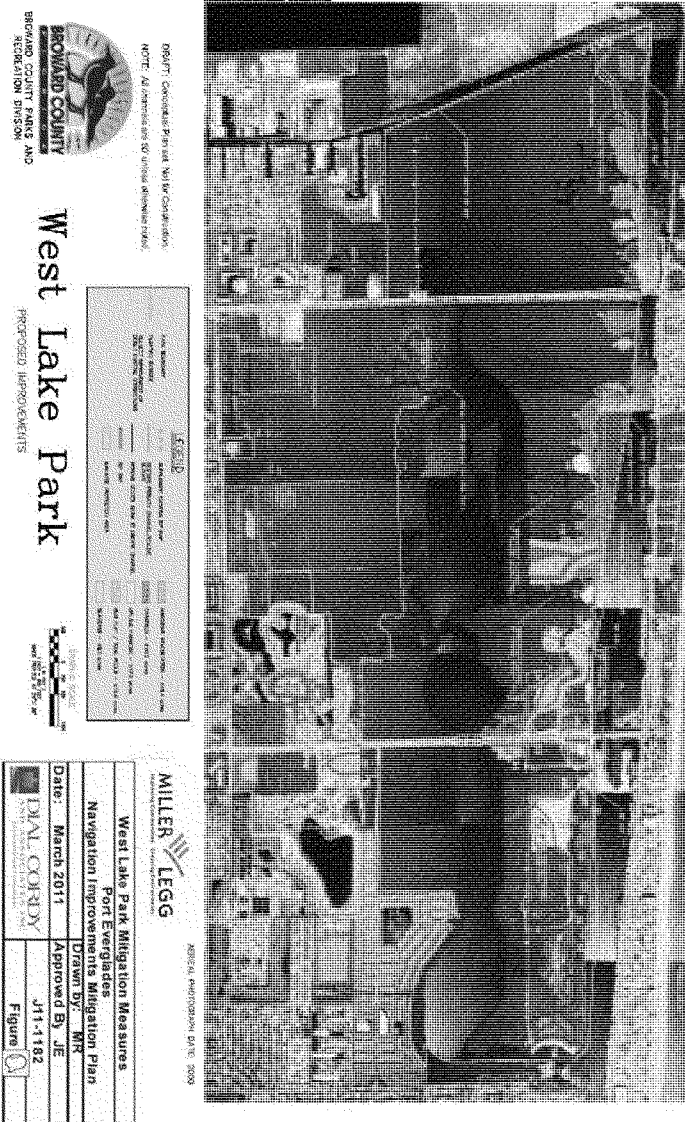


Figure 2 West Lake Park Mitigation Measures



Figure 3 West Lake Park Seagrass Survey

4.3 Incremental Cost Analysis Results for Seagrasses Mitigation Alternatives

4.3.1 Expected Cost of Alternative Seagrass Mitigation Plans

As noted below, due to the subject mitigation lands at WLP being owned by the State of Florida and leased/managed by the local sponsor (outside of the requirements for the civil works project), no fee-simple transaction is warranted, and the value of the right-of-entry is essentially \$0.00. WLP construction as well as monitoring (as required by environmental permits granted by the State of Florida and USACE Regulatory Division) and any adaptive management of WLP restoration elements are being paid for by Broward County. Those costs are estimated at \$9,596,466 for elements related to seagrass restoration/creation. Therefore, for the implementation of the WLP alternative for seagrass mitigation, the estimated maximum potential cost for the elements discussed in the plan (see below) is \$9,596,466, given that no real estate costs were involved.

The estimated maximum potential cost for the elements necessary to implement the Miami-Dade County alternative was calculated to be \$700,000 per acre of seagrass creation/restoration. UMAM calculations indicate that, to offset up to 2.9 seagrass functional units that will be lost due to unavoidable impacts of the LPP, approximately 18.47 acres of seagrass creation/restoration will be required. Therefore the initial, expected cost for this mitigation alternative is \$12,929,000.

The estimated maximum potential cost for the elements necessary to implement the Palm Beach County alternative was calculated to be \$1,000,000 per acre of seagrass creation/restoration. UMAM calculations indicate that, to offset up to 2.9 seagrass functional units that will be lost due to unavoidable impacts of the LPP, approximately 18.47 acres of seagrass creation/restoration will be required. Therefore the initial, expected cost for this mitigation alternative is \$18,470,000.

4.3.2 Seagrass Mitigation Benefits

Approximately three (3) seagrass functional units will be created by the above actions, some of which may be used as mitigation by other County-sponsored projects. It is estimated that 2.483 functional units for seagrasses will be used to compensate for seagrass impacts resulting from improvements at Port Everglades. For the discussion below, functional units will be the basis for determining benefits.

4.3.3 Construction/ Initial Cost per Seagrass Functional Unit

The base-year cost of each alternative mitigation plan is compared to the respective benefit (functional unit) below (see Table 3). Costs are based on FY2014 estimates (annualized values are provided in the Economic Appendix of the Feasibility Study) based on data provided by Broward County's previous experience with construction at WLP. However, cost will likely be less as fewer functional units are likely to be necessary for use (due to a decreased time lag factor and risk) as discussed in Section 4.1.

Table 3 Construction/ Initial Cost per Functional Unit of Seagrass Mitigation

Seagrass Mitigation Alternative	Construction Cost of Mitigation	Benefits of Mitigation (functional units)	Cost/Functional Unit
WLP Seagrass Enhancements	\$9,596,466	1.0	\$3,864,876
Miami-Dade Seagrass Enhancements	\$12,929,000	1.0	\$5,298,770
Palm Beach Seagrass Enhancements	\$18,470,000	1.0	\$7,569,672

4.3.4 Cost-Effective Seagrass Mitigation Plan

Cost estimates for the above three mitigation alternatives (West Lake Park, Miami-Dade County site, and Palm Beach County site) were calculated (as shown above), and those costs were used in an incremental cost analysis. It was determined through use of USACE Institute of Water Resources (IWR) software (IWR Planning Suite 1.0.11.0, certified 24 September 2008) that the West Lake Park habitat restoration alternative was the "Best Buy" alternative and that the other three alternatives were "Non Cost-Effective." Given that finding, the WLP alternative described above was selected as the proposed mitigation plan for impacts to seagrasses due to the implementation of the LPP.

4.4 Proposed Mitigation Plan for Seagrasses

Unavoidable impacts to seagrasses will be mitigated by using credits (functional units) generated by habitat improvements at West Lake Park. The park land is owned by the State of Florida and leased by Broward County Parks and Recreation Division (BCPRD) on lands purchased under the CARL program. Liability for construction, monitoring and success for mitigation at West Lake Park rests solely with Broward County (the local sponsor). No real estate will be purchased by the USACE or the local sponsor. Access to the identified lands to perform the subject construction would be allowed via a right-of-entry for construction (minimum real estate interest sufficient to perform subject construction). The right-of-entry for construction is currently afforded to the local sponsor via an existing lease agreement executed in 1986 for a period of 50 years. Again, fee simple is not required, as the mitigation plan for this project consist only of the construction features as agreed to between the local sponsor and the State of Florida and USACE Regulatory Division. The mitigation plan "does not" have any monitoring or operation/management features. Due to the property being owned by the State of Florida and currently managed by the local sponsor (outside of the requirements for the civil works project), the value of the right-of-entry is essentially \$0.00.

The West Lake Master Plan (Miller-Legg 2003) was developed by BCPRD in consultation with Broward County's Port Everglades Department and the Broward County Aviation Department. The functional gains generated by the improvements have been approved (pursuant to county, state, and federal permits) to offset impacts due to projects constructed by various Broward County departments (among which are the Port and the Aviation Department, including Fort Lauderdale-Hollywood International Airport). Permits for WLP habitat improvements (see Appendix E-1) were issued by the South Florida Water Management District in April 2004, by the Broward County Environmental Protection Department in August 2004, and the USACE-SAJ Regulatory Division in March 2006. The WLP project was not permitted as a "mitigation bank." Therefore, there are no "credits" available for purchase by other public or private entities to offset impacts from other projects.

The ecological value of improvements, which will be gained through the WLP project, was assigned via use of State of Florida's UMAM, as is standard practice for Clean Water Act (CWA) Section 404 and Section 401 permitting in the state. As proposed, the WLP plan involves creation of 8.0 acres of seagrass, restoration of 0.5 acre of seagrass habitat, and protection of 30.0 acres of seagrass/manatee habitat. Other measures included in the plan are creation of 7.0 acres of shallow water tidal flats and 8.6 acres of channels, and hydrologic improvements affecting an additional 3.5 acres (Table 4). Specific construction and operational information are detailed in the Department of Army permit, found in Appendix E-1. These activities will result in the accumulation of approximately three wetland functional units, in accordance with permit conditions, for use as mitigation for only Broward County projects.

Table 4 Habitat Restoration and Enhancement Elements at West Lake Park

Element	Acres
Mangrove wetland creation	24.2
Mangrove wetland enhancement	40.4
Mangrove wetland preservation	23.3
Herbaceous saltwater habitat enhancement	10.0
Shallow water tidal flat creation	7.0
Channel creation	8.6
Seagrass creation	8.0
Seagrass restoration (removal of barges)	0.5
Hydrologic improvements*	3.5
Seagrass/Manatee protection	30.0

*Circulation/flushing/dredging improvements are estimated to restore 40-60 acres of SAV in West Lake embayment. Adapted from Miller-Legg (2002)

As noted above in Section 4.1, based on UMAM calculations, USACE Regulatory Division will require up to 2.483 wetland functional units to compensate for the up to 5.13 acres of impacts to seagrass beds due to the implementation of the LPP. Therefore, 2.483 units will be removed from the three (3) units generated by the WLP project.

"Seagrass creation" areas (the 8.0 acres listed in Table 4) will be developed through the grading of spoil islands along the IWW (to an elevation consistent with the depths where seagrass beds are present adjacent along the IWW, likely between from -1 foot to -4 feet MSL), as denoted by the yellow-stippled areas on Figure 2. Installation of floating barriers to restrict vessel access will help ensure success. It is anticipated that seagrass recruitment will occur rapidly by shoal grass (*Halodule wrightii*), paddle grass (*Halophila decipiens*), and Johnson's seagrass (*Halophila johnsonii*), all of which commonly occur along the shallow flats adjacent to the mangrove fringe. In the event that natural recruitment has not occurred within 12 to 18 months following excavation, methods to plant seagrass donor material will be initiated. Planting methods will follow guidance by Fonseca, et al. (1998).

Submerged aquatic vegetation (SAV) restoration within WLP is also anticipated to occur as a result of enhanced flushing and circulation patterns along the southeastern region of the interior lagoon (Figure 2). As proposed, over 12 acres of flushing channels will be expanded or improved, or will benefit from the installation of culverts, resulting in improved water quality, clarity, and substrate conditions more suitable for seagrass propagation in the interior embayment (Miller Legg 2001b). Seagrass surveys conducted in West Lake serve to illustrate the benefits of flushing channels, as evidenced by the presence of seagrass beds near the mouth of each channel entering the lake (Miller Legg 2001c) (Figure 3). Based on observed changes in seagrass cover and existing seagrass bed occurrences it is anticipated that 40 to 60 acres of SAV, including *H. johnsonii* would be restored.

4.5 Monitoring and Adaptive Management for Seagrass Mitigation

The West Lake Park plan (as proposed by Broward County and permitted by the State of Florida and USACE Regulatory Division) describes the mitigation monitoring as follows:

A time-zero monitoring event will be performed, and then the seagrass recruitment area shall be monitored quarterly for the required five-year period. Forty paired, one-square meter quadrats will be randomly placed within the created seagrass habitat during each monitoring event. Distribution of the 40 quadrats will be divided equitably between the seven seagrass creation areas. Random, rather than fixed, quadrats will be used so that the results are without bias and can be used to accurately generalize over the entire area (Fonseca, personal communication). Random directions and distances will be chosen using a random number generator. The random direction and distance will be from the approximate center of each seagrass creation area. An equal number of replicate quadrats will be established in the adjacent, surrounding, seagrass beds (at least 50' from the creation areas) to serve as a control. The following data will be collected at each quadrat:

- Relative water depth
- Time
- Species present
- Shoot counts
- Aerial coverage by photo-documentation
- Qualitative observations of natural seagrass recruitment and vegetative expansion of planting units

In addition to the above-listed data, the following data may also be collected for each monitoring event: tides, weather, water temperature, and wind. A staff gauge or piezometer shall be installed to record tide level.

Survivorship rates may be assessed based on measurements within the paired 1 m² quadrats. Abundance measurements shall be made through visual and photographic assessments of percent aerial coverage by species. The 1 m² quadrat shall be divided into 10 cm x 10 cm grid and the number of squares containing seagrasses shall be counted to estimate cover.

In addition, percent aerial coverage will be equated to Cover Classes, based on the Braun-Blanquet technique, as follows:

Table 5 Braun-Blanquet Cover Class Definitions

Cover Class	Description
0	Absent
0.1	Solitary individual shoots, less than 5% cover
0.5	Few individual shoots, less than 5% cover
1	Many individual shoots, less than 5% cover
2	5% - 25% cover
3	25% - 50% cover
4	50%
5	75%

Seagrass success criteria shall be based on the following:

1. A target goal of Cover Class 1 coverage by the third year
2. A target goal of Cover Class 2 or higher by the fifth year
3. Supplemental seagrass will be planted on 2-meter centers if...
 - a) at the end of the third year, areas have a Cover Class less than 1 or equivalent to coverage in the ICWW (control site), whichever is lower.
 - b) at the end of the fifth year, areas have a Cover Class less than 2 or equivalent to coverage in the ICWW (control site), whichever is lower.

4.6 Seagrass Mitigation Success Criteria

Seagrass success criteria for the WLP seagrass mitigation beds are as follows:

1. A target goal of Cover Class 1 coverage by the third year or equivalent to the coverage in the ICWW (control site) whichever is lower.
2. A target goal of Cover Class 2 or higher by the fifth year or equivalent to coverage in the ICWW (control site) whichever is lower.

If success criteria are not achieved adaptive management will be used to implement contingency planning.

4.7 Adaptive Management/Contingency Plan for Seagrass Mitigation

The contingency plan for taking corrective action will be implemented if and when the seagrass mitigation does not achieve success described in the paragraph above. Supplemental seagrass will be planted on 2-meter centers if:

- a) at the end of the third year, areas have a Cover Class less than 1 or equivalent to coverage in the ICWW (control site) whichever is lower.
- b) at the end of the fifth year, areas have a Cover Class less than 2 or equivalent to coverage in the ICWW (control site) whichever is lower.

Table 6 - Mitigation Costs with Adaptive Management Added

Seagrass Alternative	Construction Cost of Mitigation	Monitoring and Adaptive Management Costs	Total Costs
WLP Seagrass Enhancements	\$9,596,488	\$114,700	\$9,827,866

5.0 MITIGATION FOR UNAVOIDABLE IMPACTS TO MANGROVE WETLANDS

5.1 Determining Mitigation Needs for Mangrove Wetlands

Mangrove mitigation requirements were determined using the state of Florida's Uniform Mitigation Assessment Method (UMAM) assessment. UMAM is a method used to determine mitigation needs based upon a number of quantitative and qualitative factors. UMAM has been used in other USACE-SAJ projects to help determine mitigation requirements, and its application in this project has been approved for "single-use" for this project by the USACE National Ecosystem Planning Center of Expertise.

Due to the implementation of the LPP, 1.16 acres of mangroves will be impacted. UMAM calculations indicated that compensation of one (1) wetland functional unit will offset that impact (only 0.87 unit is required as indicated in Table 6 below). However, because mitigation construction has already been initiated, revised UMAM calculations during the upcoming Preconstruction Engineering and Design (PED) phase of the project will likely indicate that fewer functional units will be required. This is because the time lag factor (time to which mitigation reaches full function) in UMAM will be reduced or nearly eliminated by the time impacts occur.

Table 7 Uniform Mitigation Assessment Methodology Scores for Mangrove Habitats Within Proposed Impact Areas

EWRAP Zone	Acres	Location	Location & landscape support		Water environment		Vegetation structure		Resulting calculated change (functional units)
			without impact	with impact	without impact	with impact	without impact	with impact	
0.70	0.08	SAC	6	0	7	0	5	0	-0.05
0.70	0.34	SAC	6	0	7	0	5	0	-0.20
0.70	0.13	SAC	6	0	7	0	5	0	-0.08
1.00	0.18	SAC	8	0	8	0	9	0	-0.15
1.00	0.23	SAC	8	0	8	0	9	0	-0.19
1.00	0.00	SAC	8	0	8	0	9	0	0.00
0.97	0.01	SAC	6	0	7	0	9	0	-0.01
0.97	0.26	SAC	6	0	7	0	9	0	-0.19
0.97	0.00	SAC	6	0	7	0	9	0	0.00
Cumulative change in functional value of mangroves in impact area due to project:									-0.87

Note: Data based on interagency meeting, June 2005 Key: SAC = Southport Access Channel.

5.2 Mangrove Wetland Mitigation Alternatives

There are few locations for constructing mangrove mitigation in Broward County. Mangroves require shallow, quiet saline/estuarine waters to germinate, and as previously stated, most of the saline/estuarine waters in Broward County are man-made canals for navigation or flood water drainage. There are a few county and state parks in Broward County with mangroves, or the ability to support mangrove habitat including John U. Lloyd State Park and West Lake Park. To locate mangrove mitigation options, USACE explored options with the Broward County Parks department. These discussions took place during the planning and development of the West Lake Park Restoration Project. The Park's Department plans included removal of exotics and improvement of water flow regimes to create mangrove habitat. Given the proximity of WLP to the project area, county staff concurred that its use for mitigation was a viable option.

Mangrove mitigation options were also available in county and state parks in Miami-Dade and Palm Beach Counties, and while they are in the same watershed ("Southeast Coastal"), the distances from the impact sites to the alternative sites (approximately 19 miles to north Biscayne Bay or 42 miles to Lake Worth Lagoon) were considered excessive and would result in a net loss of mangrove habitats available to the fisheries and protected species that utilize mangrove habitats in the project area. Therefore these options were removed from consideration. Also, no mitigation banks for mangroves were available near the project area.

5.3 Incremental Cost Analysis Results for Mangrove Wetland Mitigation Alternatives

5.3.1 Expected Cost of Alternative Mangrove Wetland Mitigation Plans

For the implementation of the WLP plan, the estimated maximum potential cost for the elements discussed in the plan (see below) comprises \$16,956,840 (including a 33% contingency based on lessons learned by the County during construction of Phase 1 on WLP for impacts associated with the airport) for creation of 7.8 functional units of mangroves. From this component, the feasibility study requires only 0.87 units (for conservative purposes, we will use 1.0 for estimates/calculations). Therefore the cost for the required amount of mitigation is approximately \$1,456,549 ($\$16,956,840 \times .33 = \$5,595,757$. $\$16,956,840 - \$5,595,757 = \$11,361,083/7.8FG$) for one functional unit. As noted below, due to the subject mitigation lands being owned by the State of Florida and leased/managed by the local sponsor (outside of the requirements for the civil works project), no fee-simple transaction is warranted, and the value of the right-of-entry is essentially \$0.00.

5.3.2 Mangrove Wetland Mitigation Benefits

Approximately 7.8 mangrove functional units will be created by the actions at WLP detailed below. However, as noted above, based on UMAM calculations, USACE will require use of only 1.0 wetland functional unit for the proposed improvements proposed in the Port Everglades feasibility study. For the discussion below, functional units will be the basis for determining benefits.

5.3.3 Construction/ Initial Cost per Mangrove Wetland Functional Unit

The base-year cost of each alternative mitigation plan is compared to the respective benefit (functional unit) below (see Table 7). Costs are based on FY2013 estimates (annualized values are provided in the Economic Appendix of the Feasibility Study). However, cost will likely be less as

fewer functional units are likely to be necessary for use (due to a decreased time lag factor) as discussed in Section 5.1.

Table 8 Construction/ Initial Cost per Functional Unit of Mangrove Mitigation

Mangrove Mitigation Alternative	Construction Cost of Mitigation	Benefits of Mitigation (functional units)	Cost/Functional Unit
WLP Mangrove Enhancements	\$1,416,249	1.0	\$1,416,249

5.3.4 Cost-Effective Mangrove Wetland Mitigation Plan

An alternative is considered cost effective if no other alternative provides the same level of output for less cost, and if no other plan provides more output for the same or less cost (ER 1105-2-100). The table above shows the comparison of plans. However, as only one alternative plan is proposed, that plan is the cost-effective mangrove mitigation plan.

5.4 Proposed Mitigation Plan for Mangrove Wetlands

Unavoidable impacts to mangrove wetlands will be mitigated by using credits (functional units) generated by habitat improvements at West Lake Park. Section 4.4 of this document provides an overview of West Lake Park. The park land is owned by the State of Florida and leased by Broward County Parks and Recreation Division (BCPRD). Liability for construction, monitoring and success for mitigation at West Lake Park rests solely with Broward County (the local sponsor). No real estate will be purchased by the USACE or the local sponsor. Access to the identified lands to perform the subject construction would be allowed via a right-of-entry for construction (minimum real estate interest sufficient to perform subject construction). The right-of-entry for construction is currently afforded to the local sponsor via an existing lease agreement executed in 1986 for a period of 50 years. Again, fee simple is not required, as the mitigation plan for this project consist only of the construction features as agreed to between the local sponsor and the State of Florida and USACE Regulatory Division. The mitigation plan "does not" have any monitoring or operation/management features. Due to the property being owned by the State of Florida and currently managed by the local sponsor (outside of the requirements for the civil works project), the value of the right-of-entry is essentially \$0.00.

The ecological value of improvements, which will be gained through the WLP project, was assigned via use of State of Florida's Uniform Mitigation Assessment Methodology (UMAM), as is standard practice for Clean Water Act (CWA) Section 404 and Section 401 permitting in the state. As proposed, the WLP plan would include the creation (24.2 acres), enhancement (40.4 acres), and preservation (23.3 acres) of mangrove wetlands, and other improvements to various estuarine resources (Table 4). These activities will result in the accumulation of approximately 38 mangrove wetland functional units, in accordance with permit conditions, for use as mitigation for only Broward County projects.

As noted above in Section 5.1, based on UMAM calculations, USACE Regulatory Division will require one (1) of the 38 WLP mangrove functional units to compensate for the 1.16 acres of mangroves that will be impacted due to the implementation of the LPP.

Principal among the actions for creating mangrove habitat is the grading of existing spoil islands to the appropriate depth (between approximately elevation -0.3 feet, or MLW, and elevation 1.7 feet, or MHW). These new habitats will be located along the Intracoastal Waterway (IWW), as indicated by

the green hatching in Figure 2. On the side of the habits bordering the IWW, the substrate and plants (three-gallon size red mangrove, *Rhizophora mangle*, installed on three-foot centers) will be protected by riprap to ensure that vessel wakes do not erode the shoreline. These areas together comprise approximately 19.4 acres, a substantial fraction of the 24.2 acres noted for the "mangrove wetland creation" element listed in Table 4.

5.5 Monitoring and Adaptive Management for Mangrove Wetland Mitigation

The monitoring plan for WLP describes the methods used to monitor mangrove growth and succession:

"Establish one (1) belt transect within each individual mangrove recruitment area. These transects will be two (2) meters wide and will stretch across the approximate maximum length of each recruitment area. One-square-meter quadrats will be randomly placed along the transects at a minimum density of one (1) quadrat per 10 meters of transect (i.e., 100 meter transect will contain 10 quadrats). Though the quadrats will be randomly placed, they will not be placed within "breaks" (i.e., mud flats, pre-existing mangrove areas) in the mangrove recruitment areas. Percent-aerial-coverage, by naturally recruited species falling within the quadrats, will be visually estimated and recorded.

"Data from these sampling quadrats will then be extrapolated to determine overall percent-coverage within each mangrove recruitment area. Once naturally recruited mangrove trees have obtained sufficient height (± 1.5 meters) to be recorded individually, trees falling within the belt transects (base of trunk within the transect) would be flagged and measured for height, spread, and diameter breast height (DBH). These measurements will be at random points along the transect at a frequency of one set of measurements per 10 meters. Measurements of these flagged trees will be repeated during subsequent monitoring events to determine growth rates. Overall health would also be assessed."

5.6 Mangrove Wetland Mitigation Success Criteria

Success criteria for mangroves are those described in the WLP mitigation plan; and is based on aerial percent-coverage of recruited shrubs/trees with the following interim goals:

1. 10% aerial coverage by mangroves by the first year.
2. 40% aerial coverage by mangroves by the third year.
3. 80% aerial coverage by mangroves by the fifth year.

5.7 Adaptive Management/Contingency Plan for Mangrove Wetland Mitigation

If the interim success criteria above are not achieved, supplemental mangrove planting will be performed. Red mangrove seedlings will be installed on three-foot-centers in areas where coverage discrepancies are apparent.

Table 9 - Mitigation Costs with Adaptive Management Added

Mangrove Alternative	Construction Cost of Mitigation	Monitoring and Adaptive Management Costs	Total Costs
WLP Mangrove Enhancements	\$1,416,249	\$40,300	\$1,496,849

6.0 MITIGATION FOR UNAVOIDABLE IMPACTS TO HARDBOTTOM HABITATS

6.1 Determining Mitigation Needs for Hardbottom Habitats

A Habitat Equivalency Analysis (HEA) takes into account the quantification of ecological services lost from an impact as well as the interval of time necessary for habitats (those either impacted or those proposed for mitigation) to reach optimum performance. Hence, it can be used to determine the appropriate quantity of compensatory mitigation (King 1997). HEA has been used in other USACE-SAJ projects, and its application in this project has been approved for single-use in this project by the USACE National Ecosystem Planning Center of Expertise.

The HEA method (as detailed in NOAA 2000) was used to calculate mitigation requirements (in acres) for reef and hardbottom impacts associated with the proposed project (see DC&A and USACE 2014; i.e., Appendix E-2). The HEA took into account both anticipated impact acreages for various habitats (inner, middle, and outer reefs, as well as channel wall impacts and indirect impacts (see DC&A and USACE 2013 for details) and recovery times to calculate the overall loss of habitat function that occurs from the time a new impact occurs to the time of full functional recovery. Projected impact acreages were classified according to the various relief/profiles and habitat types in the affected areas. Therefore, in effect, several HEAs were conducted, and then resulting acreage assessments combined to arrive at the total mitigation acreage required. The results of the analysis are provided in DC&A and USACE (2014; i.e., Appendix E-2), which details the assumptions (form of recovery function, relative functionality at time "0" and at the end of recovery period, interval of recovery period for each habitat type impacted, etc.) that were used in the analyses. Finally, for performance of an HEA, assumptions concerning mitigation measures must be provided. Due to previous experience with similar projects in southeast Florida, USACE assumed that artificial reef construction using quarried or dredged rock would be the most likely and feasible mitigation, so that was selected as the candidate mitigation for which output data would be configured.

For the HEA runs, the potential direct impacts were broken into three direct impact components and the indirect impact component. There are three potential direct/incidental impact components. Depending on dredging methodology(ies) chosen by the selected contractor, all three of these Components may occur, or some combination of the three may occur. For a description of each Component, please review Section 4.5.1 of the "Mitigation Requirements Analysis for Hardbottom Resources Associated with Port Everglades Harbor Navigation Improvements". Table 8 below details the impacts associated with each Component and the required mitigation Serve Acre Years (SAYs) for each of the Components. In addition to these impacts hardbottom habitats surrounding the would-be new channel limits (up to 150 meters away) that may be affected by sedimentation and/or turbidity. The indirect effects associated with sedimentation/turbidity are included below. Finally, to complete the HEA, a candidate mitigation scenario must be assessed, using its estimated value (and time required to reach its optimal functionality) in calculations. The candidate mitigation project subjected to evaluation was construction of artificial reef including installation of coral colonies. For this mitigation alternative, the mitigation requirement is the creation of hardbottom habitat through construction of artificial reef structures and outplanting of corals propagated in nurseries into degraded habitats in Broward County. The above-described analysis relates only to

the results for use of artificial reef installation (using dredged or quarried rock/boulder) as the mode of mitigation (HEA results are necessarily linked to the type of mitigation proposed).

Table 10 Hardbottom Impact Components and Associated Required Mitigation

Impact Component	Acres of Impact	SAYs of Mitigation Required
Component 1	15.33	722.043
Component 2	15.04	380.061
Component 3	6.368	299.933
Indirect with Comp 1 & 3	109.08	26.997
Indirect with Comp 1 & 2	89.76	22.216

The direct impacts and resulting mitigation requirements associated with Components 1 has been adopted to represent the primary mitigation plan. Mitigation for Components 2 and 3 is considered a contingency (given evidence that anchor/cable impacts are typically minimal and temporary; and the impacts associated with downslope rubble movement are expected to be minimal), and will only be carried out if actual damages to reefs occurred and is verified by post-construction surveys.

6.2 Hardbottom Habitat Mitigation Alternatives

There have been multiple efforts to provide interagency coordination regarding all regulatory issues pertaining to the proposed project, the majority of which are detailed in the main text of the Environmental Impact Statement (EIS) and are hereby incorporated by reference. In addition to those efforts and under direction of USACE, the Port Everglades Reef Group (PERG) was formed. The purpose of PERG was to provide scientific, technical, and logistical guidance and expert advice regarding provision of mitigation for impacts to hardground and reef habitats due to navigation improvements at Port Everglades. The group held four meetings onsite at the Port's offices. PERG was tasked with this objective in absence of a known mitigation budget and without knowledge of the timeline under which impacts and mitigation were to take place. PERG was informed that funds for mitigation construction and related measures, except monitoring, would be included in the federal budget along with costs for navigation improvements. PERG discussed not only how to best carry out traditional means of mitigation (e.g., artificial reef construction and monitoring), but also methods that are somewhat more cutting-edge, such as coral head translocation and reef restoration/enhancement. Specific issues, such as additional baseline studies, monitoring, and artificial reef siting and construction materials, were also discussed, as was whether the mitigation policies of the various regulatory agencies could allow for certain means of mitigation. The Draft Compensatory Mitigation Recommendations of the Port Everglades Reef Group for Navigation Improvements at Port Everglades Harbor (PERG 2004) is attached in Appendix E-3. The mitigation plan described in the following pages does not take into account many of the draft recommendations of PERG, though some recommendations made by PERG may be utilized for the final mitigation plan if cooperating, regulatory, and natural resource agencies; the local sponsor; and user groups agree on their utility, value, and compliance with mitigation policies. One notable recommendation of PERG that will be implemented is the transplantation of corals larger than 25 cm in diameter/height to the mitigation site (see DC&A and USACE 2013, revised by USACE in February 2014, for details).

The following reef mitigation alternatives were reviewed for feasibility, either during and through PERG, or during subsequent plan formulation discussions/correspondence with regulatory agency staff, academic professionals, and consultants:

1. Removal of tire debris (the "Osborne tire-reef") between the middle and outer reef line

Approximately 2,000,000 tires were "disposed of" at sea in the 1970s to create fishing reefs. The tires were bundled together with metal bands that over time have rusted and broken, releasing the

tires (Figure 4). The tires also did not perform as estimated from a marine life colonization standpoint. The tires are now mobile in the marine environment, and during storms, they wash into the seaward side of the middle reef causing ongoing habitat degradation. Since 2001, a variety of efforts has been made to remove the tires including projects conducted by NOVA University and Broward County, in concert with the US Army and US Navy divers. It is a time-consuming effort that must be carried out by divers, as mechanical equipment would risk damage to the reefs adjacent to the tire field. The previous efforts were funded through Coastal America Grants, and the project has received a Coastal America Award. However, there are still approximately 700,000 tires remaining to be recovered and funding remains a significant limitation to project implementation (K Banks, BCEPD, pers. comm. 2012). This alternative was removed from further consideration because to gain any ecological function of the benthic habitat, nearly all the tires would have to be removed (any remaining tires could drift to other areas and damage reefs). In addition, the resulting functional gains that could be provided would be less than many of the other available mitigation options. Furthermore, the minimal gains would come at a much higher cost than many other options.

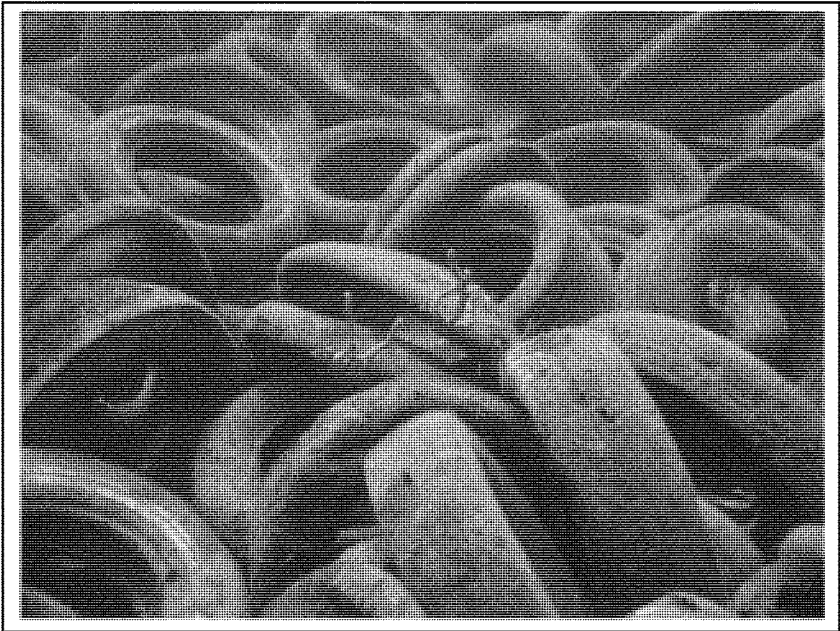


Figure 4 Ocean Floor Covered with Tires: “Osborne tire-reef”

2. Artificial reef placement on tire “reef”

Broward County proposed for use as mitigation the placement of artificial reef materials on top of the Osborne Tire Reef (discussed above) to stabilize the tires and prevent them from continuing to move shoreward and impact the middle reef. In theory, the materials would prevent middle-reef damage as well as provide usable hardbottom substrates for reef species colonization. The proposed plan involves the use of limestone boulders, placed over the “tire reef” stabilized with a tremie pour of

specialized marine concrete (a “tremie” concrete placement method uses a pipe through which concrete is placed below water level) around the boulders. Each area will be constructed by first placing a layer of boulders onto the seafloor directly over the tires. Concrete will be poured around this layer, filling interstitial spaces and attaching the layer to the sides and bottoms of the adjacent seafloor to the greatest extent possible. The concrete fill will terminate just above the boulders’ widest sections to stabilize the boulder layer and provide for secure placement of the next layer. The concrete surface will also be rough to allow for improved adhesion to the upper layer. Layers will be constructed above one another. When restoration is completed, the surface will consist mostly of limestone boulders, with concrete interstitial fill below the boulders’ crests. The limestone boulders used in repair will weigh from three to five tons and generally feature diameters of about four feet. Once completed, each reef-repair unit will be a solid structure. The interval required to reach substantial functional productivity of this alternative is estimated to be 30-50 years. This would be shortened to 20-30 years if corals are transplanted from the impact area to the artificial reef.

The relative benefits of this mitigation alternative are that units would be secured to the seafloor, would stabilize the tire-reef “understory,” and they would have moderate functional values at installation. Drawbacks include a high cost per acre of construction (due partly to the need for commercial divers during construction), low aesthetic value relative to nearby natural hardbottom reefs, a lack of beneficial characteristics of tremie compared to natural limestone, and uncertainty regarding whether the structural integrity of the tire-reef could support artificial reefs on top of it.

3. Reef enhancement through water quality improvements

During the PERG discussions, the discussion of water quality improvements was raised as a potential mitigation option, particularly the relocation and/or retrofitting of broken or inadequate sewage outfalls. While the amount of money required to construct mitigation for unavoidable impacts associated with Port Everglades may be significant, it is not sufficient to retrofit or relocate underwater sewage outfalls in Broward County, and USACE does not have a mechanism to set aside the funds and hold them until the remaining funds necessary to complete this effort could be obtained by the local sponsor, County government or other entity. Additionally, it is not clear how success of this mitigation option would be demonstrated. USACE mitigation policy requires that success criteria be established for any mitigation option, and it is not clear how water quality improvements would be monitored, what the geographic area of monitoring would be or how long monitoring would have to be in place to answer the success question. In addition, in 2008, the Florida Legislature passed, and the Florida governor signed a bill requiring that ocean outfalls in the vicinity of coral reef habitats be shut down and decommissioned, including the outfalls in Broward County. According to the law, by 2018 the existing outfall discharges meet advanced wastewater treatment and management requirements and by 2025, 60 percent of the facility flows be reused for beneficial purposes, and use of the outfalls for wastewater disposal be restricted to wet weather flows from permitted reuse systems. Based on the current schedule, the earliest that construction activities could be initiated for Port Everglades is 2017. This is one year before the retrofit of the existing outfalls for compliance with the law, and it is unlikely that institution of this measure by the Port and USACE could be complete within the required legal timelines. Due to these limitations, it was determined that this was not a viable alternative for mitigation for the Port Everglades project.

4. Reef enhancement

A previously impacted area on the outer reef, south of the planned channel expansion, was discerned using Laser Airborne Depth Sounder (LADS) data. This area was identified as a possible reef enhancement mitigation option by the interagency working group. During work performed for the DC&A (2009) benthic habitat assessment in early 2006, this area was documented to have large boulders and large amounts of rubble (Figure 5). The source and age of the impact is unknown. The

results of the survey indicated this area supports some of the highest hard coral densities on the third reef and similar soft coral densities and numbers of species as the impact site (DC&A 2009), which may mean, that although it is “previously impacted”, it is not in need of enhancement. Based on that assessment, it was determined that this was *not* a viable option for mitigation for the Port Everglades project.



Figure 5 Previously Impacted Area on Outer Reef, South of the Planned OEC Expansion

5. Reef research

During PERG meetings, one or more participants inquired whether some mitigation funds could be used to perform research on reefs, or even just to construct artificial reefs with various materials or in various configurations such that research could be performed, even as the reefs provided targeted ecological functions. This would be considered “value-added” mitigation, where a secondary purpose could be achieved that may have indirect benefits for reef system design in years to come.

USACE mitigation policy requires that mitigation replace lost habitat function and that the success of the mitigation be measureable using success criteria. Although installation of artificial reefs meets this requirement, research does not specifically and directly replace lost habitat function, although the results of research may help resource managers to better assess impacts and create viable habitats for future projects. However, because the functional ecological benefits for the part of this alternative relating to research cannot be directly quantified, this alternative was determined to not be a viable option for mitigation for the Port Everglades project.

6. Repair of grounding sites and subsequent coral installation (transfer from impact sites)

The Southeast Florida Coral Reef Initiative (SEFCRI) and Broward County have identified approximately ten (10.6) acres of injured (unrestored) coral-hardbottom habitat that resulted from damage from vessel groundings. These are in an area north of the Port Everglades OEC that was formerly used as a commercial anchorage (Figure 6). FDEP contracted with NOVA University to prepare an assessment of the grounding sites and their current recovery status (Gilliam and Moulding 2012). A total of ten sites have been documented and are under consideration for use as mitigation for impacts due to implementation of improvements at Port Everglades. Restoration at these sites will include a combination of rubble stabilization, filling depressional areas, restoration of reef structure and complexity, and filling and sealing reef fractures. In addition, rubble and small rocks from the grounding sites will be used to fill holes in the seabed. The interval required to reach substantial functional productivity of this alternative is estimated to be 30 years. This would be shortened to 10-20 years if corals are transplanted to restored reef structures from the impact sites.

The benefits to this alternative including the following:

- Stabilization of rubble and fractured hardbottom
- Providing relief to flattened reef structure
- Habitat would be directly secured to seafloor
- Creation of enhanced habitat that is aesthetically similar to adjacent, unimpaired natural hard-bottom reef structures
- Integration of restored areas into existing, nearby, natural reef structure
- High functional value reached after a short time interval

The major drawback of this alternative is high cost due to intensive labor associated with diving (commercial and scientific).

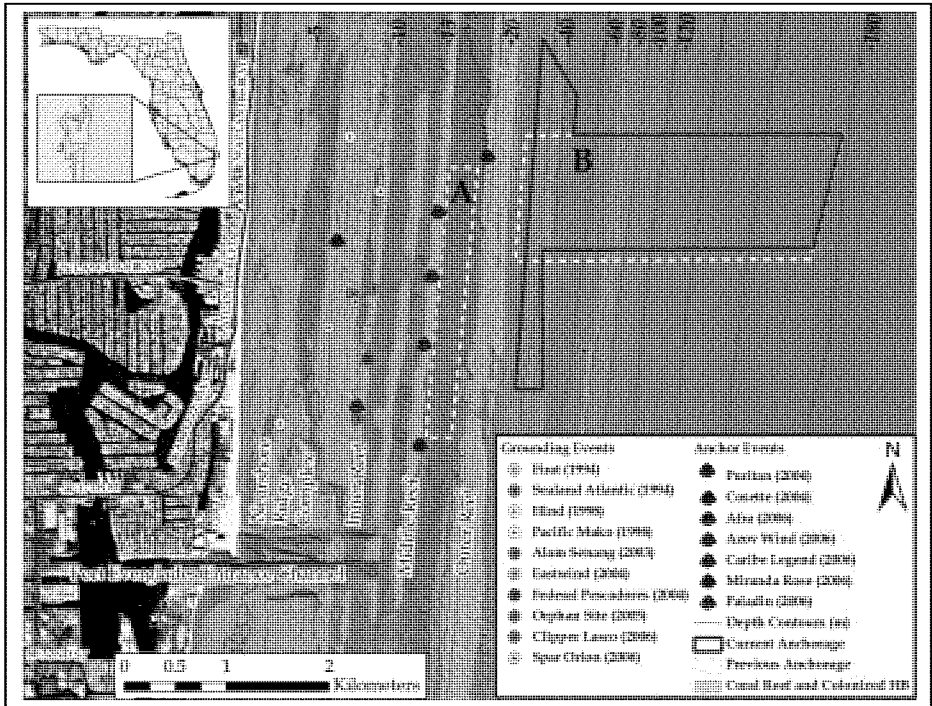


Figure 6 Location of Groundings Offshore of Port Everglades (Gilliam and Moulding 2012)

7. Removal of previous dredged materials from habitat north of the channel

In the nearshore ridge complex, adjacent to the north edge of the existing channel is an area where dredged material had been side-cast for a 1962 Port expansion project (Figure 7). For this mitigation alternative, the deposited material would be removed to expose hardbottom substrates and/or rock would be installed in these areas to facilitate colonization. Other than a study conducted on the western-most portion of the previously dredged material, there is little known information available about the on-site conditions and whether this could be developed into a viable mitigation alternative. Additional studies would be necessary to determine feasibility. For that reason this mitigation alternative was removed from further consideration.

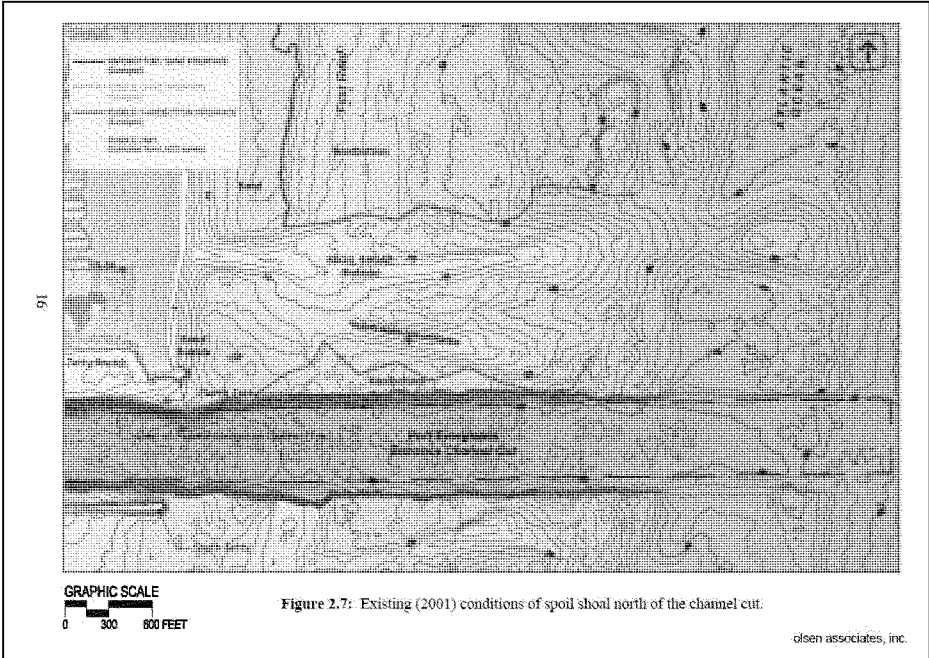


Figure 7 Location of Spoil Shoal Parallel to Port Everglades OEC (Olsen Associates 2004)

8. Artificial reef creation using of quarried or dredged rock

Where restoration and enhancement of reef resources are not available for use as mitigation, hardbottom creation has traditionally been offered (in this geographic area and where similar habitats are affected) as compensation for impacted habitats and lost ecosystem functions.

For the proposed compensatory mitigation for impacts at Port Everglades, the configuration of artificial reef materials will resemble, in profile and in functionality, to the maximum extent practicable those habitats impacted. Since new reef impacts would take place at water depths of approximately 40 to 45 feet (second reef line) and 50 to 55 feet (third reef line) for the channel expansion at Port Everglades, it was suggested that these two depth zones should be used at mitigation sites to achieve in-kind mitigation. Indeed, the use of in-kind mitigation immediately adjacent to the impact site is one of the major benefits to this mitigation alternative. Also, the amount of "high-relief" reef and "low-relief" hardbottom could be created in proportion to the impacted sites, unlike many of the other mitigation options. Mitigation reefs associated with the Port of Miami expansion in 1993 (the last deepwater port expansion with mitigation creation available for assessment) were examined to determine if the mitigation reefs provided similar habitats, species assemblages and functions as the impact area. This was in fact the case, after seven years of the mitigation reef being in place (and without any transplants of corals to the mitigation reef). Other benefits of use of this mitigation option include the relative stability (on the seafloor) of quarried or dredged limestone/rock; relative ease of construction; and relative low cost.

This plan involves the deployment of piles of limestone that have been either quarried and transported to the mitigation area, or dredged from the channel construction areas. The piles will be configured into rows that are parallel to the existing reef tracts. Two layers of boulders will comprise these piles, given a vertical dimension of approximately 6 to 8 feet of relief. Low relief areas will comprise only one layer of boulders. Similar structures will be constructed near the Port of Miami in 2013. Based on outcomes from that effort, USACE will be able to improve on design and materials specifications for Port Everglades mitigation.

The interval required to reach substantial functional productivity of this alternative is estimated to be 30-50 years. As proposed, coral colonies greater than 10 cm (up to 11,502 colonies) in diameter and free of disease and boring sponge would be transplanted from the impact area to the mitigation sites, which would be prepared in advance of dredging.

Drawbacks to this alternative are that the artificial reefs, as proposed above, are not as aesthetically pleasing as adjacent natural hard-bottom reef structures, they do not include a tremie concrete pour that would bond them even more securely to the seafloor, and they would remove some softbottom (sand) habitats adjacent to existing reefs when the rock is placed on the sand. Finally, just after completion of installation, the functional value of the reefs is relatively low (compared to restored/enhanced reefs or boulders to which corals have been transplanted). Additional details regarding this alternative are found below.

9. Artificial reef creation using modular materials

Creation of artificial reefs using modular materials instead of quarried or dredged rock is another alternative. This alternative is identical to the Reef Creation alternative discussed above, but for the use of modular reef materials. This alternative utilizes modular reef components that are created on-shore and moved to the reef placement site. Modular reef habitat construction as a compensatory restoration alternative would consist of using established technology to construct and place cement reef-replication modules in a manner to provide a range of desirable ecological services. For example, a modular reef can be designed to maximize vertical profile, surface area for settling organisms, crevices for shelter, foraging habitat for pelagic organisms, or some combination of services such as these. Prefabricated reef modules have been used in the United States (including Broward County) to restore coral reefs impacted by vessel groundings and deployment of telecommunication cables. The creation of an artificial reef that mimics low relief hard-bottom coral reef can be designed for both aesthetics and habitat function. The project to construct and place cement reef-replication modules in a shallow or deep hard-bottom environment could be located in one or more favorable settings north or south of the project footprint. Another benefit is that upon installation, they have a moderate (vs. low, as in the rock reef creation alternative) functional value.

Costs for this alternative are relatively higher due to (1) on-shore labor to create the modules, (2) land-based, as well as sea-based, transportation costs, and (3) diver labor necessary to place the modules on the seafloor. However, the benefits include ease of construction and their secure placement on the seafloor.

The interval required to reach substantial functional productivity of this alternative is estimated to be 30-50 years. Coral colonies greater than 10 cm (up to 11,502 colonies) in diameter and free of disease and boring sponge would be transplanted.

10. Coral propagation and active species enhancement

NOAA's National Marine Fisheries Service (NMFS), a cooperating agency with USACE for development of the Environmental Impact Statement (EIS), independently estimated that the tentatively selected plan would impact 137.83 acres of coral, coral reef, and hardbottom (collectively referred to here as "reef": 20.34 acres of coral reef in the channel and 117.49 acres of coral reef located outside the channel) based on an analysis utilizing the 2001 LADS survey. In May 2013, NMFS recommended that USACE mitigate these impacts by propagating coral colonies at in-water and land-based nurseries and then outplanting the colonies to suitable recipient sites on the reef tracts. NMFS estimates this approach would require 20 years to complete and would cost approximately \$35.6M to \$42.3M (including risk contingencies).

NMFS's recommendation is based on successes of coral propagation and enhancement programs in Atlantic and Caribbean waters. Scientifically vetted practices for nursery propagation, outplanting, and monitoring have been developed and used by coral nursery managers in the Florida Keys, Broward County, Puerto Rico, U.S. Virgin Islands, and other Caribbean islands to reproduce *Acropora* spp. asexually (e.g., Johnson et. al 2011). Typically, small fragments less than five centimeters (cm) in diameter are collected from the reef and held in an underwater or tank-based nursery environment through their juvenile life-stage. Offshore nurseries are sited based on a number of factors including habitat feasibility and water quality conditions, potential for future impacts, and permitting status/considerations. Once the stock nursery population is established, no more coral is collected from natural reef communities. The physical and genetic origin of each coral is tracked from fragment collection to ensure that both nursery and outplanting operations are done in a scientifically responsible way. Regular maintenance is performed on nursery structures and the corals themselves to ensure all are free of coral competitors and predators. Once coral fragments have grown to a size where the probability of survival on natural reefs has increased to an acceptable level (this usually requires 12 to 18 months), the corals are outplanted. Decisions regarding which species to propagate and outplant (in addition to staghorn coral) and the balance (relative percent-cover, or relative population densities) among all species would be based on findings from the most recent peer-reviewed literature at the time the project is funded. Additionally, outplant recipient sites would be selected using a strategy that maximizes likelihood of outplant survival while minimizing risk from natural and human disturbances.

Using a type of Habitat Equivalency Analysis, specifically "resource-to-resource" equivalency analysis, NMFS estimated that 195,000 to 250,000 corals need to be outplanted from nurseries to offset the impacts to coral from expanding the Port's OEC. These costs are included in the budget for this alternative. In addition to eventually establishing those colonies on recipient sites, NMFS also assumes that preconstruction avoidance and minimization measures related to coral translocation are taken (these costs are NOT included in the budget for this alternative). These include the following:

- Relocation of all corals listed under the Endangered Species Act from impact areas, regardless of size.
- Relocation of a subset of massive corals and all corals proposed to be listed under the Endangered Species Act that are 5 cm or larger.
- Relocation of all other corals greater than 10 cm diameter.

The proposed coral propagation and outplanting program is based on utilizing existing NMFS programs to support the implementation of the project in partnership with local resource agencies (e.g., FDEP), academic institutions (e.g., NSUOC), and other coral restoration partners in the local area. One benefit of this alternative is that it is designed to maximize the chances of successful

natural coral reproduction; larval transport; settling and colonization into new areas; and genetic mixing required for survival and recovery of the species. Furthermore, this proposal is consistent with the NMFS Acropora Recovery Strategy (under development) and other coral recovery plans for coral species that may be listed under the Endangered Species Act. The entire draft proposal for this alternative is located in Appendix E-4.

11. Blending of components from various mitigation alternatives (Preferred Mitigation Option)

This alternative is a hybrid of the USACE preferred plan (alternative 8 - artificial reef creation using quarried or dredged rock), and NOAA's preferred plan (alternative 10 - coral propagation and active species enhancement), and portions of 6 (repair of grounding sites and subsequent coral installation).

Under this hybrid plan, at least five (5) acres of boulder-based artificial reef would be constructed. Approximately 2.03 acres would receive coral transplants that have been relocated from dredging impact areas and transplanted to boulders at a density commensurate with the impacts (1.4 corals/m²). In addition, 2.97 acres of boulder-based artificial reef would be constructed without coral transplants.

The remaining mitigation would be in the form of direct enhancement of partially degraded reef sites proximate to, but not directly in or adjacent to the impacts associated with the Port Everglades project. The proposed reef mitigation project would enhance degraded reefs by outplanting regionally appropriate corals and sponges at a density and in numbers commensurate with those impacted. The organisms for outplanting would be sourced from corals and sponges of opportunity or propagated in ocean-based or land-based coral nurseries operated under contract associated with the project for a period of 11 years. Contract award will be through the RFP process.

The coral propagation contractor shall be required to monitor the outplanted propagated corals for a 3-year period for each outplanting area. After 3-years of monitoring of each outplanting area, the final determination of success for that outplanting area will be made and that area will no longer be monitored.

Outplanted nursery corals shall be monitored for survival and Adaptive Measurement Measures shall be taken to ensure survival remains above 80% based on the Monitoring and Adaptive Management plan found in Appendix E-5 of the Monitoring plan. Survival shall be compared to control sites with similar species composition as the outplant sites to detect any region-wide changes or stochastic events like disease or a hurricane. The project shall reflect similar coral survival as the control sites for the outplanted species. Control sites shall be selected by the contractor, reviewed by the Corps and the Adaptive Management Committee and approved by the Contracting Officer.

Based on HEA, the total number of outplants was determined to be 103,191 corals. This does not include up to a 20% contingency. These supplemented corals would improve local reef structure and function. More importantly, the outplanted corals would increase the likelihood of successful sexual reproduction and contribute directly to the pool of coral larvae available to colonize adjacent reefs. In order to maximize the return of lost services, the agencies propose to outplant a regionally appropriate mix of both fast and slow growing massive, branching, and octocorals as well as habitat forming sponges as part of the mitigation project.

6.3 Incremental Cost Analysis Results for Hardbottom Habitat Mitigation Alternatives

6.3.1 Expected Cost of Alternative Hardbottom Habitat Mitigation Plans

The estimated costs of the five practicable mitigation alternatives to provide compensation of ecosystem services due to unavoidable impacts of the LPP are shown in Table 11. The table also lists the impact acreages per habitat type, and the resulting mitigation requirement (in acres) for each of the candidate mitigation alternatives. Finally, along the top row, the table also compares the recovery rates (in years) for seafloor habitats and channel wall habitats that were used in the HEAs. Total mitigation cost ranged from approximately \$23 million to \$72 million among the five alternatives.

6.3.2 Hardbottom Habitat Mitigation Benefits

The basis for determination of benefits will be one acre of restored or created hardbottom habitat. USACE would create 5 acres of artificial reef, with up to 11,502 corals relocated from the impact area to the artificial reef and restore 18.21 acres of degraded habitats with up to 103,191 outplanted corals.

6.3.3 Construction/ Initial Cost per Hardbottom Habitat Functional Unit

The base-year cost of each alternative mitigation plan is compared to the respective benefit (functional unit, or acre) below (see Table 12). Costs are based on FY2012 estimates (annualized values are provided in the Economic Appendix of the Feasibility Study). Artificial reef creation costs were determined from a review of actual contract award costs for the Florida Keys National Marine Sanctuary as well as the Port of Miami artificial reef construction projects. Some commenters have offered that the Corps' costs are too low, however they are based on a review of many recently awarded contracts for large scale, deep water reef restoration and coral relocation. Costs per acre for the five mitigation alternatives ranged from approximately \$1 million to \$1.5 million. Coral propagation costs were determined by an industry survey conducted by NOAA and provided to USACE.

Table 11 Total Cost of Mitigation Alternatives Based on Habitat Equivalency Analyses for OEC Impacts under Component 1 with Indirect Impacts: 48-foot *authorized* depth/ 57-foot *actual* depth

		Required Mitigation (in acres), Cost per Acre, Coral Relocation Costs, and Total Cost				
	Impact Area (Acres)	Artificial reef with nursery coral outplants	Restore grounding habitat using transplants	Artificial reef creation using modules	Placement of rock/ boulders to stabilize tire field;	Artificial reef creation using rock/boulders
Time to Recovery: Seafloor/ Channel Wall (yrs)		35/50	20	50	50	50
Component 1	15.33	5.0 (2.03 acres w/ transplants/ 2.97 acres w/o transplants)	18.17	46.583	46.583	46.583
Indirect reef impacts – all habitats surrounding channel	109.08	n/a	1.13	1.13	1.13	1.13
Out planted corals required		103,191	n/a	n/a	n/a	n/a
Total mitigation area (acres) required to offset impacts		5 (2.03/2.97)	19.912	48.325	48.325	48.325
Cost per Acre		\$984,699	\$1,260,000	\$1,320,000	\$1,225,000	\$984,699
Coral Relocation (Not more than 11,502 colonies)		\$8,143,416	(included above)	\$8,143,416	\$8,143,416	\$8,143,416
Coral Nursery Costs		\$10,680,290	n/a	n/a	n/a	n/a
Total Mitigation Cost		\$23,747,202	\$25,089,120	\$71,932,416	\$67,341,541	\$55,728,995

Table 12 Construction/ Initial Cost per Acre of Hardbottom Mitigation

Reef Mitigation Alternative	Construction Cost of Mitigation	Benefits of Mitigation (acres)	Cost/Acre
Grounding Restoration Sites	\$25,089,120	19.912	\$1,260,000
Artificial Reef Creation- Modules	\$71,932,416	48.325	\$1,488,514
Tire Field Stabilization w Art. Reef Creation	\$67,341,541	48.325	\$1,393,514
Artificial Reef Creation- Boulders	\$55,7229,004	48.325	\$1,153,213
Artificial Reef and outplant of nursery corals	\$23,747,202	23.21 (5 artificial/ 18.21 enhancement)	\$1,023,145

6.3.4 Cost-Effective Hardbottom Habitat Mitigation Plan

Cost estimates for the above alternatives that were determined to be practicable (reef creation with coral outplants; reef creation on tire debris field, reef restoration in former anchorage area, and reef creation, including the modular-reef option) were calculated, and those costs were used in an incremental cost analysis. An alternative is considered cost effective if no other alternative provides the same level of output for less cost, and if no other plan provides more output for the same or less cost (ER 1105-2-100). The table above shows a comparison of plans. The reef creation with nursery corals is not only the least cost alternative, but it also has the lowest cost per increment. Given that finding, the "reef creation with coral outplants" alternative described above was selected as the proposed mitigation plan for impacts to hardbottom habitats due to the LPP.

6.3.5 Hardbottom Habitat Mitigation Cost Based on Selected OEC Depth Option

Several alternative authorized depths are under consideration for the LPP's Outer Entrance Channel element. These authorized depths result in actual depths ranging from 55 to 59 feet (one-foot increments; "authorized" or "project" depths are seven feet less than these depths). Each depth would affect/impact a different amount of hardbottom habitat. The following table (Table 13) shows what those differences are (in acres) and lists the different mitigation requirements and costs for each depth under consideration, based on the Best Buy mitigation alternative noted above.

Table 13 Incremental Mitigation Construction/ Initial Costs for LPP (Plan 2E) Reef Impacts

Actual Dredge Depth (includes +7'+1'+1' for safety) Increment for Outer Entrance Channel	Mitigation Required (SAYs)	Mitigation Cost for Cost-Effective Mitigation Alternative (Artificial Reef and Nursery Coral outplants)
59 ft (-50)	869.97	\$25,901,001
58 ft (-49)	Not determined	Not determined
57 ft (-48)	794.236	\$23,747,202
56 ft (-47)	752.25	\$22,554,901
55 ft (-46)	702.17	\$21,102,235

6.4 Proposed Mitigation Plan for Hardbottom Habitats

6.4.1 General Artificial Reef Considerations

Artificial reefs are used to mitigate for impacts to natural hardbottom habitats as a result of various anthropogenic activities along the coasts (Zimmer 2006). Artificial reefs have been used as mitigation for beach nourishment projects, dredging projects, and telecommunication cable placement projects that affected natural reef or hardbottom.

Artificial reefs have been used successfully for many years to mitigate impacts in sheltered waters (Duffy 1985 and Davis 1985) or in relatively deep water offshore (Mostkoff 1993). Reef deployments in shallow, open coastal areas present special challenges in the wave stability of materials and burial by sand movements in this very dynamic habitat.

Several factors are important to consider when designing a mitigation project using artificial reefs, including site selection (vis-à-vis position in the environmental landscape and relative physical and biological factors), longevity, and achieving design elements that mimic the natural system so that the project replaces, as closely as practicable, the functions lost due to project impacts (i.e., "in-kind" mitigation).

Site selection is an important factor in artificial reef success. Depth, substrate suitability, geo-spatial orientation, and connectivity with other artificial or natural reefs must be considered when selecting a site for artificial reef placement. Since the biological composition of reefs is driven in part by depth and associated factors such as light attenuation, the depth of artificial reef should be similar to the impacted natural reef. The composition (and depth to bedrock, if the overburden is sand) of the substrate on which the rock is placed must be sufficient to support artificial reef structures. Artificial reefs placed in areas having a thick overburden of sand have been documented to sink and thereby lose their functionality as reefs. Ideally, artificial reefs should be placed in an area with a thin veneer of sand over limestone or bedrock. Artificial reefs should be placed in order to mimic the geospatial aspects of the natural reef as much as possible. For example, if the long axis of natural reefs runs in a north-south direction, then artificial reefs should be designed and placed using the same geospatial orientation. Finally, a candidate site's biological connectivity should be considered when designing and placing artificial reefs for mitigation. The artificial reefs should mimic the connectivity

of the natural reefs as much as possible. Biological connectivity also relates to potential exposure of artificial reef structures to pelagic larvae, such as might be carried by the Gulf Stream.

Mitigation reefs have often been required to be built in the immediate vicinity of the natural reefs impacted by construction activities. In areas where the habitat that was impacted was the only habitat in the area, this approach has merit. A guiding principle of artificial reef development has always been that reefs should not be deployed immediately adjacent to productive reef habitats. From a fisheries standpoint, reefs placed in non-reef habitats are biologically more productive as they are trophically coupled with foraging habitats that are unexploited by other reef fishes (Bortone 1998). More importantly, the shifting of reef materials in storms may severely damage adjacent natural habitats. For this reason, the Florida Artificial Reef Development Plan prohibits material from being placed within 100 yards of "live bottom" areas, such as nearshore hardbottom (Myatt and Myatt 1992). Following Hurricanes Andrew, Opal, and Erin, it was found that even massive materials in relatively deep water were moved or broken up by tremendous wave forces (Lin 1998, Turpin 1998). The possibility exists that less massive materials in much shallower water could shift and damage adjacent natural habitats. For the above reasons, sites selected for mitigation reef construction should have no significant areas of natural reef within 100 yards and no reefs should be placed directly seaward and immediately adjacent of any significant area of natural reef.

6.4.2 Location, Materials, and Design

Mitigation reefs will be designed and placed to mimic the impacted natural habitat of the middle and outer reefs. Two types of mitigation reefs will be constructed: High Relief, High Complexity (HRHC) reefs (exceeding three feet of vertical relief) and Low Relief, Low Complexity (LRLC) reefs (approximately three feet of relief). The HRHC reefs are intended to mitigate for impacts to high relief habitat (i.e., linear or spur-and-groove reefs) and the LRLC reefs are intended to mitigate for impacts to lower relief reef (i.e., pavement or channel wall) and hardbottoms outside of the project footprint (i.e., in the indirect effect area). The two reef types will be deployed in acreages proportional to direct impacts expected to each type of natural reef habitat (where impact habitat types were based on data collected in 2006 (DC&A 2009) and published classification systems): 31% of the artificial reef will be LRLC and 69% will be HRHC.

Several areas are under investigation to serve as sites for installation of artificial reefs (Figure 8). The Corps hopes to partner with Broward County to identify the best location for placement of the five acres of artificial reef. Geotechnical investigations and other reconnaissance (including environmental) will be necessary to determine precisely the best position(s) for reef structures to be installed. Appropriate members of Broward County, FWS, NMFS, FWC, EPA and DEP staffs will be consulted prior to final siting.

Limestone rock excavated from the STB, MTB, IEC, and the OEC may be used in reef construction and, if necessary, supplemented with quarried limestone. If the selected contractor chooses to use project-produced rock, they may commence excavation *inside* the harbor, transporting the material offshore for mitigation construction, and then proceed to dredging the entrance channel; i.e., dredging and reef installation will occur simultaneously. Alternatively, the construction contractor will be allowed the option of purchasing quarried native limestone in lieu of using the material from within the project boundaries. Contract specifications/requirements may be stated in the following manner, as they were for another recent federal project in South Florida:

"The sites [i.e., dredge sites/project components] may be used in any combination to provide the minimum area for both low-relief and high-relief reef and may be used in their entirety if desired. Suitable materials for use in the reef mitigation areas shall consist of rock excavated from the project or native limestone quarried from Palm Beach, Broward, Dade, Monroe,

Martin, Glades, Charlotte, Lee, Hendry, and/or Collier Counties. Rock particles shall measure a minimum of 36-inches in length by 36-inches in width, the third dimension remains variable. The stone shall be free from components, minerals, cementing or bonding materials or structural defects that might contribute to spalling or breakdown from handling and placing. The Contractor shall be responsible for removal of all rejected reef construction materials from the staging area, barges or reef. If substandard materials are placed on the reef, the Contractor shall be responsible for removing those materials and replacing them with acceptable reef material or shall place additional stone to achieve the minimum areas for both high-relief and low-relief reef, as directed by the Contracting Officer."

HRHC reefs will likely consist of limestone rock boulders from 1.0 to 10.0 ton each, having a minimum density of 140 pounds per cubic foot. The material will be deployed in shore-parallel strips 50-100 feet wide to mimic the orientation of typical natural reefs. This reef design will have a vertical relief of 6-8 feet and boulders will be partially stacked to provide the maximum structural complexity and to provide refugia for cryptic and reclusive species. As interstitial sand patches associated with reef habitat are thought to be important in the ecological function of the reef habitat, the reef footprint will contain approximately 20 percent open sand surface. If used, quarried marine limestone boulders averaging 4.25 ft. diameter will be individually placed on the seafloor. All boulders will be placed such that they will be in contact with each other; interlocking to form a compact mass. Two layers of boulders will be used to create a high-relief structure that somewhat mimics the surrounding reef environments.

Temporary buoys delineating the deployment strip will mark areas for deployment. Corner buoys for the sites shall be placed using DGPS with sub-meter accuracy. Natural limestone provides an ideal substrate for the establishment of a reef community. An additional advantage of limestone rock boulders is aesthetic. Once colonized by the reef community, the reef is almost indistinguishable from a natural reef, enhancing its value as a recreational resource. HDHC reefs are intended to provide persistent habitat with higher complexity and habitat diversity than typical natural nearshore hardbottom reefs.

For the proposed compensatory mitigation for impacts at Port Everglades, the configuration of reef materials will resemble, if not in profile, at least in functionality, those habitats impacted. The mitigation acreage required per type of impact is detailed in Table 11 which was partially adapted from DC&A and USACE (2014); subcategories for middle and outer reef mitigation requirements were based on the fractions that those types comprised of the middle and outer impact category.

It should be noted, however, that it is unlikely that high-profile reef would completely cover the area designated for such hardbottom habitat. A more likely scenario would be that open, sandy spaces will surround the "rock-pile-rows" to increase habitat variability and increase the exposure of the reef to sea currents and migratory species.

As noted above, transplantation of corals (larger than 10 cm in diameter) from the direct impact area to the new installed substrates will be carried out. This will speed the increase in habitat value of the mitigation sites.

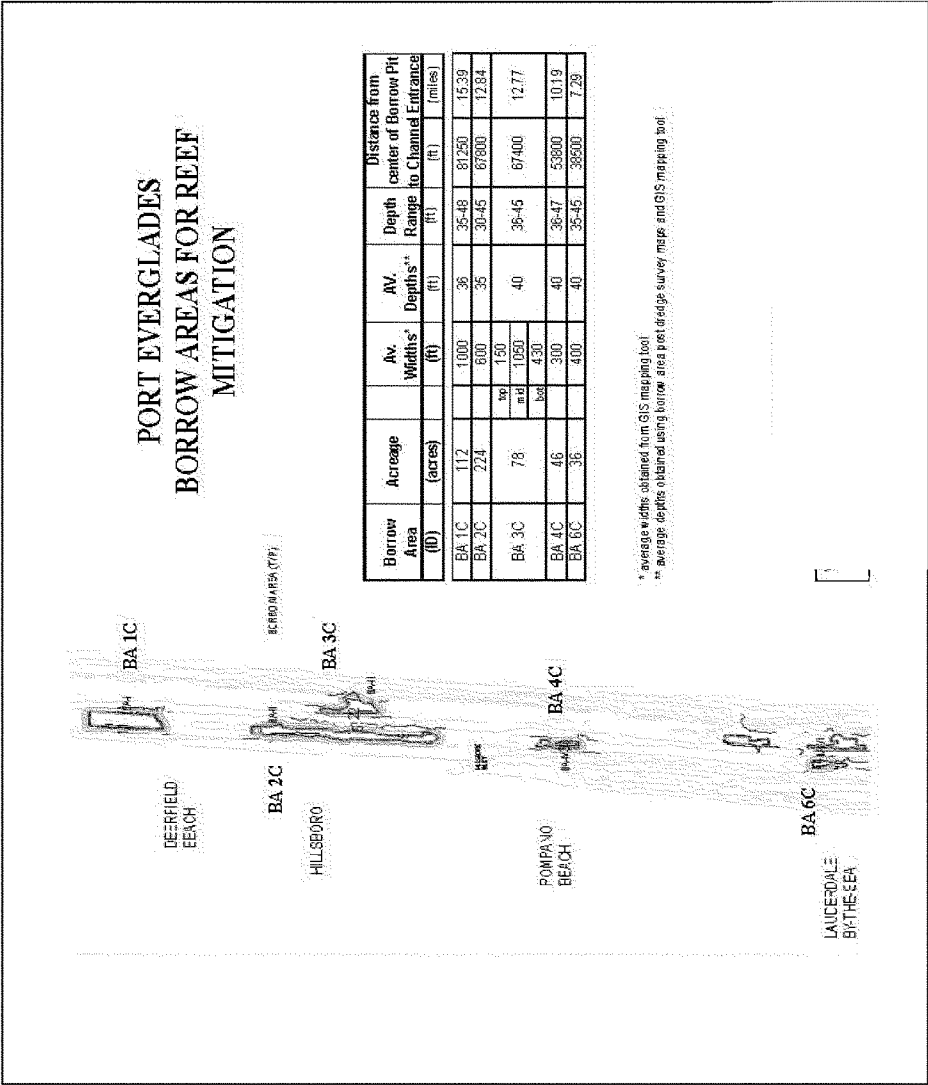


Figure 8 Proposed Artificial Reef Installation Sites, Broward County

6.4.3 General Reef Enhancement Considerations (*NMFS – NEPA Cooperating Agency*)

NOAA has provided technical assistance to the USACE on the approach to mitigate the coral impacts by rescuing corals and other reef species of opportunity and propagating coral colonies within ocean-based and land-based nurseries and then outplanting the colonies to suitable sites off the Broward County coast. A technical committee will be established and composed of NMFS, COE, the partners implementing the project, and other resource management agencies. The implementing partner will have the authority to make minor corrective actions. However, major corrective actions that require major adaptive management action (e.g., outplant site abandonment) will be reviewed by the committee which will then recommend actions to USACE. The committee will form after the Port Everglades Expansion Project has been authorized and funded. An implementation plan will be developed by this committee and throughout the project tenure the committee will meet regularly and have the option to convene on an as-needed basis. The committee will define what constitutes a minor versus a major corrective action and determine if the monitoring duration should be extended. For example, minor adaptive management actions may reset clock by six months and major adaptive management actions reset clock by 18 months.

Completion of this aspect of the mitigation will require approximately 10 years and include activities needed to ramp-up, outplant to reefs, and subsequent monitoring and adaptive management. Ramp-up activities include expanding existing ocean-based nurseries, the creation of new ocean-based nurseries, and outplanting site selection. Because of the importance of completing this project with a mix of regionally appropriate species, coral (and other reef species) rescue will be a major component of the project during ramp-up and outplant years. Corals and other reef species of opportunity will be collected and added to the nursery for fragmentation and propagation and/or eventual outplanting. Five to six outplanting years would result in the enhancement of approximately 18.21 acres of coral reef at numerous sites that may range from $\frac{1}{8}$ to $\frac{1}{4}$ acre. Outplanting may also occur at sites being restored as part of other damage response programs (e.g., vessel grounding damage response). Monitoring and adaptive management will occur throughout the project timeline and will include activities that range from responding to regular nursery maintenance to performing monitoring to ensure the performance measures have been met.

Scientifically vetted practices for nursery propagation, outplanting, and monitoring have been developed and used by nursery managers in the Florida Keys, Broward County, Puerto Rico, U.S. Virgin Islands, and other Caribbean islands to reproduce *Acropora* spp. asexually (e.g., Johnson *et al.* 2011). These best practices continue to be refined and will be integrated into the mitigation project design. Generally, small fragments less than five centimeters in diameter are collected from the reef and held in an ocean-based or land-based nursery environment through their juvenile life stage. Once the stock nursery population is established, no more coral is collected from natural reef communities. However, for this project there may be sufficient stock of corals in existing nurseries that can be fragmented and propagated, so as to eliminate or minimize the need to collect wild stock. The physical and genetic origin of each coral will be tracked from fragment collection to ensure that both nursery and outplanting operations are done in a scientifically responsible way.

This mitigation approach will use a combination of two types of reef organisms - (1) slow growing and (2) fast growing. Slow growing corals are composed of massive corals and brooding corals. Large barrel sponges (*Xestospongia muta*) are also included in the slow growing species mix. It will take longer for mitigation sites to reach full services using slow growing species, but they are essential to ensuring the mitigation sites are composed of an appropriate fully functional suite of species. The source of the slower growing coral and sponges will largely be from rescue activities (also referred to species of opportunity). The faster growing reef species are primarily composed of *Acropora cervicornis*, because this species exhibits faster growth rates than other Atlantic/Caribbean coral species, reproduces predominantly via asexual fragmentation, and can be propagated efficiently using both ocean-based and land-based nurseries. While replacing coral colonies is an

essential component of the reef mitigation, replacing the three-dimensional structure of the reef is also important. *Acropora cervicornis*, in addition to barrel sponges and other reef species being considered, will provide significant three-dimensional structure through their normal growth patterns. *Acropora cervicornis*, with its fast growth rates, will provide three-dimensional structure more quickly than other species.

Offshore nurseries will be sited in a manner so as to balance a number of factors including, among others, appropriate habitat and water quality conditions, potential for future impacts, and permitting. Once coral fragments have grown to a size where the probability of survival on natural reef has increased to an acceptable level (this usually requires 12 to 18 months), the corals are outplanted to the natural reef. The decision on which species to propagate and outplant in addition to staghorn coral (*Acropora cervicornis*) and the balance among all species would be based on the state of the science at the time the project is funded. Additionally, outplant sites would be selected using a strategy that maximizes likelihood of outplant survival while minimizing risk from natural and human disturbances.

Using a Habitat Equivalency Analysis, it is estimated that 103,191 initially surviving corals need to be successfully outplanted from nurseries to offset the impacts to coral from expanding the Port Everglades Outer Entrance Channel. Additionally corals will need to be rescued, propagated, and outplanted to meet this target. Importantly, the 103,191 outplants is the initial outplanting requirement and does not include additional corals that may be needed as part of an adaptive management program to meet performance objectives (estimated currently at 20%). Over time as we learn from the adaptive management program, it is possible the amount of outplants could be reduced. The outplant species mix is expected to be a regionally appropriate species mix comprised of a relatively even distribution of fast and slower growing organisms.

6.4.4 Location, Materials, Design (NMFS – NEPA Cooperating Agency)

While not a requirement, partnerships with the entities that created the existing ocean-based nurseries would result in project implementation efficiencies and these partnerships need to be formalized. The location of the ocean-based nurseries can include expanding existing nursery sites on land and offshore Broward County which have been implemented by Nova Southeastern University, in addition to the creation of new ocean-based nurseries. Ideally, the ocean based nurseries would be separated by distances sufficient to absorb a localized impact (e.g., anchor drag, disease outbreak, weather event). The inclusion of the land-based operations would also help minimize the impacts from damage to offshore sites. During the ramp-up phase, new offshore nursery sites will be tested and established. The fieldwork associated with the exploration of new nursery sites will also be expanded in scope to include the examination of future suitable outplant sites.

There is value in the nurseries being designed to include a variety of designs (e.g., growout trees, lines, platforms). For example, while the use of lines may allow the fastest coral growth, this design may also be the most susceptible to impacts from storm damage. The state of the science at the time of project implementation, will inform the nursery design.

The coral propagation and outplanting project will require numerous sites that sum to approximately 18 acres. Selection of these sites will be done in coordination resource agencies and partners after the Port Everglades feasibility study is approved by Congress and funds are appropriated for detailed engineering design. Table 14 includes site selection criteria based on Johnson *et al.* (2011), which are guided by the distribution and status of natural reefs.

Table 14 - Site Selection Criteria for Outplanting Sites

- Depth should reflect depth of ocean-based nurseries, impact sites, and natural Broward County reefs
- Water quality should be relatively high with low sedimentation and turbidity and relatively minimal temperature fluctuations over daily, monthly or annual time frames
- Bottom types should be stable hardbottom or coral reefs within the nearshore ridge complex, Inner Reef, Middle Reef, or Outer Reef; areas with rubble should be avoided
- The target size of outplant sites should be able to accommodate ¼ acre of reef enhancement
- Areas with organisms that compete for space, such as gorgonian canopy, encrusting sponges, *Palythoa*, and algae should be avoided
- Areas with high predator abundance, such as corallivorous snails, fireworms, and damselfish should be avoided if the predators cannot be effectively removed
- Wave exposure should be low to moderate to reduce physical disturbance to newly outplanted corals
- Corals should be placed where currently or historically present
- Outplant sites should be in areas less subject to human activities that could damage corals

While actual site selection would occur during project ramp-up years and when project funds are appropriated, based on their experiences working in Broward County waters and consultation with several experts USACE and NMFS conclude there are a sufficient number of suitable sites for reef enhancement for the Port Everglades feasibility study. Focusing on *Acropora cervicornis*, which is a large component of the mitigation project, it has been noted Broward County may ultimately prove to be one of the best places to achieve success with active propagation because there are presently very few large naturally occurring thickets of *Acropora cervicornis* anywhere in the Caribbean and the Keys, other than in Broward County (personal communication, Richard E. Dodge, Ph.D., Dean; Nova Southeastern University Oceanographic Center 8000 N. Ocean Dr.; Dania Beach, FL 33004, August 2013) and because *Acropora cervicornis* are naturally abundant in the area (personal communication, Brian K. Walker, Ph.D., Research Assistant; Nova Southeastern University Oceanographic Center 8000 N. Ocean Dr.; Dania Beach, FL 33004, August 2013).

6.5 Monitoring and Adaptive Management

6.5.1 Hardbottom Habitat Artificial Reef Mitigation

The monitoring program for the mitigation reefs will include both physical and biological underwater assessment methods for five years. Physical monitoring will assess the degree of settling of reef materials, and annual biological monitoring will assess populations of algae, invertebrates, and fishes, and compare them to control sites on natural reefs.

The degree of settling and/or sand covering will be assessed by measuring the relief at each of the permanent quadrat stations established as outlined below. Measurements will be taken with a weighted flexible tape from a point one meter shoreward of the quadrat benchmark to the surface of the water and from the top of the reef structure at the benchmark to the surface of the water, with the difference being the relief. The mean of five such measurements will be used to assess the degree of settling and/or sand covering of the materials. Changes in relief at the control reef quadrat benchmarks will be assessed by the same method. If physical inspection reveals that the acreage or

typical relief of the reef has been significantly reduced by subsidence, scour, or sand accretion, additional materials will be added as necessary to restore the reef to the as-built design.

A study design consisting of standard underwater assessment methods will be used in order to statistically compare mitigation reefs to natural reefs (control sites). Success criteria for benthic algae, invertebrates and fish populations will be established in order to demonstrate mitigation success. Success criteria will be based on the biological communities of control sites (natural reefs) and may include species richness, density, and cover of benthic algae, invertebrates, and fishes. Standard methods used to assess these parameters may include, but are not limited to in situ and/or video transect data collection for assessing benthic algae and invertebrate populations; in situ or photo-quadrat data collection for benthic algae and invertebrates; cylinder fish population surveys and/or roving diver fish surveys. Appropriate parametric and non-parametric statistics shall be employed in order to demonstrate mitigation success criteria are met. An example of one possible biological sampling protocol is described below:

Five randomly selected locations on each type of mitigation reef will be chosen and benchmarked for permanent photo-quadrat stations to assess sessile invertebrate and algae abundance. Randomly selected stations on high and low relief natural hardbottom reefs will also be established to serve as controls. Locations for ½-square-meter photo-quadrats will be established by driving two steel pins into the reef that will precisely locate the quadrat frame. The sites will be benchmarked using a DGPS system with sub-meter accuracy. Invertebrate and algal abundance will be evaluated from digital photography of each quadrat. Species will be identified to the lowest practical taxon and ranked in order of abundance. Superimposing a grid over the digital image and counting bare and colonized grid squares will assess overall percent cover (Bohnsack 1979). Criteria for success of the mitigation reef will be based upon a comparison of a total percent cover of algae and invertebrates at the new reefs and at control reefs of corresponding relief type. The criteria for success of the mitigation reefs in establishing a similar community structure will be a finding of no significant difference in the rank abundance orders of species between mitigation and control reefs of each type. Statistical comparisons between mitigation and control reefs will be made using the Wilcoxon Rank-Sum (Zar 1984) or similar nonparametric test at $p=0.05$.

Fish population evaluations will be based on visual censuses conducted separately on HRHC and LRLC mitigation reefs and high and low relief control reefs. The point-count method (Bohnsack and Bannerot 1986) will be used for fish assessment. This method has the advantage of gathering quantitative data in a relatively short time in a very repeatable pattern that is relatively insensitive to differences in habitat structure. Each census will have a duration of five minutes and a radius (the distance from the stationary observer) of 10 feet. Ten censuses will be collected on each of the four reef types. Data from these types of censuses is rarely normally distributed, so the Wilcoxon Rank-Sum or a similar nonparametric test will be used for significance testing. The criteria for mitigation reef success will be a finding of no significant difference at $p=0.05$ between reef type pairs (HRHC vs. high relief control and LRLC vs. low relief control).

Results of all mitigation reef monitoring efforts will be summarized in an annual report to be completed by December 31 of each year the monitoring program is in place (i.e., until success criteria are met). Copies of the report will be distributed to all agencies and interested parties. Data from monitoring events will be reviewed by USACE staff in consultation with other federal and state agencies to guide decisions on necessary operational or structural changes (adaptive management)

that may be needed to ensure that the mitigation project meets success criteria as defined above. Additional details regarding monitoring can be found in Appendix E-5.

6.5.2 Outplanted Nursery Corals

As part of the Monitoring and Adaptive Management Plan (Appendix E-5), the Corps contractor shall be required to monitor the outplanted corals propagated in the nursery for a 3-year period for each outplanting area. After 3-years of monitoring that outplanting area, the final determination of success for that outplanting area will be made and that area will no longer be monitored (Figure 9).

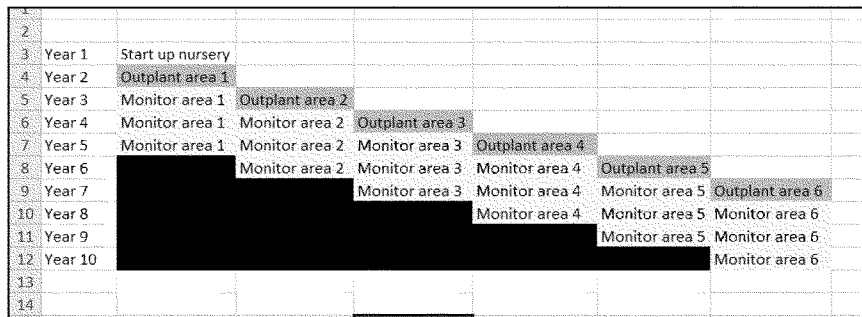


Figure 9 - Outplanting and Monitoring scheme

6.6 Hardbottom Habitat Mitigation Success Criteria

The following success criteria for the above mitigation alternative are as follows and are based on the most recent criteria developed and permitted for a deep water mitigation site associated with a navigation project:

1. The mitigation area and impact site must have biota with 75% species similarity by the time of the final, proposed (i.e., fifth year) monitoring event.
2. Percent-cover of major functional groups at the mitigation area will be similar to that of the impact site (80% similarity) by the time of the final, proposed (i.e., fifth-year) monitoring event.

6.7 Adaptive Management/Contingency Plan for Hardbottom Habitat Mitigation

6.7.1 Artificial Reef

If mitigation is not trending towards success by Year 3 following implementation of mitigation, corrective measures will be engaged; among them, transplantation of additional corals from coral nurseries and deployment of additional reef material. Other options as deemed appropriate by USACE, in consultation with NMFS, FWS, FWC, FDEP, EPA and Broward County may also be carried out, depending on various site-specific factors.

Table 15 - Mitigation Costs with Adaptive Management Added – Artificial Reefs

Coral/ Hardbottom mitigation	Construction Cost of Mitigation	Monitoring Costs	Total Costs
Artificial Reef/transplanted corals Alternative	\$13,066,911	\$508,000	\$13,574,911

6.7.2 Outplanted Nursery Corals

Outplanted nursery corals shall be monitored for survival and Adaptive Measurement Measures shall be taken to ensure survival remains above 80% based on the Monitoring and Adaptive Management plan found in Appendix E-5 of this plan. Survival shall be compared to control sites with similar species composition as the outplant sites to detect any region-wide changes or stochastic events like disease or a hurricane. The project shall reflect similar coral survival as the control sites for the outplanted species. Control sites shall be selected by the contractor, reviewed by the Corps and the Adaptive Management Committee and approved by the Contracting Officer.

Adaptive Management Committee

A committee consisting of USACE, NMFS, the implementing partner and other applicable resource agencies and will meet on a regular schedule, unless the committee determines only an as needed basis is warranted. The implementing partner will have the authority to make minor corrective actions under the contract. However, corrective actions that require major adaptive management action (e.g., site abandonment) will be reviewed by the committee and the committee will make a recommendation to USACE. USACE has the sole authority to require the implementing partner to undertake changes under the contract.

Minor and Major Adaptive Management Actions

The committee will define what constitutes a minor versus a major corrective action and determine if the monitoring duration should be extended. Standard coral nursery and outplant adaptive management guidelines were provided by NMFS under their cooperating agency agreement under NEPA and are included as Attachment #1 to this document. These guidelines will be incorporated into the contracting plans and specifications package for the coral propagation contract and may be modified in coordination with NMFS as new information from coral nurseries regarding nursery methods, outplant survival and other factors become available between now and plans and specifications preparation.

Table 16 - Mitigation Costs with Adaptive Management Added – Coral Propagation

Coral/ Hardbottom mitigation	Construction Cost of Mitigation	Monitoring and Adaptive Management Costs	Total Costs
Coral Propagation and outplanting	\$10,680,290	\$2,242,861 [^] (\$640,817 – monitoring & \$1,602,043 – AM)	\$12,923,151

[^] 6% monitoring and 15% adaptive management

7.0 MITIGATION SUMMARY

Based on unavoidable impacts to significant resources due to the implementation of the LPP, USACE and the local sponsor are proposing mitigation as detailed above, and as summarized in Table 17 below. Construction and mitigation monitoring plans are detailed in Appendix E-5.

Table 17 Proposed Compensatory Mitigation by Habitat/Impact Type

Impact	Mitigation
Direct Impacts of Component 1, 10% of Component 3 & indirect effects to reefs/hardbottom	5 acres of artificial reef; outplanting of 103,191 propagated corals
Seagrass Beds – Occupied Habitat	2.4830 functional units debited from West Lake Park restoration/enhancement project
Mangrove Wetlands	1.00 functional units debited from West Lake Park restoration/enhancement project

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APPENDIX E-1

Environmental Permits for West Lake Park Improvements

APPENDIX E-2

Draft Compensatory Mitigation Recommendations of the Port Everglades Reef Group for Navigation Improvements at Port Everglades Harbor (2004)

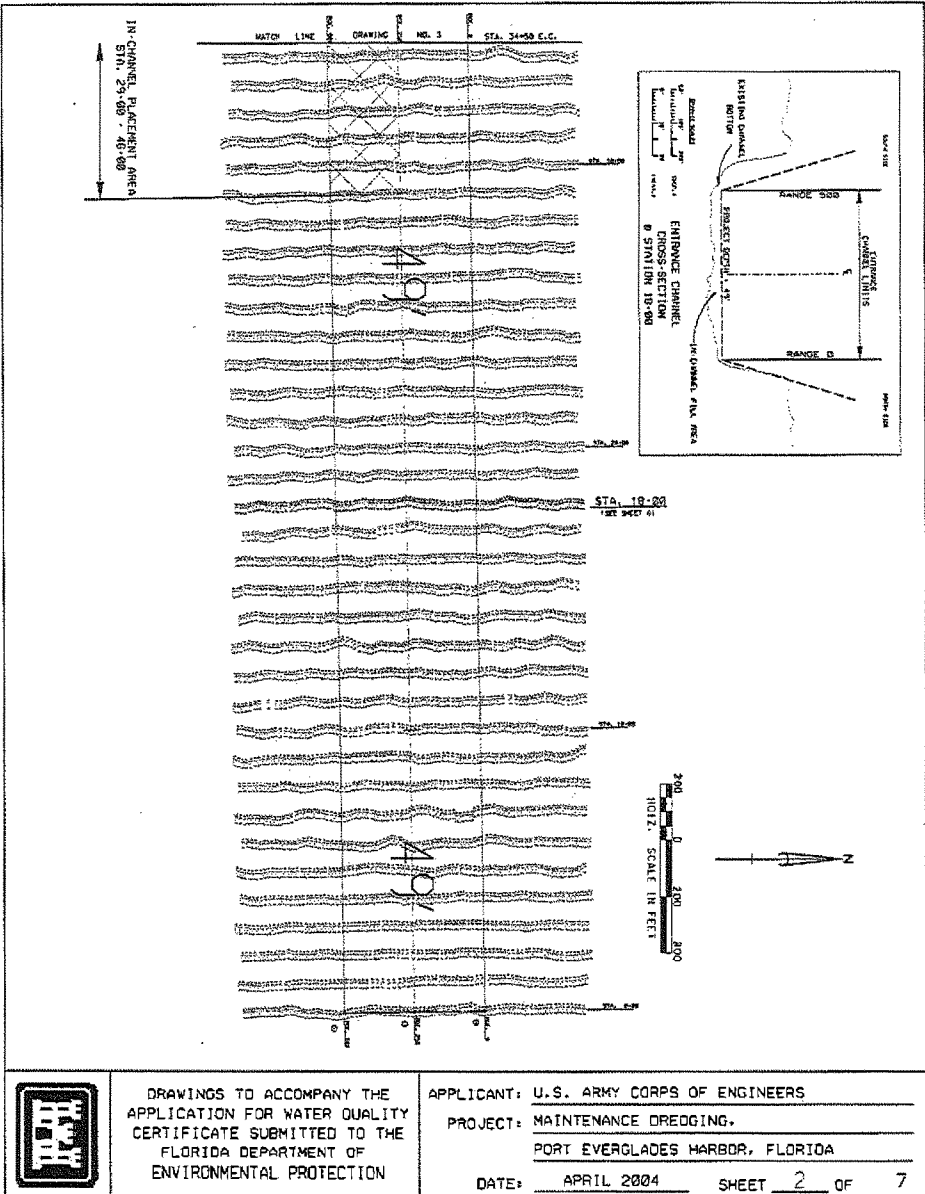
APPENDIX E-3

Mitigation Requirements Analysis for Impacts to Hardbottom Resources Associated with Port
Everglades Harbor Navigation Improvements

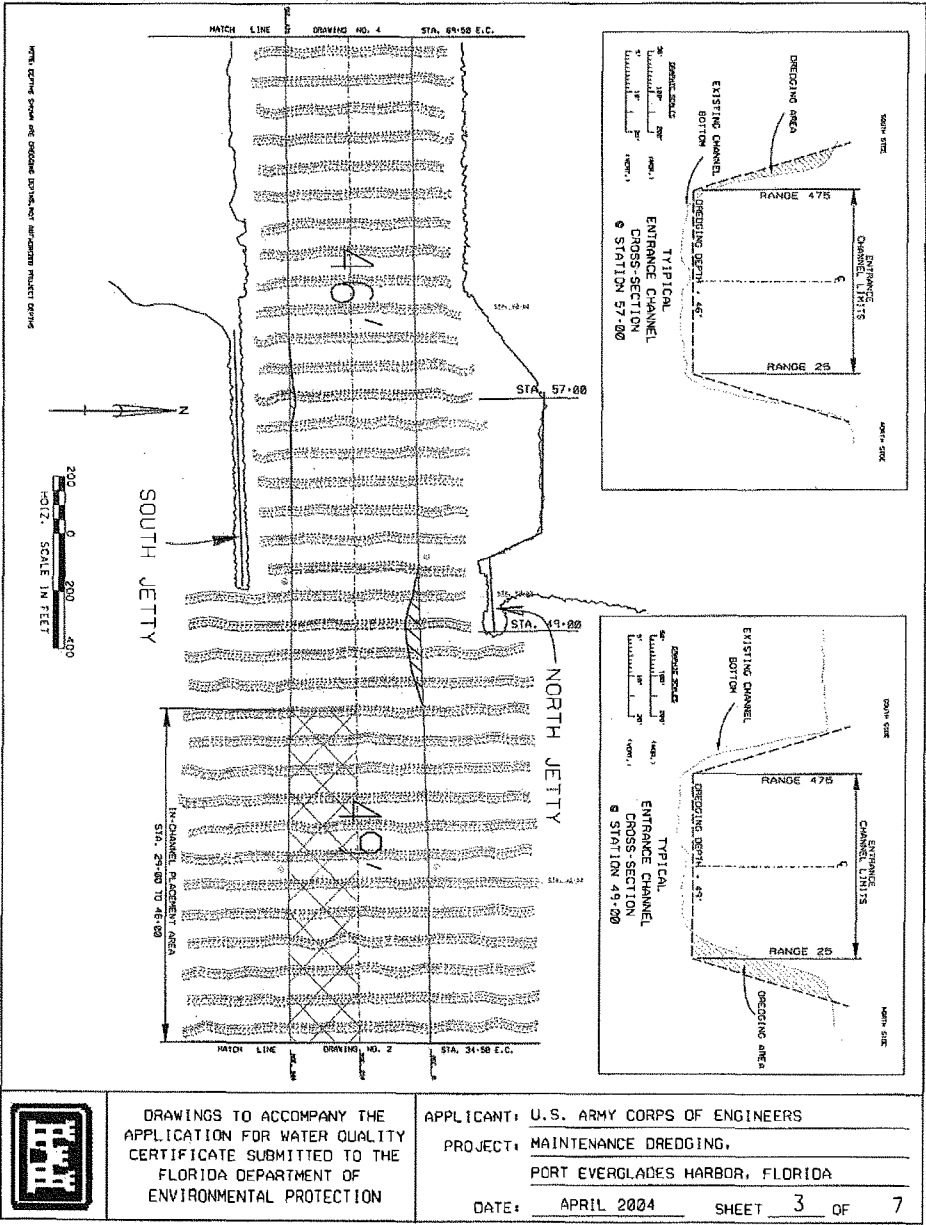
APPENDIX E-4

NMFS-Developed Mitigation Plan for Impacts to Reefs and Hardbottom Habitats



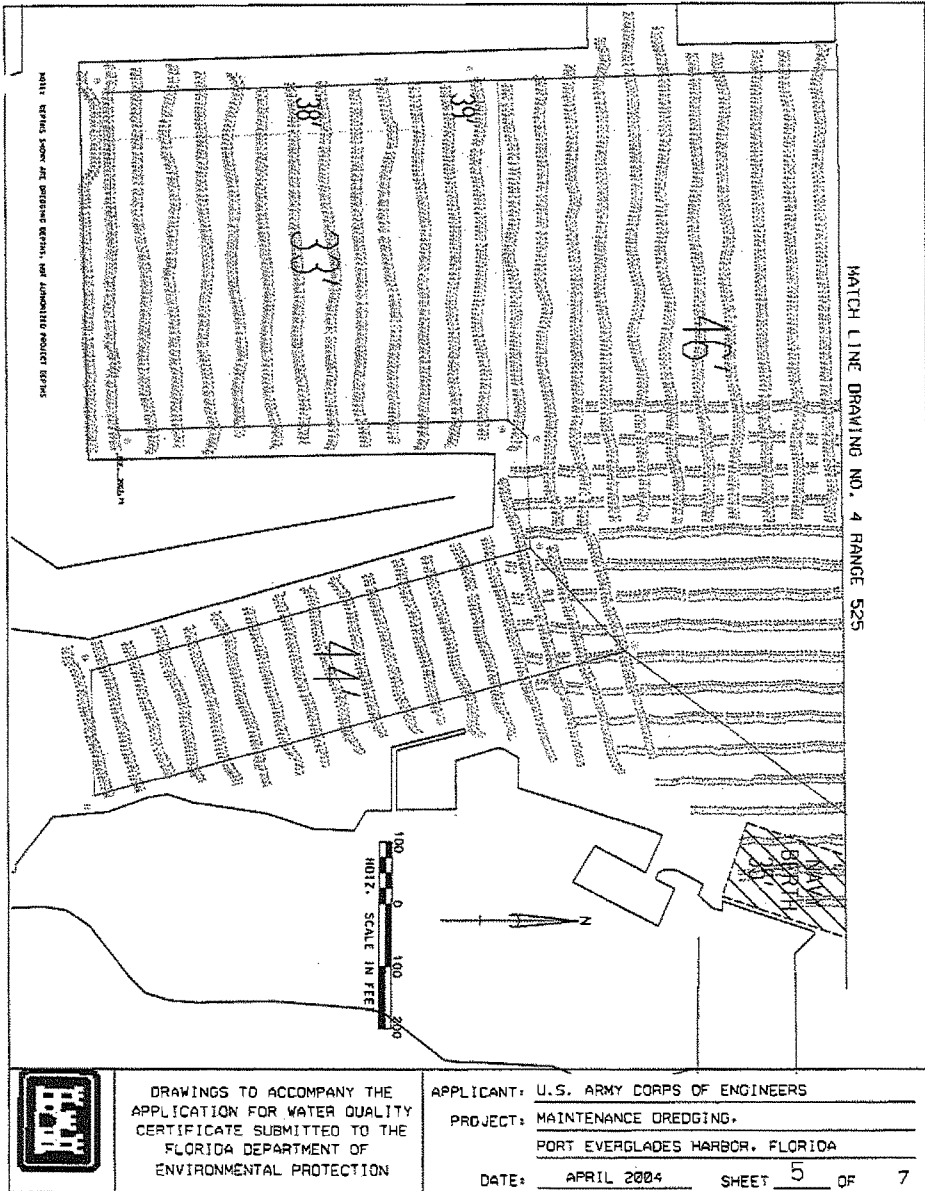


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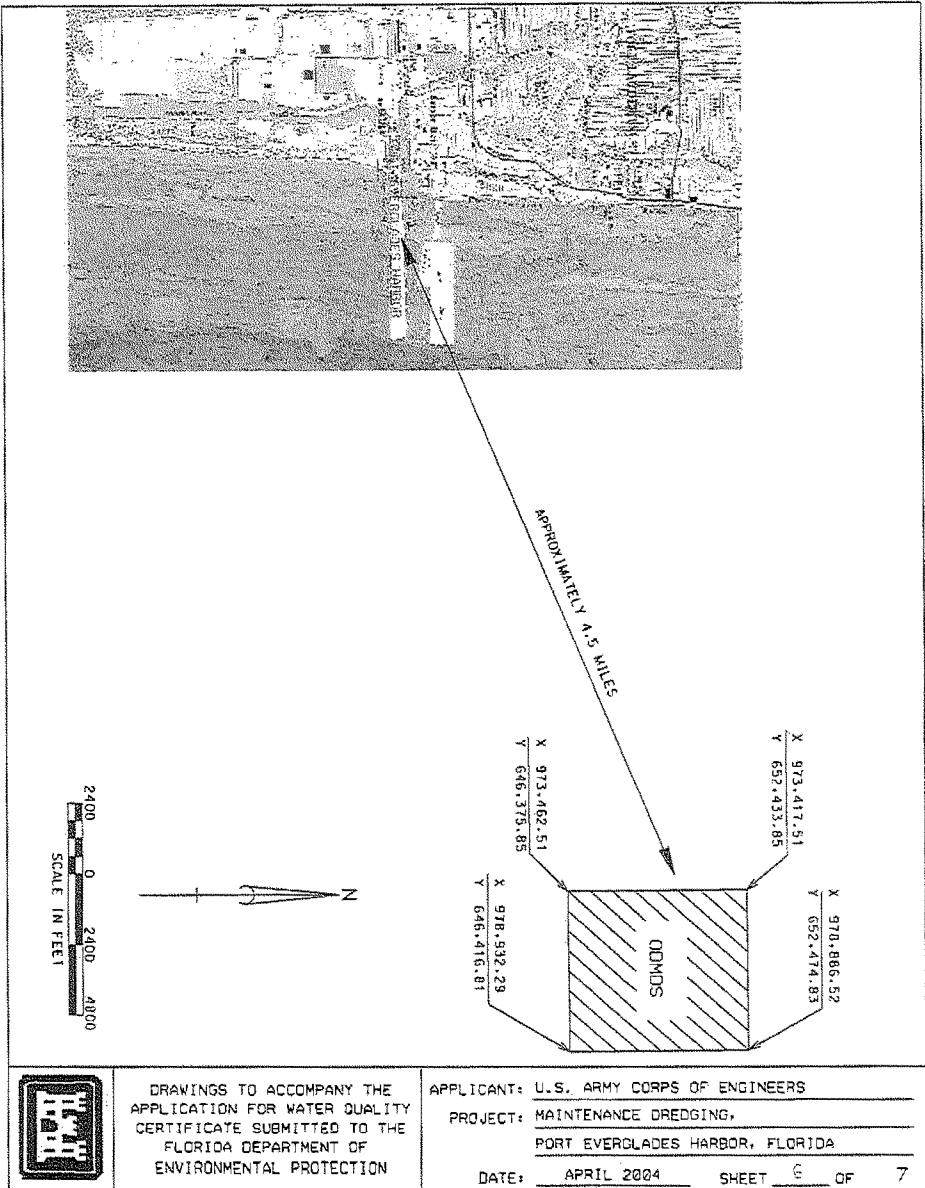


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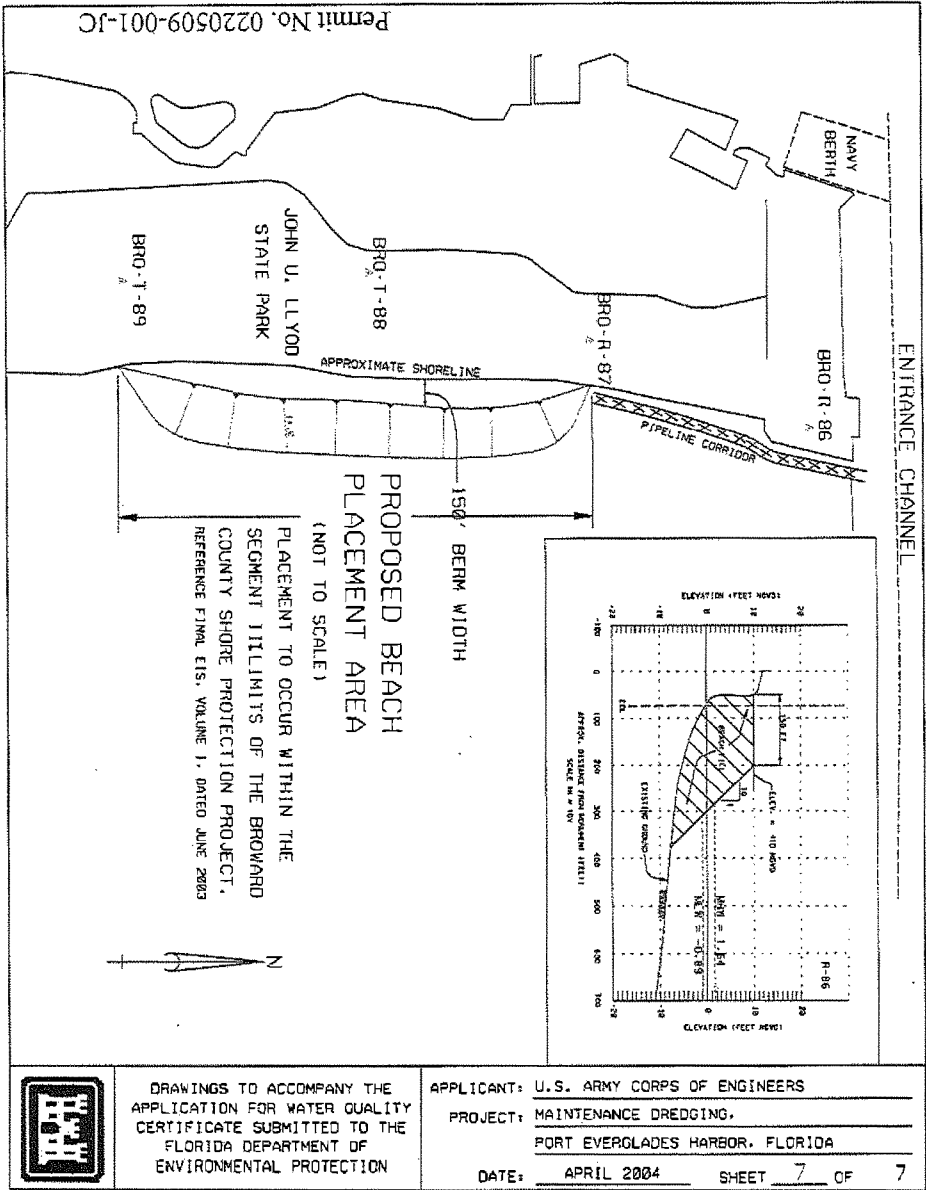
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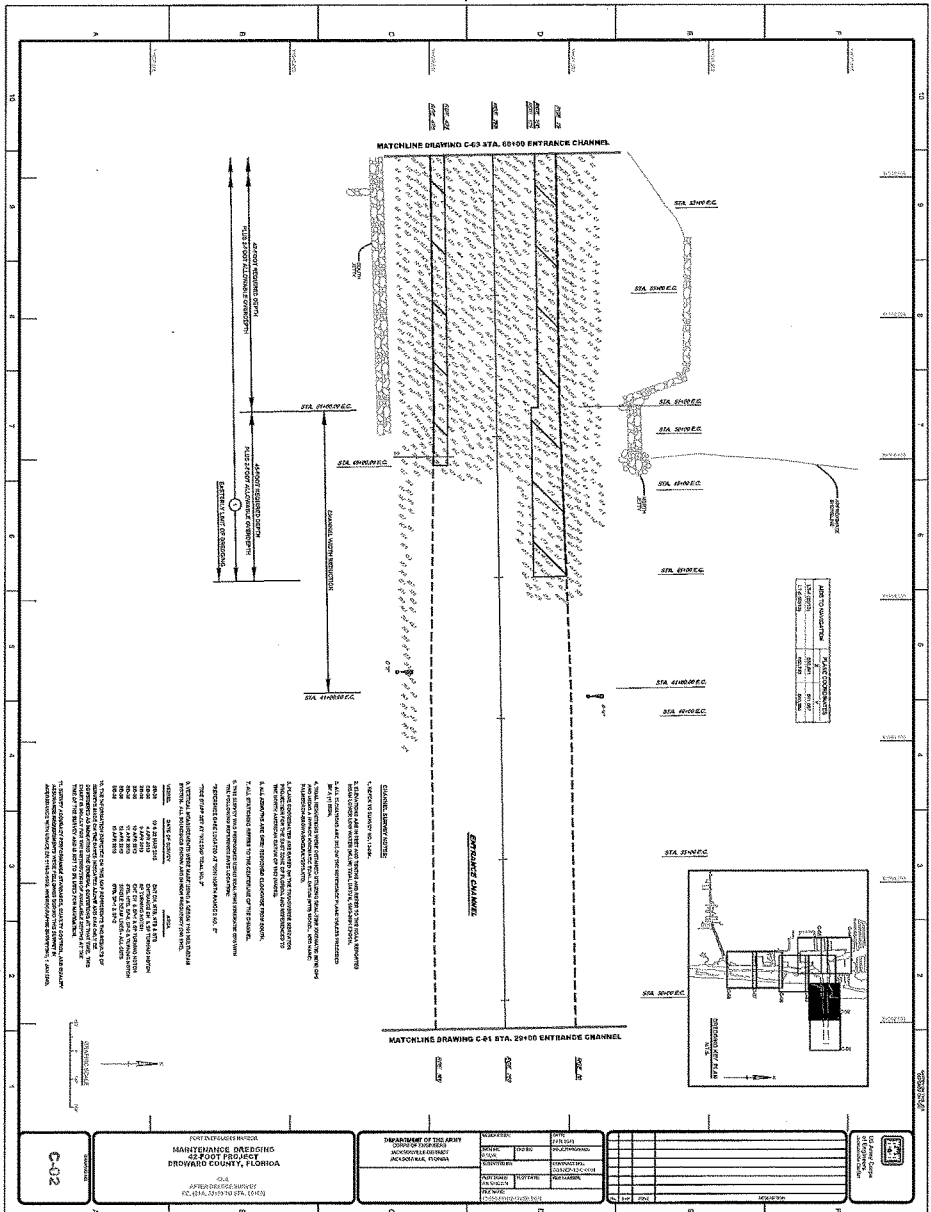
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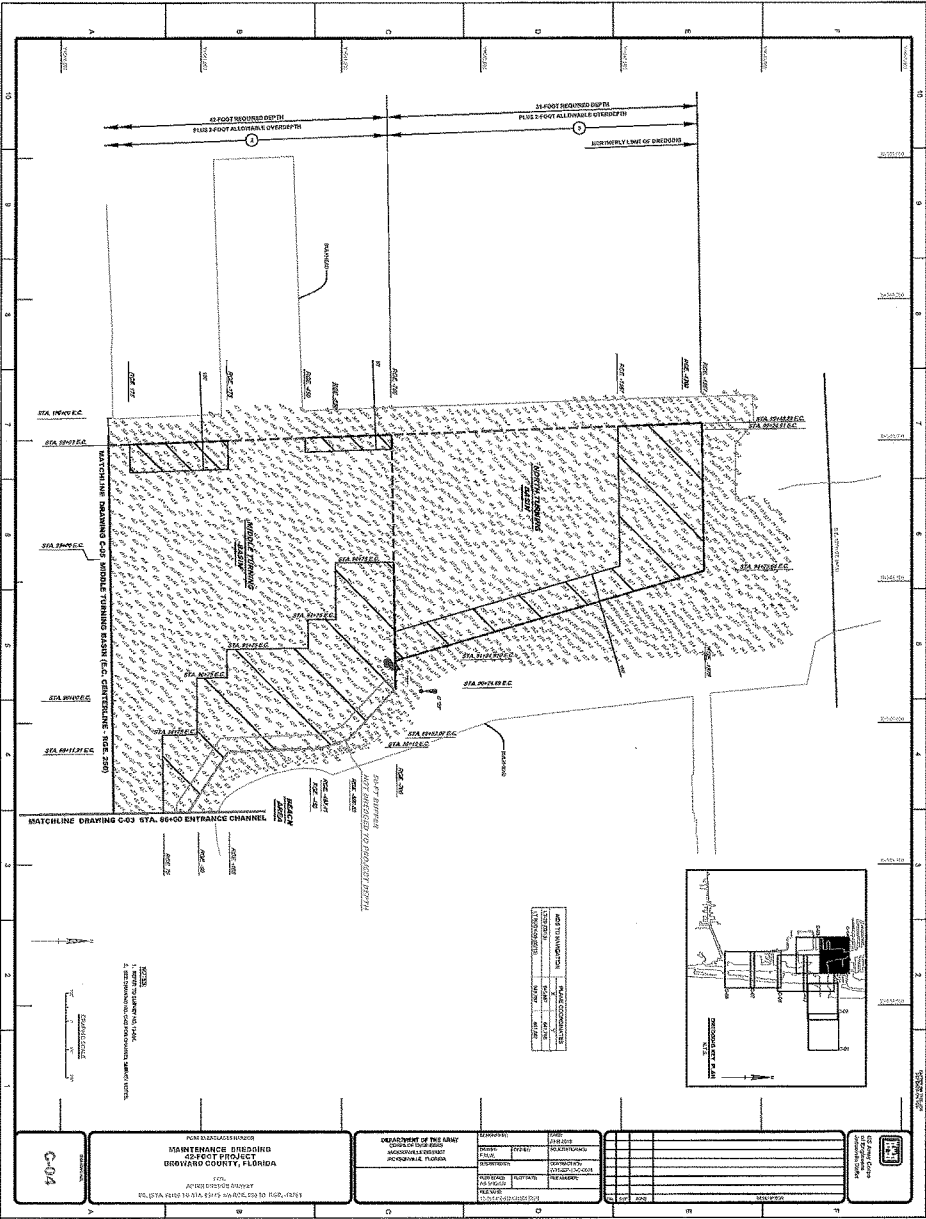


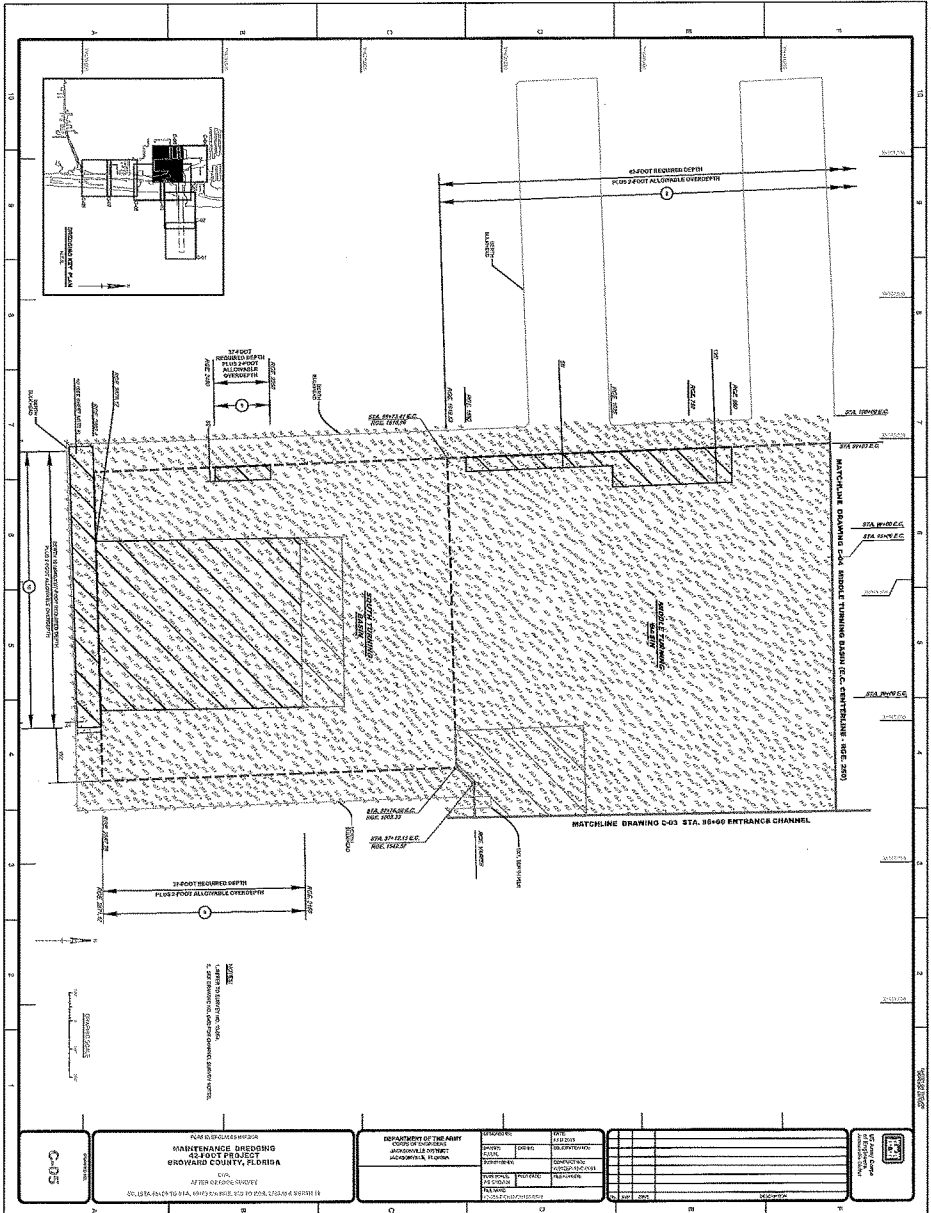
DRAWINGS TO ACCOMPANY THE APPLICATION FOR WATER QUALITY CERTIFICATE SUBMITTED TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

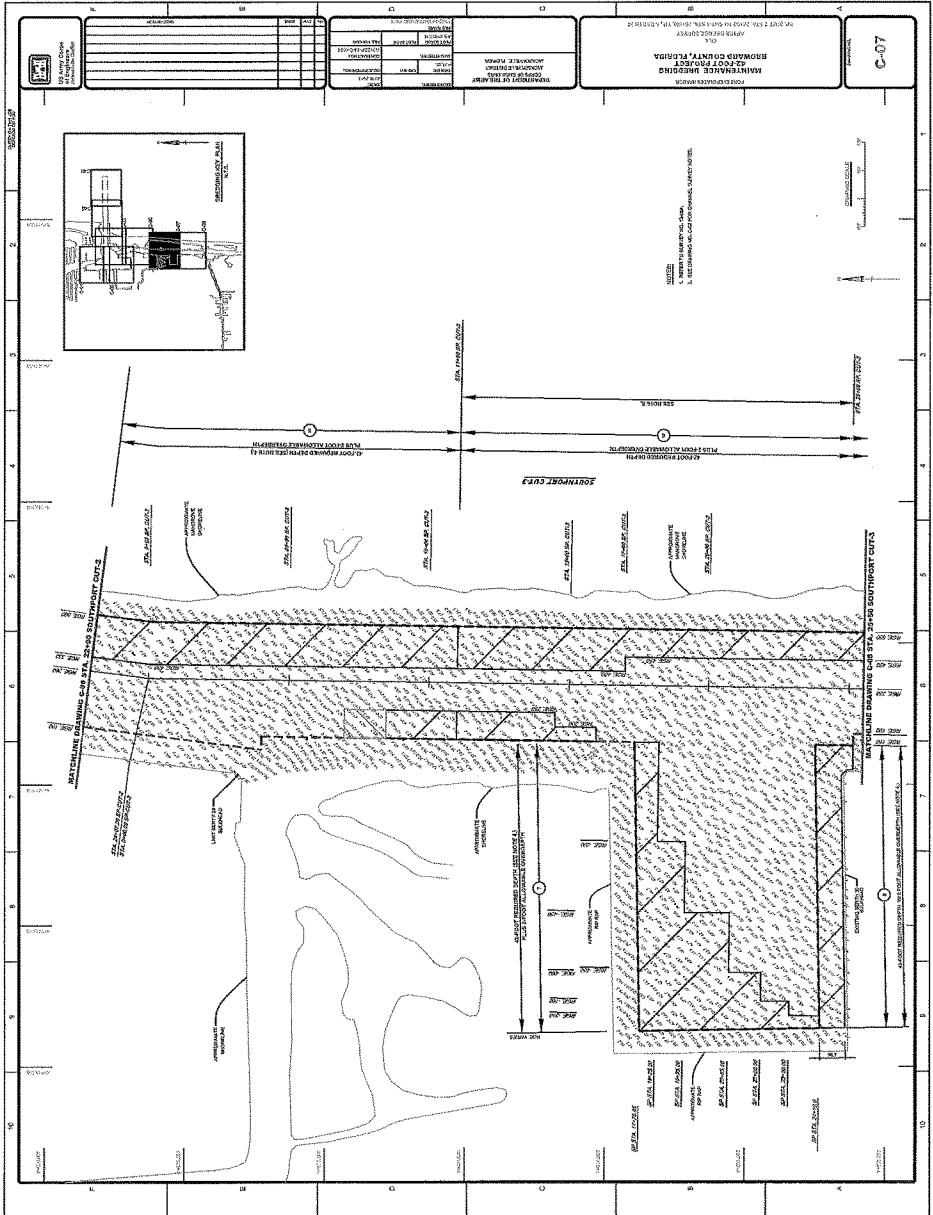
APPLICANT: U.S. ARMY CORPS OF ENGINEERS
PROJECT: MAINTENANCE DREDGING,
PORT EVERGLADES HARBOR, FLORIDA
DATE: APRIL 2004 SHEET 7 OF 7

[illegible]











REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
 P.O. BOX 4970
 JACKSONVILLE, FLORIDA 32232-0019

Planning and Policy Division
 Environmental Branch

Dr. Roy Crabtree, PhD.
 Regional Administrator
 National Marine Fisheries
 Service
 263 13th Avenue South
 St. Petersburg, Florida 33701-5505

OCT 11 2013

Dear Dr. Crabtree:

The U.S. Army Corps of Engineers, Jacksonville District (Corps) has received your letter dated August 13, 2013, providing Essential Fish Habitat (EFH) Conservation Recommendations for improvements to Port Everglades Harbor, Broward County, Florida. As outlined in the Draft Environmental Impact Statement (DEIS) provided to your office on June 28, 2013, the tentatively selected plan (TSP) includes deepening the Outer Entrance Channel (OEC) to an authorized depth of -48 feet MLLW (resulting in an *actual* depth of 57 feet, including overdredge and safety requirements), widen it to 800 feet on the seaward end, and extend it 2,200 feet seaward; deepen the Inner Entrance Channel (IEC) to -48 feet (50-foot actual); deepen the Main Turning Basin (MTB) to -48 feet (50-foot actual); widen the rectangular shoal region to the southeast of the MTB by about 300 feet and deepen to -48 feet (50-foot actual); widen the Southport Access Channel (SAC) in the proximity of berths 23 to 26 by about 250 feet and relocate the USCG facility to the east; shift the existing 400-foot wide SAC about 65 feet to the east from approximately berth 26 to the south end of berth 29 to provide a transition back to the existing federal channel limits; deepen the SAC from about berth 23 to the south end of berth 32 to -48 feet (50-foot actual); deepen the Turning Notch (TN) (following local-sponsor-dredging of same area to -42 feet) to -48 feet (50-foot actual) with an additional 100-foot north-south widening parallel to the SAC on the eastern edge of the SAC over a length of about 1,845 feet; widen the western edge of the SAC for access to the TN from the existing federal channel edge near the south end of berth 29 to a width of about 130 feet at the north edge of the TN; and provide compensatory mitigation for unavoidable impacts to certain resources.

During the month of September 2013, members of our respective staffs, as well as staff from Florida Department of Environmental Protection (FDEP), Florida Fish and Wildlife Conservation Commission (FWC), and US Environmental Protection Agency (EPA), participated in meetings to review impact assessments and mitigation options to determine where the Corps should review and revise as appropriate with Corps regulation and policy. Additionally, your staff, in coordination with the resource agencies prepared a revised "NMFS Combination" mitigation plan and a monitoring plan for the Feasibility Study. I want to take a moment to thank you and your staff for all of their efforts associated with these meetings. The Corps has reviewed the materials provided by NMFS and determined that some of the changes suggested in the September meetings will be adopted into our impact assessment and subsequent mitigation needs analysis. This information will also be included in the Final EIS when it is released for final public review and comment.

NMFS made the following recommendations in the meetings (some were also made as EFH Recommendations in the August 13, 2013 letter):

- a. Direct impacts associated with the channel deepening should include impacts to reef resources below dredge depth for a total direct impact of 21.66 acres.
- b. Indirect effects of sedimentation and turbidity should be for 10% functional loss and the Corps should mitigate in advance for impacts associated with turbidity and sedimentation.
- c. Direct impacts to sea grasses should be 8.45 acres of impact to habitat area able to be colonized by seagrass based on historical mapping by USACE and other agencies.
- d. Incidental Anchor/Cable impacts were calculated by NMFS of up to 19.31 acres.
- e. USACE Mitigation plan utilizing boulders is unacceptable and needs to be revised. Recommend that the NOAA propagation plan be utilized in combination with the Corps plan, i.e. some artificial reef to replace lost structural function with the remaining mitigation as *Acropora* (and other corals of opportunity) propagation over a ten-year period. NMFS recommended NMFS staff prepare a revised Habitat Equivalency Analysis (HEA) for this "Combination" plan and provide to USACE for review for policy and legal compliance.
- f. NMFS proposed to work with the resource agencies to revise the Corps' monitoring plan and provide for USACE review.

Following review of the NMFS recommendations and discussions during the September 2013 working meetings, the Jacksonville District has revised the hardbottom impact assessment, HEA, and draft mitigation plan consistent with Corps policy and guidance. The following table summarizes the NMFS recommendation and the Corps revisions.

	NMFS Recommendation	Corps Revised Plan
Direct Impact - 100% loss of function footprint	21.66 acres	16.20 acres. Remaining 5.85 acres (90% below dredge depth) will be monitored and mitigation constructed if impacts are documented.
Direct Impact initial function after construction	15% (due to removal of corals prior to construction)	0% no credit taken for coral relocation on impact avoidance
Direct Impact final function/time to recovery	15%/50 years (life of project)	15%/50 years (life of project)
Functional loss for indirect impacts	2%	2%
Time of impact for indirect impact	50 year life of project	3 year life of construction*. Actual construction of OEC is 11-14 months.
Discount Rate applied to HEA	0%	0% - per USACE policy and OMB guidance
Indirect Impact acreage	111 acres	112.59 acres
Incidental Impacts – Anchor cable	19.31 acres	17.13 acres – may be revised as more data is made available
Channel walls functional recovery level	85%, no information provided to document this level is appropriate	95%. The walls currently function at 100% with current ship traffic levels. Ship traffic will decrease with the project, but USACE is using 95% to be conservative.
Channel wall recovery time	30 years	26 years. The functional level was set at the 2007 HEA interagency meeting, which took place 26 years after last dredging. Recovery may have been earlier than 26 years, however all agencies agreed to 26 years.
Boulder reef initial function	0%	10% - as documented through the literature, placement of artificial structures in the ocean provide structure for fish, etc within days of placement.
Maximum recovery levels	50%	Reduced to 90% -

of boulder reefs		Supporting Literature - Hudson et al. 2008a, 2008b, Schittone 2010, see also Hudson et al. 2007, DERM 2004, DERM 2007, Banks (2005), Dupont (2008), Hannes and Floyd (2008), Lirman and Miller (2003). See EFH Recommendation #6 for more information.
Time to maximum function for boulder reefs	50 years	35 years. Relocation of corals from the impact area to the artificial reef will give a jump start to the boulder reef's function value. See EFH Recommendation #6 for more information.
Number of hard corals to be relocated prior to construction	18,725 corals from 21.66 acres at a cost of \$13,257,300 in addition to all other mitigation costs.	12,535 from 15.17 acres being removed for channel expansion at a cost of \$8,662,380. Although the plan provides mitigation for the impacts to 100% of 10% of the habitat below dredge depth, USACE does not plan to relocate corals from that area.

* Because the "with project" vessel calls are less than the "without project" vessel call (USACE 2013, Economic Appendix), there are no associated increases in either turbidity or sedimentation directly associated with the deepening project beyond those for construction activities. Therefore, any turbidity or sedimentation impacts to coral or hardbottom resources adjacent to the channel associated with ship passage into or out of the harbor are not attributable to the project and will not be calculated as an impact requiring mitigation.

After completing the HEA analysis to determine the required amounts of mitigation associated with the project, the Corps revised its mitigation plan to reflect the new amounts. This mitigation plan for the Port Everglades Harbor Feasibility Study complies with Corps policy and guidance. It includes artificial reef creation of 24.04 acres for direct impacts associated with direct removal of 15.17 acres, "rubble" impacts associated with 10% of the 6.50 acres below dredge depth and indirect effects of sedimentation and turbidity during construction affecting up to 112.59 acres for up to three years of project construction. This proposed mitigation plan is the USACE-policy compliant plan. This is the Corps' final revision to the mitigation plan; however additional information including pre-construction surveys will be considered for possible incorporation. With regard to the NMFS-Combination mitigation plan presented by your staff, the Corps has determined that the proposal including propagation and transplantation has not yet been justified, particularly given the significantly greater costs to taxpayers.


-4-

The Jacksonville District requests that you begin the Endangered Species Act (ESA) consultation for this project, utilizing this new information and complete the Biological Opinion within 90-days of receipt of this letter. If a Biological Opinion cannot be completed within 90-days, please notify me as soon as possible.

A detailed response to the fourteen Essential Fish Habitat Conservation Recommendations provided by the August 13, 2013 letter is enclosed. Based on the enclosed responses, the Corps is satisfied that the consultation procedures outlined in 50 CFR Section 600.920 of the regulation to implement the EFH provisions of the Magnuson-Stevens Act have been met. This completes the Jacksonville District's requirements for EFH consultation under the Magnuson-Stevens Act. In accordance with the previously cited regulations and finding, no further action is required by the Corps unless NMFS-HCD plans to elevate to the Department of Army Headquarters in accordance with 50 CFR 600.9200(2).

The POC is Mr. Eric L Bush, 701 San Marco Blvd, Jacksonville FL 32207, telephone 904-232-1517 or Mr. Jason Spinning, telephone 904-232-1231.

Sincerely


for Eric L Bush

Chief, Planning and Policy Division

Enclosure

Response to the Essential Fish Habitat (EFH) Conservation Recommendations

1. The USACE shall provide a mitigation plan that assumes no less than 21.66 acres of direct impacts to coral reef and hardbottom habitats.

Response – Concur - The Corps has revised the hardbottom impact assessment to reflect a total impact area of 21.66 acres of potential impacts in the OEC footprint, and through coordination with NMFS and other Resource Agencies, and review by higher USACE authorities, the Corps has revised the Habitat Equivalency Analysis (HEA) and Mitigation Plan/Incremental Cost Analysis to reflect this additional impact and associated mitigation required for these impacts.

Some of these areas will have 100% impact through total removal of habitat, while some will have fewer impacts due to potential incidental impacts associated with construction methodology and associated impacts from rubble moving from the construction area downslope. The mitigation plan provides mitigation for the 100% functional losses associated with habitat removal and 100% loss for 10% of the impact associated with potential rubble movement. See previous table explaining the changes to the impact assessment.

2. The USACE shall provide a mitigation plan that assumes no less than 19.31 acres of anchor impacts, in the case that the dredge equipment selected requires anchoring outside the federal channel.

Response – Not Concur - The Corps is unable to accept this recommendation based on available information. We request that NMFS provide the GIS shapefiles associated with NMFS' impact analysis for incidental impacts associated with anchor/cable usage during construction. The Corps has attempted to replicate NMFS analysis with both our GIS shapefiles and Dr. Brian Walker's shapefiles without success, and in an October 2, 2013 email, Dr. Walker subsequently clarified he used the 2001 LADS files, not the 2008 as stated by NMFS. When NMFS provides these shapefiles, the Corps can reanalyze the impacts and may accept NMFS' recommendations, as it did with the 21.66 acres in the OEC.

3. The USACE shall provide a monitoring plan to evaluate physical and biological impacts that may occur outside the channel. This plan shall reflect substantial input by NMFS.

Response – Concur - The Corps provided a monitoring plan to evaluate for physical and biological impacts that may occur outside of the channel in the Draft EIS as Appendix E-5. This monitoring plan was based on the previously permitted Key West Harbor Operations and Maintenance Dredging Monitoring and Response Plan. NMFS and NOAA-Florida Keys National Marine Sanctuary Staff were directly involved in the development of that plan as part of the project's interagency coordination team. That plan was recently taken by the Corps and submitted to the State of Florida for monitoring the potential impacts of construction activities at Miami Harbor and the State issued a permit for construction at Miami based on that plan. As stated on page 1 of the monitoring plan, any lessons learned from Miami Harbor will be incorporated into the monitoring plan prior to construction activities at Port Everglades to ensure the most recent information is utilized.

4. The USACE shall provide a mitigation plan that reflects no less than 111.87 acres of indirect impacts that would occur in the 150 meter zone surrounding the federal channel. The final EIS should clearly describe how the amounts of indirect impacts to coral reefs are determined.

Response – Not Concur - The Corps is unable to accept this recommendation with available information. We request that NMFS provide the GIS shapefiles associated with NMFS' impact analysis for indirect impacts associated with turbidity and sedimentation impacts associated with construction. The Corps has attempted to replicate NMFS analysis with both our GIS shapefiles and Dr. Brian Walker's shapefiles without success and in an October 2, 2013 email, Dr. Walker subsequently clarified he used the 2001 LADS files, not the 2008 as stated by NMFS. When NMFS provides these shapefiles, the Corps can reanalyze the impacts and may accept NMFS' recommendations, as it did with the 21.66 acres in the OEC.

5. In the case that blasting is required, USACE shall work with NMFS and other resource trustees to develop a monitoring program. Substantial input from NMFS shall be reflected in the final blasting monitoring plan.

Response – Concur - The Corps provided a monitoring plan to monitor the potential effects associated with confined underwater blasting in the Draft EIS as part of Appendix E-5, beginning on page 9. This monitoring plan was based on the previously permitted and constructed Miami Harbor Phase II project where confined underwater blasting was conducted, as well as the upcoming Miami Harbor expansion, and was coordinated with FWC, USWFS, and NMFS-PRD for their input regarding protected species that may be in the project vicinity. To date, no agency has stated that the monitoring plan for confined underwater blasting for Port Everglades is in need of additional revision. The proposed Port Everglades plan is an exact copy of the plan prepared for the Miami Harbor expansion, permitted by the state and consulted on under the Endangered Species Act by FWS and NMFS. As stated on page 1 of the monitoring plan, any lessons learned from Miami Harbor will be incorporated into the monitoring plan prior to construction activities at Port Everglades to ensure the most recent information is utilized.

6. The USACE shall update the HEA with scientifically defensible inputs on equivalency of natural coral reefs and boulder piles, recovery rates of dredged coral reef habitat, recovery rates of boulder piles, and discount rates. The final HEA shall reflect actual costs of boulder piles with substantial input from NMFS.

Response – Not Concur - The Corps has reviewed NMFS' recommended inputs into the mitigation plan, as provided by NMFS' HEAs during the September 2013 inter-agency working group, as well as the comments included in this August 13, 2013 letter. Many of the inputs included by NMFS are not supported by the best available scientific literature, and the Corps will not adopt them. As shown in the table previously provided in this letter, the Corps has chosen to make some changes to the input parameters of its HEA and resulting mitigation plan, however, many of our inputs remain the same and we believe them to be scientifically defensible.

Equivalency of Natural Coral Reefs and Artificial Boulder reefs –

The results of Miller et al. (2009) cited by NMFS are contrary to NOAA's own published studies of these same restoration sites following extensive, long-term monitoring (Hudson et al. 2008a, 2008b, Schittone 2010, see also Hudson et al. 2007). Specifically, Schittone (2010) showed that coral densities were greater in the restored area than in the reference sites and the size-class frequency distributions for the most abundant scleractinians were converging on the reference area. He also noted that the number and percentage of coral colonies by species, as well as several common biodiversity indices approximate the reference area.

The Kilfoyle et al. (2013) reference cited by NMFS evaluated mitigation sites and compared those to "nearshore" hardbottoms. These habitats are different than those of the proposed project and should be expected to be different due to water depth and substrate vertical structure and complexity. For instance, snappers and groupers spend a significant portion of their early life history on shallow, nearshore (not deeper offshore) hardbottoms so one would expect them to have higher abundances of those species in these environments.

The Gilliam (2012) reference cited by NMFS selectively cited relevant literature omitting pertinent references from previous projects. For instance, when Miami-Dade DERM (2004) conducted a review of the boulder reef constructed for the 1991-1993 dredging, two success criteria were established to evaluate the current status of the mitigation reefs:

1. Structural integrity of the individual artificial reefs has been substantially preserved, and the structures remain stable, without excessive subsidence.
2. The artificial reefs have recruited with organisms and habitat structure biologically and/or functionally similar to what was found in the impacted areas.

Their results revealed that, "Although differences between the pre-project habitat characteristics and the mitigation reef areas have been documented, the mitigation reefs have developed extensive, diverse and complex benthic and fish communities that reflect a productive and sustaining habitat. Based on the overall similarities of function provided and by these habitats and relative diversity of organisms growing on (higher species diversity for scleractinian corals on the mitigation reefs as compared to the controls), or utilizing these reef areas, it believed that these reefs are providing habitat that is minimally as productive as the reef areas impacted. Based on the foregoing, and the documented stability of the reef materials, it the determination of DERM, that the mitigation reef areas have met the Success Criterion as defined in this document."

In addition, although differences in species of fish were noted in the pre-dredging and artificial reef surveys, a review of the representation of the fish communities (i.e., at the Family level), indicate that similar functional communities exist on the combined reef materials compared to that documented during the pre-dredging surveys. Dissimilarities between the surveys are often due to representation of transient species (i.e., Jacks) or of single non-abundant species (i.e., Spade Fish, Trunk Fish). Individually, POM-B supported *a larger number of fish species*, 45 species in 17 families. POM-A modules supported 31 species in 13 families. The differences between POM A and POM-B and the natural reef hardbottom are most likely due to the larger substrate area, structure, and void space of the artificial structures. These results are identical to those of Luckhurst and Luckhurst (1978) which showed that the higher the complexity the greater the diversity and biomass of fish present. Although the POM boulder reefs are not the oldest in Miami-Dade County – they are, however, the furthest from shore, in the deepest water and show the highest density of octo- and scleractinian coral coverage of all Dade County artificial reefs. They are also the most-similar to the artificial reefs proposed at Port Everglades.

One of the most important results from the Miami-Dade (2003) Bal Harbor study was that the mitigation reefs showed very rapid colonization by a diversity of organisms including scleractinian corals. At the time of the first monitoring event in December 1999, one species of scleractinian coral had naturally recruited to the modules; by November 2001, less than two years later, some 13 species were identified (see also Jaap et al. 2006).

Banks (2005) proposed for mitigation projects in Broward County that “The topography of the limestone boulder reefs will be of greater complexity than the natural impacted hardbottom which is typically low relief limestone pavement interrupted with pockets of higher complexity. Texturally, limestone is a natural material and will provide suitable replacement for the impacted reef substrate. Thus, it is anticipated that this mitigation plan will provide perpetual reef habitat that will be colonized by organisms similar to those found on the impacted natural reef.”

Dupont (2008) evaluated limestone boulder reefs deployed off the west coast of Florida used to mitigate pipeline construction impacts on natural hardbottom ledges in the eastern Gulf of Mexico. The project's primary objective was for the mitigation reefs to mimic, not augment, natural hardbottom conditions. Species richness was similar between artificial and natural reefs, while certain commercial fish abundances were significantly higher on the artificial reefs.

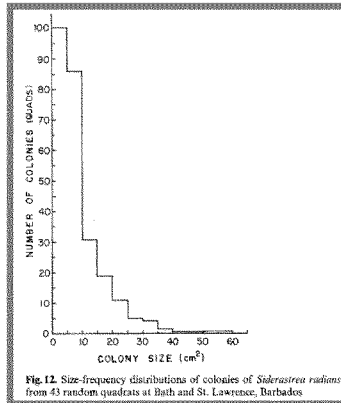
In another study in Broward County, Hannes and Floyd (2008) compared artificial to natural hardbottom coral communities by examining abundance, diversity and size class distribution over time. They found that scleractinian and octocoral abundance, diversity and average size on the artificial reef were nearly equal to those on the natural nearshore hardbottom five years post-deployment.

In studying the efficacy of boulder reefs emplaced to offset habitat impacts caused by a vessel grounding in the FKNMS, Lirman and Miller (2003) noted “Coral communities are developing rapidly on the restoration structures. Species richness and abundance of the dominant coral, *P. astreoides*, were nearly indistinguishable between the restoration structures and reference habitats after only six years.”

These numerous references all show that there is a fairly well established record of ecological success from emplaced mitigation reefs, especially the type proposed for use in the Port Everglades project. Most publications evaluating the efficacy of these projects show convergence between the control sites and mitigation reefs in much less than the 17 years stated by Gilliam (2011). While they may not exactly resemble the hardbottoms they are designed to replace, they do replace the lost ecological functions. In fact, the structural complexity created by high-relief boulder reefs often functionally outperform the reefs they are designed to replace sometimes leading to positive ecological surprises (Arena et al. 2004).

Recovery Rates -

Careful evaluation of the species *Siderastrea radians* from throughout the Caribbean and western Atlantic shows this species rarely grows > 10cm in its longest dimension (see figure from Lewis 1989). In the graph below the longest dimension of a *S. radians* colony with an area of 60 cm² is about 8 cm.



Moses, Swart and Dodge (2006) specifically noted "In the Caribbean, *S. radians* is generally a small, unobtrusive zooxanthellate coral species that is found predominantly in areas with higher sedimentation [Lirman et al., 2003]. Likewise, in the Cape Verde Islands, these corals are very successful in areas where they are periodically buried under 1–2 cm of shifting coarse sands. Unlike the Caribbean and western Atlantic where *S. radians* grows to a maximum size of commonly less than 10 cm in diameter [Lirman et al., 2003] and has an annual extension rate between 5–12 mm yr⁻¹ [Cortés and Risk, 1985], the same species forms broad expanses of coral pavements commonly 1–3 m in diameter and an average of 10–15 cm thick [Laborel, 1974; Moses et al., 2003]. These corals (from the Cape Verde islands) also have an unusually slow extension rate of 1.3 (±0.3) mm yr⁻¹." These publications show that both NOAA-NMFS and Battelle (2011) used the wrong data set to calculate the growth rates of *S. radians*. While growth of *S. radians* to 25 cm is rare and exceptional, using the conservative minimum growth rate of 5 mm yr⁻¹ to these largest of *S. radians* colonies in the project footprint yields an age of 50 years. Using the average growth rate of 8.5 mm yr⁻¹ yields an age of 34 years. Thus, using a recovery projection of 50 years or less is in-line with the known life history traits and growth rates of these corals and is in agreement with our earlier calculations.

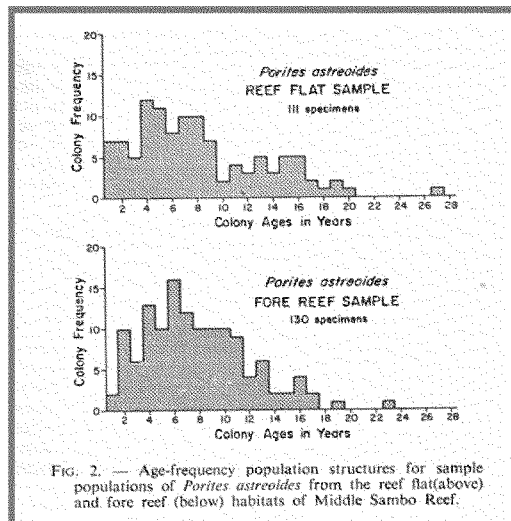
"Separately, a NMFS analysis using the very high growth rate of 5 millimeters per year for stony corals suggests that numerous coral species would have a recovery period in excess of 50 years, and likely significantly longer considering the widespread coral recruitment failure documented in the Atlantic and Caribbean (Hughes and Tanner 2000; Williams et al. 2008)."

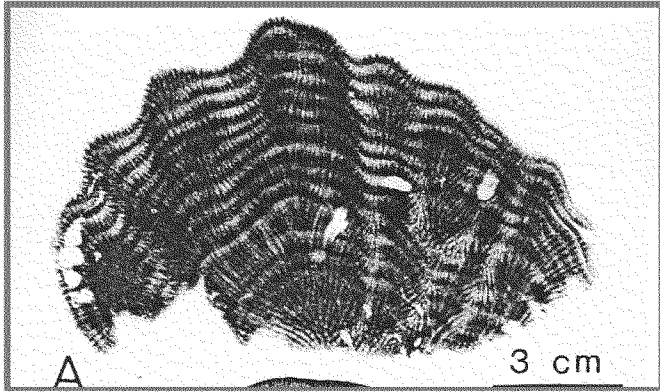
Based on the detailed references cited in the table below, it is clear that 5mm/yr growth rate is not "a very high growth rate" as purported by Battelle (2011) or NOAA-NMFS (2013) but actually an average growth rate for most massive (non-branching) Caribbean coral species found within the project area (the actual average is actually 5.7 mm yr⁻¹ for the 12 massive species listed in the table below).

<i>Siderastrea siderea</i>	2.2 to 7.1 mm yr ⁻¹ (avg 4.65 mm yr ⁻¹)	Vaughan 1916, Landon 1975, Jaap 1984, Huston 1985, Torres and Morelock 2002, Cuevas et al. 2009, references in Dullo 2005
<i>Stephanocoenia intersepta</i>	1.8 to 8.0 mm yr ⁻¹ (avg 4.90 mm yr ⁻¹)	Hubbard and Scaturo 1985, Shinn and Hudson (unpublished)
<i>Porites astreoides</i>	2.3 to 14.0 mm yr ⁻¹ (avg 8.15 mm yr ⁻¹)	Vaughan 1915, Kissling 1977, Gladfelter et al. 1978, Huston 1985, Torres and Morelock 2002, Hubbard and Scaturo 1995, references in Dullo 2005
<i>Monastraea cavernosa</i>	2.0 to 10.9 mm yr ⁻¹ (avg 6.45 mm yr ⁻¹)	Baker and Weber 1975, Weber and White 1977, Ghiold and Enos 1982, Huston 1985, Hubbard and Scaturo 1985, references in Dullo 2005
<i>Siderastrea radians</i>	5.0 to 12.0 mm yr ⁻¹ (avg 8.5 mm yr ⁻¹)	Vaughan 1916, Cortes and Risk 1985, Lirman et al. 2003, Moses et al. 2006
<i>Montastraea annularis</i> (species complex)	4.0 to 12.2 mm yr ⁻¹ (avg 8.1 mm yr ⁻¹)	Vaughan 1915, Landon 1975, Hudson 1981, Huston 1985, Hubbard and Scaturo 1985, Bosscher and Meesters 1992, Numerous additional references in Harriott 1999, and Dullo 2005
<i>Dichocoenia stoksei</i>	2.0 to 7.0 mm yr ⁻¹ (avg 4.5 mm yr ⁻¹)	Vaughan 1915
<i>Colpophyllia natans</i>	3.0 to 10.5 mm yr ⁻¹ (avg 6.75 mm yr ⁻¹)	Huston 1975
<i>Solenastrea bournoni</i>	Avg 8.9 mm yr ⁻¹	Shinn et al. 1989
<i>Diploria strigosa</i>	2.5 to 10.0 mm yr ⁻¹ (avg 6.25 mm yr ⁻¹)	Vaughan 1915, Hein and Risk 1975, Dodge and Vaisnys 1980, Ghiold and Enos 1982, Logan et al. 1984, Hetzinger et al. 2006
<i>Diploria labyrinthiformis</i>	3.2 to 7.5 mm yr ⁻¹ (avg 5.35 mm yr ⁻¹)	Vaughan 1915, Hubbard and Scaturo 1985, Logan and Tomascik 1991

Kissling (1977) specifically showed that *Porites astreoides* colonies from the Florida Keys generally live for no more than 25 years (see figure below). Importantly, this study showed that

for corals that are mound shaped (i.e. colony diameter is longer than their measured height), that their annual linear (vertical) extension rate is lower than its lateral expansion rate. Huston (1985) found the same relationship for slow growing colonies of *Agaricia agaricites*. This growth model is referred to as radiate accretive growth (Kaandorp and Sloot 2001). Photographs in Kissling (1977), show that a *Porites astreoides* colony that is about 16 cm in its longest horizontal dimension is only about 8 cm tall (photo below). Sclerochronology of this coral yields a maximum age of approximately 15 years. Based on the above, the vertical, linear extension rate is only about 6 mm yr^{-1} whereas its lateral expansion is more than 10 mm yr^{-1} . Thus, for *P. astreoides* the lateral expansion rate is approximately double the vertical extension. In *Agaricia agaricites* this lateral growth can be upwards of 20-times faster than that of its linear vertical extension (Huston 1985). With the exception of some individual colonies of *Siderastrea siderea*, *Solenastrea bournoni*, *Diploria spp.* and *Dichocoenia stoksi* (which were head shaped), the preponderance of corals within the project footprint were compact and mound or inverted saucer shaped. Thus, the actual growth rates were equal to or greater than (faster not slower) than those posted in the table above which was used to calculate recovery horizons in the HEA. At the proposed Port Everglades project site the 2nd and 3rd reef terraces had ~1% coral cover. Of these, > 80% of colonies are smaller than 10 cm in diameter, >95% are smaller than 25 cm, and none are larger than 40 cm. Large, old, individual colonies while present in Broward County are quite rare and they are absent from the project area (DCA 2009).





The citation of Hughes and Tanner (2000) and Williams et al. (2008) in the NMFS-DEIS review are peculiar references to cite in this regard as both do not discuss widespread, Caribbean-wide issues of recruitment failure as purported, nor do they discuss any of the species common in the Port Everglades project area. The Hughes and Tanner (2000) manuscript describes recruitment failure in Jamaica following three successive major disturbances to the reefs there in the 1980's. These Jamaican reefs had macroalgal cover in excess of 90%, whereas the macroalgal cover on the reef terraces of Port Everglades is generally <15%. Thus, the use of Jamaica as a model to describe all reefs in the Caribbean and western Atlantic, especially those in Florida has proven to be problematic (Cote et al. 2013). The Williams et al. (2008) reference specifically discusses the recruitment failure (both sexual and asexual) of *A. palmata* to reefs in the FKNMS following the passage of four successive hurricanes from 2004-2007. Since there are no colonies of *A. palmata* in the project area (and haven't been for thousands of years) this reference has no bearing on issues affecting the reefs of Broward County in general or the Port Everglades project area in particular.

Moulding et al. (2012) observed limited levels of coral recruitment at vessel grounding sites off Fort Lauderdale. However, the most abundant recruits found at all their sites include four of five of the most common species (*Siderastrea siderea*, *Siderastrea radians*, *Porites astreoides*, and *Montastraea cavernosa*) found in the Port Everglades project area.

It should also be noted that the measured size-class data for corals within the project footprint are all strongly skewed to the right (see Figure 10 from DCA 2009 below).

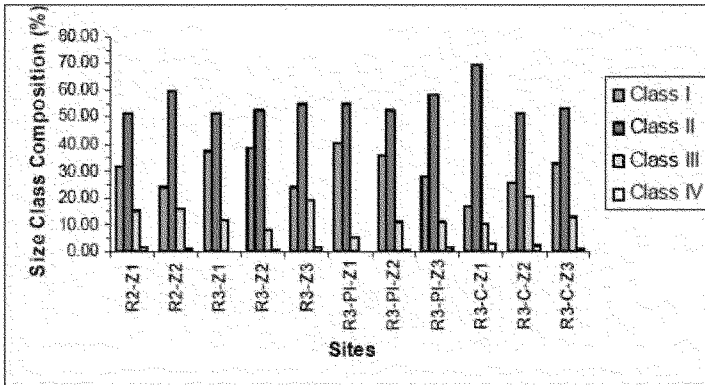


Figure 10. Distribution of scleractinian colony sizes (diameter) within reef site and zone as encountered in visual belt transects off Port Everglades in March 2006. Class 1 = 0-3 cm; Class 2 = 4-10 cm; Class 3 = 11-25 cm; Class 4 = 26-50 cm; and Class 5 = > 50 cm. [R = Reef; Z = Zone; PI = Previously Impacted; C = Control]

Species that attain large sizes live longer and are less dependent on frequent recruitment, and consequently populations tend to become 'impoverished' in small colonies, resulting in size-frequency distributions that are skewed to the left, while small species are more skewed to the right. These data indicate a general dichotomy in coral life-history strategies with respect to colony size, with small species generally having a shorter lifespan and reproduction being relatively frequent and successful. Thus, new input into smaller size classes occurs continuously. This size-class structure is similar to that found in Broward County.

In their simulation model, Lirman and Miller (2003) noted the importance of recruitment on the recovery rate for coral reef restoration. This modeling involved opportunistic species with relatively high recruitment rates such as those that predominate in the Port Everglades project area. Thus, for a coral reef initially dominated by more opportunistic corals, English et al. (2009) noted that the assumption of a 50-year period to reach maximum coral reef services may be excessive as judged by the metric of population recovery of the dominant corals (size x annual growth rate).

Project	Reef Habitat Affected	Recovery Horizon used in HEA	Type of Compensatory Mitigation
Broward County Beach Nourishment	Nearshore Hardbottoms	In perpetuity (buried)	LS Boulder Reef
Hillsboro Inlet	2 nd and 3 rd Reefs	35 years	LS Boulder Reef
Americas II Cable	2 nd and 3 rd Reefs	35 years	Artificial Reefs (DERM Modules)
Arcos Cable	2 nd and 3 rd Reefs	35 years	LS Boulder Reef
Columbus Cable	2 nd and 3 rd Reefs	35 years	Artificial Reefs (DERM Modules)
Igloo Moon Grounding Biscayne National Park	High-Structured Reef Spurs	43 years	Emplacement of Quarried LS Boulders
Allie B Grounding Biscayne National Park	High-Structured Reef Spurs	43 years	Emplacement of Quarried LS Boulders
Bal Harbor Dredge – Borrow Area Miami-Dade County	3 rd Reef	35 years	176 Artificial Reef Modules 8,000 tons of LS Boulders (3-6 ft. diameter)

The preponderance of HEA's performed throughout the region have historically used recovery horizons <50 years based on the known coral populations at the project sites (see table above).

Thus, based on all the above, the recovery rates used in the USACE HEA are conservative estimates based on the protocols established in Zengel and Hinkeldey (2001) NOAA guidance document and were calculated using the best available peer-reviewed science coupled with in situ field measurements.

Boulder Reef Recovery Timeframes -

The Port Everglades Agency "Core" Group (meetings in 2007) agreed to a 10-year discount for relocated corals (HEA Appendix B, meeting notes). This allowance was based on previous projects and HEA's performed in Broward County. Recovery rates were estimated for both components using a similar boulder mitigation project established for a representative beach

nourishment project (Kohler and Dodge 2006). In the Kohler and Dodge (2006) analysis it was assumed that the mitigation boulders will recover to 100% full services in 50 years naturally. However, they would recover to 100% full services in less time (15 years in their example) by transplanting corals onto them. The rationale for 15 years was chosen because all corals greater than 15 years old “were to be removed from the area slated for injury and these would be used for transplantation.” By transplanting corals, the mitigation boulders **will begin recovery not at 0% of full services, but at some higher value. A level of 10% immediate gain of services was assigned** (Kohler and Dodge 2006). This immediate gain, no matter what the origin of the donor corals, is real and must be accounted for in the services provided by the mitigation reefs. Besides the immediate service gain as a result of the transplantation, it is anticipated that localized coral recruitment to the mitigation boulders will be enhanced (facilitated) by the transplants. As FDEP recently summarized in their Up-Town Palm Beach County UMAM:

“[I]mprovements in benthic community support functions include immediate increases in coral and diversity at the transplantation receiver sites. The 1-acre area around each receiver site would be positively affected by higher recruitment and settlement rates, higher coral and octocoral and benthic invertebrate diversities, and increased diversity of fishes.”

Thus, with time, it should be difficult to distinguish between transplanted corals and those that recruited naturally to the mitigation boulders. No additional credit was allotted in the HEA due to this anticipated gain in services which could be highly significant over the life of the project. As noted above, past mitigation projects have shown that the convergence of coral species between mitigation reefs and natural hardbottoms could be rapid resulting in coral service gains exceeding 100% (as measured in percent cover and number of colonies per unit area).

FLDEP also noted in their Mid-Town Palm Beach County UMAM that “The goal of the artificial reefs is to create high complexity/high relief reef to increase available surface area for ‘corals of opportunity’ and optimal substrate for coral recruitment/survivorship.” The Port Everglades mitigation project provides all the above mentioned services.

Discount Rates -

The use of a 0% discount rate on this and other water resource development and improvement projects is an USACE HQ policy decision. Thus, the input of 0% into the HEA follows Corps policy. Although the Corps originally submitted the HEA with a 3%, during model review and HQ policy review, it was determined that the use of a 3% discount rate was not compliant with USACE and the Office of Management and Budget (OMB) policy as the HEA was deemed to be an ecosystem model because the outputs from the model were not monetary, a 0% discount rate must be used. Federal water resource development projects covered under the “Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies” (P&G), are limited by the statement “monetary or NED outputs are discounted”. This means environmental outputs from HEA are not authorized to be discounted for any project covered by the P&G (published through the Council on Environmental Quality/Office of the White House). pg E-154 c(1) [CE/ICA procedures] of the Engineering Regulations 1105-2-100:

“Ecosystem restoration outputs are not discounted, but should be computed on an average annual basis, taking into consideration that the outputs achieved are likely to vary over time.”

OMB Circular A-94 states “Specifically exempted from the scope of this Circular are decisions concerning water resource projects (guidance for which is the approved Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies).” These requirements prevent USACE from discounting the HEA. In the August 13, 2013 letter, NMFS states “*USACE Guidance documents available for FY12 appear to indicate the USACE should use a discount rate of 4 percent for planning projects*”. This comment refers to the annual HQUSACE publication of guidance on discounting to the Districts each fiscal year. The cover page of this document states: “The P&G states discounting is to be used to convert future monetary values to present values.” HEA outputs do not result in monetary values and are not covered by this annual guidance.

7. The USACE shall adopt a compensatory mitigation plan that is the most technically sound approach to offsetting the loss of coral, coral reef, and hardbottom habitat. The final coral reef mitigation plan shall not take credit twice for coral relocation. The final coral reef mitigation plan shall reflect input from NMFS.

Response – Partially Concur - The Corps has revised its mitigation plan based on the revised impact analysis and HEA results. This plan is the Corps policy-compliant plan. However, the Corps is unable to accept many of NMFS inputs as they do not appear to be supported by the greatest volume of peer reviewed literature specific to southeast Florida. Many of the citations utilized by the Corps in preparation of our HEA and mitigation plan were discussed above in Response #6, and by utilizing the information included in Response #6, the Corps believes that it has prepared the most technically sound approach to offsetting the loss of coral, reef and hardbottom habitat associated with the project. The Corps’ mitigation plan did not take double credit for coral relocation. The Corps took the benefit of coral relocation as a benefit to the artificial reef and did not claim any credit for that relocation in the upfront functional loss associated with construction of the project. A review of the benthic baseline analysis conducted for the impact areas of Port Everglades did not find any corals greater than 50cm in size. Based on this, the Corps disagrees with NMFS’ characterization that the Corps’ mitigation plan took “double credit” for relocation of corals from the impact area.

8. As a project minimization measure, the USACE shall relocate all corals in accordance to Table 2 in the draft EIS Appendix E-4. Coral relocation shall occur in expansion areas and previously dredged areas. The coral relocation plan should include clearly defined performance standards, monitoring protocols, and schedule.

Response – Not Concur - At this time, the Corps mitigation plan is that ALL corals ≥ 10 cm, and that are within the area of direct impacts, will be relocated to both constructed boulder reefs and/or adjacent natural hardbottoms prior to dredging. There are no plans to relocate corals in the “below dredge depth” impact area because the Corps does not agree with NMFS’ assessment that there will be a 100% loss of coral function downslope from the construction area due to “rubbilization”. Instead, the Corps will mitigate upfront for a 100% loss in 10% of the area and will monitor for effects to coral habitats downslope, should monitoring show a $>10\%$ impact to downslope habitats, the Corps will develop additional mitigation for the loss of those resources. The Corps believes that leaving these corals in place during construction will have less of an impact than relocating them and having many of them die after relocation to the artificial reefs or adjacent natural reefs (see transplant survival discussion below).

This is essentially the same as the present permit requirement for corals to be moved within the Port Miami project footprint, except that the Corps is currently proposing to relocate 32% more corals than required to be relocated for the Port of Miami project. At the Port of Miami, the Corps was required to relocate up to 68% of all corals in the direct impact footprint ≥ 10 cm in size and all corals ≥ 25 cm with all transplanted corals having an $\geq 80\%$ survival rate for five years. However, the NMFS comments state to increase this target to 90%. Prior transplantation efforts performed on restoration projects in Broward County shows highly variable, species specific results (CSA 2004). This included a post-transplant survivorship of only 76.5% for *Montastraea cavernosa*; one of the most common species found in the Port Everglades project footprint. Moreover, a 90% success criterion is untenable based on the natural survival of coral species in the wild. For instance, Thornton et al. (2000) noted a fairly high overall success rate (87%) for relocating and transplanting corals of essentially the same suite of species as those found in the Port Everglades project footprint. However, Thornton et al. (2000) noted that at their control sites in Broward County corals had an 83% survival rate (17% mortality) over only a two-year period. To track the fate of individual corals, Gilliam (2011) tagged and monitored a number of species within the SFCREMP sites. Of the original 49 colonies he tagged in 2006, only 23 were found alive in 2011, only a 46% survival rate. Much of these losses were attributed to corals becoming dislodged and lost. This high-turnover of corals helps to explain why the coral community in Broward County is dominated by small corals. The Corps cannot determine how the Corps' relocation project can be expected to have a greater success criterion than that of the natural reef community if turnover in this environment is so high.

Further, NOAA-NMFS requests to move many corals < 10 cm. It has long been known that within species of scleractinian reef corals, rates of total colony mortality are inversely related to colony size (Soong 1993). Thornhill et al. (2011) showed that corals with low biomass are more susceptible to death following stress. Harriott and Fisk (1998) commented that the feasibility of transplanting small colonies was likely to fail due to the extremely high mortality rates of small fragments, even for taxa that reportedly fragment naturally. Thornton et al. (2000) specifically noted that smaller corals have a greater mortality rate than larger colonies. Unfortunately, Thornton et al. (2000) did not provide a breakdown of size-class data making it difficult to determine which species in which size classes responded best (or worst) to transplantation. If smaller corals are required to be moved, a drastic reduction of the transplantation success criteria should also be required. Finally, NOAA-NMFS (2013) listed a number of additional references (Stephens 2007; Brownlee 2010) as evidence for the success of transplanting smaller corals. Unfortunately, neither of these references are peer-reviewed – they are both unpublished MS theses from Nova Southeastern University and cannot be found or accessed electronically through any commonly used scientific database queries (e.g. Google, Google Scholar, Science Citation Index [SCI], and Aquatic Sciences and Fisheries Abstracts [ASFA]). In addition, neither of these authors could be found as having published or presented their data, results, or interpretations at any scientific meetings or workshops.

9. The USACE shall update the EIS to evaluate the potential for the deepening and widening of the OEC to create a “sink” or trench whereby coral fragments and larvae moving northward or southward along the reef line fall into the channel and become no longer viable. This update to the EIS shall reflect significant input from NMFS.

Response – Concur - The Corps included a detailed assessment of this comment originally provided by NMFS in 2011 in Section 4.5.10.2.2 of the EIS as well as in the September 2012 Biological Assessment provided to NMFS as part of the ESA consultation materials. We believe this recommendation has already been met.

“Deepening of the entrance channel and dredging the flare is not expected to impact any biological functions of acroporid corals (feeding, breeding, settling, etc). Concern has been expressed that deepening the existing channel and dredging the flare in the outer reef may create a “sink” that fragments of acroporid corals could fall into and not escape, thus creating a physical blockage to fragments of acroporid corals moving north with the currents, thus hindering reproduction. USACE has reviewed the available information regarding acroporid life history strategies and the known locations of *Acropora* spp. throughout south Florida, specifically focusing on colonies in the vicinity of the entrance channels, and find this concern to be unwarranted. USACE has been unable to locate any research studies, monitoring reports or other publications that discuss this issue in any detail specific to *Acropora* species. There are 14 deepwater navigation channels; three of which are currently slated to be deepened in the next 2-10 years located within Designated Critical Habitat (DCH). This issue was not identified in the pending draft Recovery Plan for *Acropora* spp. (in press) (that USACE reviewed as part of the recovery plan development team) as a potential hindrance to species recovery. USACE was able to determine that there are two deepwater entrance channels within 25 miles of each other within DCH for acroporid corals: Miami Harbor and Port Everglades, both of which have been dredged to 45 feet. Miami was initially constructed late in 1905, and Port Everglades was originally constructed in 1927. Miami was deepened to its current depth with deepening resulting in all three offshore reefs being cut, in 1991 and Port Everglades was deepened to -45 feet and widened from 300 feet to 500 feet in 1981. *A. cervicornis* has been documented at Miami Harbor on the southern edge of the entrance channel and additional colonies have been documented on the northern side of the channel, within 200-feet of the channel edge (DC&A 2010a; DERM 2008), unlike Port Everglades where the closest documented colonies of *A. cervicornis* are 2,780 feet to the south of the channel and 1,400 feet north of the channel by USACE surveys, a survey conducted by the Navy in 2011 documented *Acroporacervicornis* on the first reef, south of the channel approximately 450 feet from the channel. Neither channel has *A. palmata* documented as being in close proximity. Since the early 1980s, *A. cervicornis* has been documented as expanding its range northward through Broward County and into Palm Beach County (Vargas-Angel *et al.* 2003, Precht and Aronson 2004), into areas previously documented as being devoid of acroporid corals in the 1970s 1980s and even the 1990s and early 2000s, or where acroporid corals were documented as being rare (*A. cervicornis*) or absent (*A. palmata*) (Goldberg 1973).

As is similar to the case above, the first observations of living *A. palmata* were made on the reefs of the Flower Gardens Banks (FGB) in 2003 and 2005 (Zimmer *et al.* 2006). These discoveries were also the deepest records of extant *A. palmata*, at water depths down to 23 m. The FGB are located more than 690 km from the nearest emergent reefs

dominated by *Acropora* (Jordan-Dahlgren and Rodriguez-Martinez 2003; Schmahl *et al.* 2008). Ocean current models indicate that the reefs in the southern GOM are the most likely sources of larval immigration to the FGB (Bright *et al.* 1984; Lugo-Fernández, 2006); however, larval supply from the Meso-American reef tract, Cuban reefs, and the Florida reef tract are also possible (Rezak *et al.* 1990; Biggs, 1992; Lugo-Fernández *et al.* 2001; Lugo-Fernández 2006; Johns and Lamkin 2008). Initial results of genetic analysis reveal that the source of the recent *A. palmata* colonies is the western Caribbean (Iliana Baums, unpublished data 2012). No further subdivision of the western Caribbean population is apparent and thus more precise assignment to potential source locations is presently not possible (Baums *et al.* 2005, 2006). One of the most important aspects of the discovery of living acropoid corals at the FGB is the implication that viable *A. palmata* larvae had to be competent for sufficiently long durations allowing them to recruit to the surfaces of the reef caps, wherever their source locations were. The same can be said for the *Montastraea annularis* species complex, which also broadcasts its gametes into the water column and is presently the dominant species at the FGB (Szmant and Meadows 2006). Hence, in addition to temperature, dispersal and larval duration may help explain the ranges of these corals in time and space (Davis *et al.* 1998; Mora *et al.* 2003).

There are several natural breaks in the 2nd and 3rd reefs located between the Miami and Port Everglades channels, including one in the third reef that is more than 1,000 meters wide located more than eight km south of Port Everglades and *Acropora cervicornis* has been located north of this natural break on the third reef. Since acropoid species reproduce predominately through fragmentation (NMFS 2005a) and there are natural breaks in the 2nd and 3rd reefs located between the Miami and Port Everglades entrance channel more than seven times wider than the cut proposed for the channel extension (500 feet/ 0.15 km), USACE concludes that *Acropora sp.* corals are capable of reproducing over large geographic area as demonstrated by the FGB *Acropora*, and that these dredged channels that are narrower in width than natural breaks in the reefs have not previously hindered, nor will they hinder in the future after deepening, the continued ability of fragments of acropoid coral species to migrate northward and continue to expand the species range in southeast Florida, as habitat conditions warrant.”

10. The USACE shall update the EIS to describe no less than 8.45 acres of seagrass habitat impacts. The EIS shall be updated to include historically mapped and ground-truthed seagrass habitat areas that would be eliminated by dredging and no longer available as contraction and expansion habitat.

Response – Concur - The Corps has agreed to modify the impact analysis for seagrasses to include seagrass habitats that have previously supported habitat, yet may not be occupied by sea grasses at the time of construction and determine appropriate mitigation associated with those impacts. These areas were previously groundtruthed by in-situ surveys and the in-situ surveys will be updated prior to construction during the PED phase of the project.

11. The USACE shall update the EIS to describe indirect impacts to seagrass habitat. This update shall reflect input from NMFS. Specifically, NMFS requests USACE update the EIS to identify each seagrass impact polygon on a map and provide a narrative that explains how the impact area was calculated for each seagrass impact area.

Response – Partially concur. The Draft EIS has already discussed the potential for indirect effects to sea grasses in Sections 4.4.1.2. If NMFS disagrees with the analysis included in the EIS, NMFS may work with USACE to revise the language under their role as a cooperating agency. USACE will include electronic maps of each seagrass polygon on the CD with the final EIS as an appendix, however these will not be printed in the EIS. Each of the individual seagrass assessment reports include a description of the methodology utilized to map these habitats. All of the reports are found in Appendix D. Specifically - 2001 Baseline Report – Section 2.0, pgs 6-12; 2009 Seagrass mapping – Section 2.0, pgs 1-6; 2006 Seagrass mapping – Section 2.0, pg 1-6.

12. The USACE shall develop supplementary compensatory mitigation for seagrass impacts to account for the loss of all seagrass habitat that has been historically mapped and ground-truthed and will become unavailable as habitat after the dredging occurs. The additional mitigation shall appropriately address seagrass impacts that occur closer to or within the inlet. The plan shall address how the site selection for mitigation locations is supported by the best available literature. This plan should include clearly defined performance standards, monitoring protocols, and schedule. The mitigation amounts shall be based on a functional assessment that reflects NMFS and other resource trustee input.

Response – Partially Concur – The Corps will update the impact UMAM assessment for impacts to habitats which have previously supported sea grasses, but as of the last seagrass survey were unoccupied by visible seagrasses. This UMAM will be used in conjunction with the Port, Broward County parks and the on-going West Lake Park Ecosystem restoration project that is supplying the mitigation credits for sea grasses to the Port project. USACE will coordinate with the agencies, as well as our Regulatory division regarding inputs into this updated assessment.

13. The USACE shall update the cumulative impacts section and description of cumulative impacts to coral reefs and water quality. The EIS should be updated to acknowledge the findings of Walker *et al.* (2012) that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef as dredged material disposal, which resulted in the loss of over six million corals and approximately 180 acres of live coral tissue area.

Response – Partially Concur – the Corps will incorporate the applicable information included in Walker *et al.* (2012), however, we included an estimate of impacts in Section 4.29.6 of the EIS associated with dredging of the Port Everglades Federal Navigation Project between 1927 and 2012. Specifically, Figure 79 provided the estimated total impact of 100.13 acres associated with the historic construction dredging of the Outer Entrance Channel, with 59.4 acres being either reef or hardbottom habitats. Walker *et al.* (2012) assumes that all “burial” materials are directly linked to the historical Port dredging. The Cumulative Effects Analysis did not include burial of habitats associated with authorized disposal operations, since in some cases, the disposal location for the material was not documented (original construction and dredging up to 1960s no documentation is available to support disposal locations), and thus cannot be definitely linked to the harbor dredging. The Corps will include an estimate of impacts associated with the disposal operations for the 1965 dredging where the dredged material was sidecast north of the OEC and did result in habitat burial. After 1965, all material disposal occurred offshore in deepwater beyond the continental shelf resulting in no burial of the reefs offshore of Broward County. Additionally,

there are no available data that the Corps is aware of that documented coral cover and number of corals in the area that was dredged in 1927-1928 to create “Hollywood Harbor”, now known as Port Everglades. The current assessment of coral cover (DCA 2009) shows an average coral coverage of approximately 1.4/m², significantly lower than the average coral cover of 2.6/m² cited by Dr. Walker, and thus Walker (2012) significantly overestimates the numbers of corals that may have been impacted. Due to the lack of this data and the application of coral cover of 2.6/m², the Corps will not adopt this estimate in the Cumulative Effects Analysis.

14. The USACE shall require use of best management practices (BMP) to avoid and minimize the degradation of water quality and minimize impacts to hardbottoms and seagrass habitat, including the use of staked turbidity curtains around the work areas, marking of seagrass and hardbottom habitat to facilitate avoidance during construction, and prohibiting staging, anchoring, mooring, and spudding of work barges and other associated vessels over seagrass and hardbottom. These BMPs shall be coordinated with NMFS for approval prior to commencement of any work minimized project impacts.

Response – Partially Concur. The Corps requires contractors to utilize best management practices (BMP) in all construction projects, and the EIS specifically listed BMPs that would be employed in Section 4.4.2.2 of the EIS. By federal law, only the Contracting Officer or the Contracting Officer’s Representative may approve of contractor’s submittals and plans, and as such, NMFS will not be given approval authority over any aspect of the construction associated with Port Everglades. However, the Corps will work with NMFS to review draft plans and specifications developed for the project, just as the Corps has done with other resource agencies with specific resource concerns on projects throughout the District.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

AUG 13 2013

Colonel Alan M. Dodd, Commander
U.S. Army Corps of Engineers, Jacksonville District
PO Box 4970
Jacksonville, Florida 32232

Dear Colonel Dodd:

The National Oceanic and Atmospheric Administration (NOAA) has reviewed the U.S. Army Corps of Engineers (USACE) Draft Environmental Impact Statement (EIS) entitled *Navigation Improvements – Port Everglades Harbor, Broward County, Florida*. Comments are included from the National Marine Fisheries Service (NMFS), representing NOAA as a cooperating agency on the referenced EIS. NMFS was invited to cooperate on the EIS by the USACE in light of NMFS' jurisdiction over, and expertise in, essential fish habitat (as defined by the Magnuson-Stevens Fishery Conservation and Management Act) and threatened and endangered species (as defined by the Endangered Species Act).

In brief, NOAA believes that the referenced Draft EIS significantly understates the project's impacts to seagrass, coral reef, and mangrove habitat. We also believe that the EIS significantly underestimates the level of mitigation required to compensate for the project's effects. The EIS omits significant input that NMFS has provided and does not address questions that NMFS has raised.

Please see the attached NMFS letter for a full description of NOAA's concerns. Please direct any questions you have regarding these comments to Ms. Jocelyn Karazsia or Ms. Kelly Logan. Ms. Karazsia may be reached at:

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263 13th Avenue South
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Sincerely,

Patricia A. Montanio
NOAA NEPA Coordinator

Enclosures



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UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

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F/SER4:JK/pw

AUG 12 2013

Colonel Alan Dodd, Commander
 U.S. Army Corps of Engineers, Jacksonville District
 PO Box 4970
 Jacksonville, Florida 32232

Dear Colonel Dodd:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the draft Environmental Impact Statement (EIS) dated June 14, 2013, entitled *Navigation Improvements, Port Everglades Harbor, Broward County, Florida*. The overall purpose of the project is to provide increased navigational safety, efficiency, and improved economic conditions while limiting impacts to the environment to the maximum extent practical. The U.S. Army Corps of Engineers (USACE) is the lead federal agency and Broward County is the non-federal cost sharing partner for the project. The draft EIS describes a tentatively selected plan (TSP) that includes deepening the Outer Entrance Channel (OEC) to -57 feet mean lower low water (MLLW), widening the OEC to 800 feet, and extending the channel seaward 2,200 feet; deepening the main turning basin to -50 feet MLLW and extending the southeastern boundary of the turning basin an additional 300 feet; widening and deepening the south access channel; and deepening the turning notch (following local sponsor dredging of the same area). Blasting may be needed to remove rocky substrate. Dredge disposal would occur at the existing Port Everglades Harbor Ocean Dredged Material Disposal Site (ODMDS). The draft EIS states the TSP would impact 4.01 acres of seagrass, 15.17 acres of coral reef, and 1.16 acres of mangrove habitat. As detailed below, NMFS believes the draft EIS significantly understates these impacts. These comments reflect the responsibilities of the NMFS under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Fish and Wildlife Coordination Act, and Endangered Species Act (ESA).

Service as a Cooperating Agency in Development of the EIS

By letter dated October 12, 2007, NMFS accepted the invitation from the USACE to participate as a cooperating agency in development of the EIS. In that letter, NMFS stated it would provide technical assistance on how impacts to threatened and endangered species and to essential fish habitat (EFH) would be identified and mitigated. However, NMFS does not have a NOAA federal action that requires us to adopt the EIS for our purposes (such as issuing an MMPA incidental take authorization).

While this is the third version of the EIS NMFS has reviewed, the draft EIS omits significant input NMFS has provided and does not address questions NMFS has raised. Attachment 1 is the detailed review NMFS provided USACE on July 7, 2011. In lieu of repeating the same comments in this letter, NMFS will focus on the major issues that have not been adequately



addressed in the draft EIS, including comments on calculation of impacts to coral reefs, characterization of indirect effects to coral reefs, calculation of seagrass impacts, and seagrass mitigation.

As a cooperating agency, NMFS has responded to requests from the USACE for technical assistance during development of the EIS, including preparation of a report, *Characterization of Essential Fish Habitat in the Port Everglades Expansion Area*, which is draft EIS Appendix H and is part of USACE's EFH assessment, and development of a compensatory mitigation plan for coral reefs that is technically sound and appropriately offsets the impacts to coral reef habitats through active propagation and outplanting of corals. USACE included this mitigation option in the draft EIS as Appendix E-4. In this regard, NMFS also prepared sections of the draft EIS and appendices that describe this mitigation alternative. Lastly, due to the USACE's reluctance to calculate coral reef impacts in the manner NMFS recommended in its comments on earlier versions of the draft EIS, NMFS completed a GIS analysis and technical report characterizing and quantifying the coral reef impacts that would result from the project (Attachment 2).

While NMFS remains hopeful an agreement can be reached on those issues affecting NOAA trust resources, if NMFS and USACE cannot agree on a mutually acceptable mitigation plan to be incorporated in the final EIS, NMFS is considering exercising the option under Section 50 CFR 600.920(k) to refer disputes to the Assistant Secretary of the Army. Further, NMFS may also evaluate the option of referring the matter to the President's Council on Environmental Quality pursuant to Part 1504 of regulations for implementation of the National Environmental Policy Act.

Characterization of Coral Reef Impacts

Calculation of Direct Impacts to Coral Reef Habitat

NMFS and Nova Southeastern University completed a GIS analysis and characterized the coral reef impacts that would result from the Port Everglades Expansion Project and concluded 21.66 acres of coral reef located in the federal channel will be severely impacted by the planned expansion (Attachment 2). This estimate of direct impacts is approximately 6.49 acres more than the estimate in the draft EIS. The USACE's estimate of direct impacts to coral reef habitats is based only on removal by the dredge and is estimated to total approximately 15.17 acres. Coral reef communities in the channel would be directly impacted through (1) removal by the dredge; (2) coral fragments and dredged material, including rubble and sediments, moving downslope or down current and shearing coral reef organisms from the substrate; and (3) fractures in hardbottom and lithified coral propagating into the reef framework, thereby destabilizing attachment of coral reef organisms. The latter two impacts create an unstable coral reef environment resulting in lower coral abundance and fewer large coral colonies. The steeply sloped, eastward facing spur-and-groove reef habitats are particularly at risk from the downslope movement of sediment and rubble. Stabilizing the seafloor following the dredging at Port Everglades may be the most significant measure that could minimize post-injury impacts on the surrounding reef communities and newly established reef organisms on uncovered substrate (Dial Cordy and Associates 2006); however, such stabilization is not proposed in the draft EIS.

Calculation of Potential Impact from Anchor Placement Outside the Channel

Depending on the type of dredge selected, anchoring may be required outside the channel in coral reef and hardbottom habitats. The USACE mitigation plan estimates the anchors would result in approximately 17.13 acres of additional impacts to coral reef and hardbottom habitats. NMFS believes this estimate is too low because the draft EIS uses maps created at a coarse regional scale to calculate the impacts. Brian Walker, Ph.D., of Nova Southeastern University, the cartographer of the maps used by the USACE in the draft EIS, provided NMFS updated acreage calculations based on finer scale maps more suitable for impact assessment at Port Everglades (Attachment 3). NMFS concurs with Dr. Walker's assessment that 19.31 acres (i.e., 2.18 acres more than USACE estimates) of coral reef and hardbottom habitats would be impacted by dredge anchors if this construction strategy is used.

Indirect Impacts to Coral Reef Habitat

The draft EIS describes indirect impacts to 130.37 acres of coral and hardbottom habitat within 150 meters of the channel; however, the draft EIS neither describes how this estimate was developed nor the severity of the impacts expected. While NMFS and Dr. Walker estimate 111.87 acres of indirect impacts to coral and hardbottom habitat would result within the 150 meter zone around the channel, NMFS does not agree that sedimentation and turbidity impacts would be limited to this zone. Chronically high levels of sedimentation and turbidity can be as damaging to coral reefs as acute stress (Rogers 1979).

In the July 2011 letter (Attachment 1), NMFS noted that permit SAJ-2003-00203 for the Key West Harbor dredging project included a more stringent turbidity limit (15 Nephelometric Turbidity Units, or NTUs) than what is normally required by the State of Florida. The basis for this requirement was research conducted by Telesnicki and Goldberg (1995) on two Florida coral species (*Dichocoenia stokesii* and *Meandrina meandrites*). The research measured the photosynthetic and respiratory responses of corals subjected in the laboratory to turbidity ranges of 7 to 9, 14 to 16, and 28 to 30 NTU. By day four for *D. stokesii* and day three for *M. meandrites*, corals exposed to 14 to 16 NTU significantly differed from controls. In both cases, this level of turbidity produced a photosynthesis to respiration (P:R) ratio very close to 1.0; the ratio then declined to a ratio of less than 1.0 after six days. The stress from this level of turbidity also induced mucus production. The researchers concluded, "while other species of scleractinians may have different reactions to turbidity, the data suggest that the standard of 29 NTU above background is not conservative and should be reevaluated." These researchers' findings are relevant to the Port Everglades project. Due to the presence of both corals within the project footprint (Dial Cody and Associates 2006), as well as the presence of designated critical habitat for elkhorn and staghorn corals, NMFS continues to recommend a more conservative turbidity standard for the Port Everglades project.

Should blasting be necessary to construct the channel, the draft EIS indicates sedimentation and turbidity monitoring would be done adjacent to the blast sites. NMFS notes conducting monitoring would not avoid or minimize the effects from blasting. The discussion of indirect impacts in the final EIS should provide a more thorough discussion of impacts from blasting that may occur outside the channel, including the size of material produced, amount of material produced, and locations of areas that may require blasting.

Additional Indirect Impacts to Coral Reef Habitat from Poor Water Quality

The vertical velocity and density structures of the Port Everglades inside channel are stratified and vary depending on the tidal phase (Stamates et al. 2013). The results from the Port Everglades Flow study indicate that it is possible for the upper part of the water column inside the inner entrance channel (the part of the water column most likely to contain excess nutrients and microbial contaminants) to flow in an opposite direction from the lower parts of the water column. Specifically, on the flood tide (as defined from tide tables), the lower part of the inner entrance channel may indeed be flooding but the upper part of the inner entrance channel may remain in ebb for a significant fraction of the time ascribed to the “flood tide.” As stated in sub-appendix C, RMA-2 is a depth-averaged 2D model and will not resolve the vertical features of the channel water column. These features, however, may be important when considering impacts within the vicinity of the inlet.

Mitigation for Coral Reef Impacts

The draft EIS indicates the amount of coral reef mitigation is important to the USACE in determining what the draft EIS refers to as a “best buy” for mitigation and to develop an overall project construction cost. However, NMFS determines the Habitat Equivalency Analysis (HEA) presented in the draft EIS is flawed due to the input of assumptions that are not supported by the best available science. The amount of coral reef mitigation in the form of boulder piles is significantly underestimated and subsequently the costs for coral reef mitigation are also significantly underestimated. Replicating the approach presented in the draft EIS with more realistic assumptions for the HEA results in a mitigation requirement of an additional 32 acres (approximately 51 acres total) of boulder piles needed to offset impacts to coral reef habitats at an additional cost of \$51M above the cost estimate the USACE developed (approximately \$71M total).

The four main areas of disagreement with the way the HEA was used to determine the amount of mitigation are (1) amount of coral reef habitat to be impacted (described in the previous section), (2) equivalence of the impact area to the compensatory action, (3) recovery rate of the mitigation action, and (4) discount rate applied. Additionally, NMFS disagrees with the estimated costs for boulder pile construction, which is a major factor in the determination of a mitigation option as a “best buy.” Furthermore NMFS believes the creation of boulder piles will not adequately mitigate for lost critical habitat for elkhorn coral and staghorn coral.

NMFS notes the independent technical reviews completed by Battelle Memorial Institute (Battelle 2011) for the USACE conclude that some assumptions made for the HEA are either unsupported or have not been clearly justified. Furthermore, a replication of the HEA and technical review of the USACE “best buy” mitigation plan was completed by an internationally recognized coral reef scientist, Richard E. Dodge, Ph.D, Dean of the Nova Southeastern University Oceanographic Center, and provided to NMFS on July 15, 2013 (Attachment 4). NMFS scientists have reviewed the HEA performed by Dr. Dodge and affirm its accuracy. The analyses of Dr. Dodge, Battelle (2011), and NMFS arrive at nearly identical conclusions

regarding the deficiencies in the HEA performed by USACE. Those deficiencies are described below.

Inadequacy of Boulder Piles as Mitigation

The HEA presented in the draft EIS assumes 100 percent equivalency between the coral reefs that would be impacted and the boulder piles created for mitigation. This is not supported by the best available science. For example, Miller et al. (2009) documented an overall lack of similarity between the benthic species at natural and artificial reefs. Gilliam (2012) concluded the length of time boulder reefs require to mitigate lost reef resources in southeast Florida exceeds the age of the oldest boulder reef examined in the study (17 years). Kilfoyle et al. (2013) showed nearshore natural and artificial hardbottom habitats have dissimilar usage by the early life stages of species managed under the fishery management plan for snappers and groupers with significantly higher abundances occurring on natural nearshore hardbottoms compared to artificial habitat. Battelle (2011) arrives at a similar conclusion. In particular, the USACE's independent panel review panel expressed concern about the efficacy of mitigation boulders. A pile of boulders is not a coral reef and will not become a coral reef over time, and NMFS disagrees with USACE's determination that boulder piles are in-kind mitigation for coral reef habitat.

Ultimately, the boulders would provide a lower degree of ecosystem services compared to those of a natural coral reef. Battelle (2011) also concludes that some of the assumptions made for the HEA, especially regarding recovery service levels, have not been clearly presented or justified. Specifically, this report states that the assumed 100 percent recovery service level could be overly optimistic. The report acknowledges these values are critical to the HEA and significantly affect the outcomes for the required reef mitigation (Battelle 2011). In the separate analysis performed by Dr. Richard E. Dodge (Attachment 4), an alternative approach to determine equivalency of boulder piles and natural coral reefs is identified. This approach describes an assumption that upon maturity boulders would provide a fraction of the services of the natural reefs (services from structure). This approach is described in Attachment 4 and assumes (for purposes of illustration only) that the artificial reef will provide 50 percent of the services of a natural reef. Both Dr. Dodge and NMFS believe that 50 percent is overly optimistic and not based on the best available science. NMFS believes boulder placement should not be credited with any mitigation value beyond those services provided by the structural components of the reef which the boulders would replace.

The USACE's choice of mitigation is boulder placement with coral transplants. These measures will not provide services upon maturity equivalent to those of the natural reef. Information in the draft EIS states that the recovery rate of boulder piles is 50 years, whereas the cost estimate (draft EIS, Appendix E2) assumes 30 years. The USACE subtracted 20 years from the recovery rate as credit for the coral relocation to the boulder reefs. NMFS acknowledges the Port Everglades Reef Group (2004) discussed allowing a 10-year discount for relocated corals; however, this estimate does not reflect the amount of corals to be relocated by the USACE as project minimization, and this discussion occurred prior to the publication of the USACE and U.S. Environmental Protection Agency's (EPA) Mitigation Rule in 2008.

According to the draft EIS Appendix E2, the total number of corals to be dredged is 100,744. The draft EIS cost estimate indicates up to 12,235 corals would be removed. This would represent a 12 percent reduction in impact and therefore it is not appropriate to credit the boulder reef recovery by 20 years. Furthermore, NMFS does not support crediting the recovery of boulder reefs that have coral transplants, because the transplants are a project minimization measure, not a compensatory mitigation measure. The USACE and EPA's Mitigation Rule (2008) and the Clean Water Act 404(b)(1) Guidelines emphasize that mitigation is sequential: first avoid, then minimize, then perform mitigation for unavoidable impacts. The Mitigation Rule specifically states that compensatory mitigation is only for impacts that cannot be avoided or minimized (Federal Register, Volume 73, Number 70, page 19596, April 10, 2008). This impact minimization measure should be reflected in a corresponding reduction in compensatory mitigation requirements. Thus, it would not be appropriate to also give compensatory mitigation credit to the boulder reef recovery areas that will receive these same coral transplants. This amounts to asking for "credit" twice for the same action. NMFS confirmed this is an accurate interpretation of the Mitigation Rule with EPA headquarters staff via email on July 31, 2013.

Additionally NMFS does not support limiting the amount of relocation to 12,235 coral colonies. Rather, NMFS recommended that USACE establish a performance goal for the relocations of 90 percent for the coral species and size classes presented in Table 2 of the "NOAA Mitigation Alternative," which is located in draft EIS Appendix E-4.

Furthermore, NMFS agrees with the findings of Battelle (2011) that the USACE recovery projection is overly optimistic. In particular, Battelle expressed concern about the unsupported assumptions used in the HEA model analysis. Battelle notes the coral growth rate of *Siderastrea radians* does not support the assumption of the 50-year reef recovery projection. With the given 1.5 millimeters per year growth rate, it will take about 167 years, rather than 50 years, for this coral species to reach 25 centimeters (Battelle 2011). Separately, a NMFS analysis using the very high growth rate of 5 millimeters per year for stony corals suggests that numerous coral species would have a recovery period in excess of 50 years, and likely significantly longer considering the widespread coral recruitment failure documented in the Atlantic and Caribbean (Hughes and Tanner 2000; Williams et al. 2008).

HEA/Resource Equivalency Analysis and the Discount Rate

HEA/Resource Equivalency Analysis (REA) is an economic model. While NMFS agrees that HEA and REA are appropriate models to scale the mitigation requirements in some cases, NMFS notes the HEA is applied by the USACE in a manner in which it was never intended for use. Specifically, USACE applies a zero percent discount rate. A zero percent discount rate means the value of environmental services provided today is the same as the value of environmental services provided 1,000 or more years from now. A zero percent discount rate is contrary to the nearly universally accepted theory that there is a time rate of preference for goods of any kind, material or environmental. HEA is an economic model and is not designed to be used with a zero discount rate.

The application of a zero percent discount rate also significantly affects the mitigation requirement when the HEA presented in the draft EIS assumes the impact areas will recover in

50 years. The draft EIS acknowledges some coral reef habitat will only achieve 15 percent of natural reef services but the draft EIS stops the calculation clock at 50 years. If discounting were in place, this would not affect the mitigation requirement much; however, with a zero percent discount rate, continuing these losses beyond 50 years would result in a significant increase in mitigation requirements. While NMFS is aware the draft EIS stops at 50 years because that is the “project life,” this is another example of HEA being applied in a manner inconsistent with its designed application.

The draft EIS states that USACE is prohibited from applying a discount rate due to guidance provided in the Office of Management and Budget Circulars A-4 and A-94 (Regulatory Analysis and Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, respectively). NMFS disagrees with the USACE’s interpretation of the Circulars. Specifically, Circular A-94 states, “Specifically exempted from the scope of this Circular are decisions concerning water resource projects (guidance for which is the approved Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies).” The Port Everglades Navigation Improvements study and all its components are water resource development projects exempt from Circular A-94. USACE Guidance Documents available for FY12 appear to indicate the USACE should use a discount rate of 4 percent for planning projects¹.

Cost of Boulder Piles

The mitigation plan states the cost per acre ranges from approximately \$1M to \$1.8M among the four alternatives identified in the plan. However, the draft EIS lists the cost to construct boulder piles in previously permitted artificial reef sites or borrow sites as \$588,524 per acre in Table 8 and the cost per acre of boulder piles placed on top of tires as \$1,225,000. The draft EIS does not make clear why there is so much variation in costs of different mitigation alternatives describing a similar action. NMFS agrees with Dr. Dodge’s assessment (Appendix 4) that the \$1.2M estimate per acre is a more appropriate cost. NMFS further notes that the HEA inputs and results in Appendix E2 of the draft EIS are not the same as those of the Cost Analysis.

Boulder Piles and *Acropora* Critical Habitat

NMFS and USACE have held multiple meetings and conference calls regarding the effects to *Acropora* critical habitat from this project. NMFS remains concerned that the USACE has not adequately addressed the direct, indirect, and cumulative effects on critical habitat from this project. Further, the draft EIS does not explain how the boulder reef mitigation plan would compensate for loss of critical habitat. NMFS does not believe that a boulder reef would satisfactorily address the lost functions and values of critical habitat within the project area over the lifetime of the project. Despite numerous discussions with the USACE on this subject, NMFS remains concerned that the project as proposed would not adequately preserve and protect designated critical habitat which is necessary for the conservation of the species.

¹ <http://planning.usace.army.mil/toolbox/library/EGMs/EGM1201combined.pdf>

NMFS Recommended Mitigation: Coral Nursery with Outplanting

Considering the unprecedented scale in the southeastern U.S. of the planned coral reef impacts, NMFS presented the USACE with a mitigation plan dated June 7, 2013. The plan consists of propagating corals at one land-based nursery and approximately six nursery sites located offshore of Broward County and then transplanting the reared corals to natural reefs to enhance those reefs or to restore degraded sites. NMFS' recommendation is based on careful evaluation of the expected losses of scleractinian coral and octocorals from the expansion of the Port Everglades OEC and the successes of coral propagation and enhancement programs in Atlantic and Caribbean waters. Because boulder reefs would not adequately offset the functions and values of the reef system which will be impacted as part of the Port expansion project, NMFS recommends this alternative approach using propagation. Furthermore, the NMFS recommended mitigation program is more cost efficient than the USACE "best buy" based on the replicated HEA performed by Dr. Dodge and validated by NMFS.

Elkhorn and Staghorn Coral and Their Designated Critical Habitat

NMFS continues to have significant concerns with the project's impacts to resources protected under the ESA. The most significant impacts are to critical habitat for threatened elkhorn coral (*Acropora palmata*) and staghorn coral (*Acropora cervicornis*). In 2008, NMFS designated critical habitat for these species to support a single, key conservation objective of increasing the frequency of successful sexual and asexual reproduction: staghorn and elkhorn coral reproduce sexually via broadcast spawning and asexually via fragmentation. The essential habitat feature to accomplish this objective is substrate of suitable quality and availability to support successful larval settlement, recruitment, and reattachment of fragments. NMFS defined "substrate of suitable quality and availability" as "natural consolidated hard substrate or dead coral skeleton that is free from fleshy or turf macroalgae cover and sediment cover" (73 FR 72210).² The coral reefs offshore Broward County provide suitable substrate for meeting this key conservation objective.

NMFS believes the draft EIS does not adequately assess the project's impacts to *Acropora* critical habitat. The USACE's analysis of impacts needs to focus on the project impacts on the overall ability of the critical habitat to meet the key conservation objective of supporting successful reproduction. NMFS recommends the analysis address three key issues in this assessment:

- 1) the direct and indirect impacts to coral reef habitat containing the essential feature,
- 2) hydrographic changes from the project and their effect on coral reproduction, and
- 3) beneficial impacts, if any, of the selected mitigation plan to the extent the mitigation plan is included in the USACE's proposed action.

² The draft EIS incorrectly characterizes the essential feature of *Acropora* critical habitat and references the status review which is not an appropriate reference for critical habitat. The final EIS should reference the critical habitat rule directly to accurately describe critical habitat.

In addition to the comments above on the project's impacts to reef areas, NMFS recommends the USACE provide a more complete characterization of the reef habitats associated with the project. Certain types of turf algae will still allow for settlement by *Acropora* larvae. Although the draft EIS states that NMFS has failed to provide a standard protocol for assessing critical habitat, assessing the amount of "substrate of suitable quality and availability" is a basic benthic type characterization which NMFS believes does not require any additional protocol. Even though these direct and indirect impacts lend themselves to expression as areas, the assessment of critical habitat impacts should not be limited to simple area comparisons of the percentage of the entire critical habitat unit being impacted. The analysis should be based on the conservation function lost.

The potential for the widening and deepening of the Port Everglades OEC to affect the functioning of critical habitat through physical changes in the bottom and in local currents remains a major concern. In the 2011 letter, NMFS requested the draft EIS evaluate the potential impacts of creating a "sink" or trench where coral fragments and larvae moving northward or southward along the reef line fall into the channel and become no longer viable. This type of impact not only affects the species directly, it also affects the adjacent critical habitat's ability to support the species. NMFS believes the draft EIS does not adequately respond to these concerns. The draft EIS states multiple times that the currents in the Port Everglades location are "highly unpredictable." The draft EIS discusses the natural reef breaks located in areas between Port of Miami and Port Everglades channels and specifically points out the width of these natural breaks, noting that they are much wider than the proposed cut as part of the Port Everglades channel expansion. However, there is no discussion in the DEIS concerning the depth of these natural breaks and the velocity of the currents through them. NMFS believes that a deeper, narrower "break" would produce a higher velocity current perpendicular to the natural south-north transport of larvae -- and possibly fragment -- transport resulting in the larvae/fragments being washed out of the natural transport pathway, preventing them from landing on suitable substrate, thereby reducing the species' reproductive success and the value of the critical habitat. Because of the need to fully understand impacts, the relative comparison to natural reef breaks is not illuminating. NMFS recommends the USACE provide a detailed hydrographic assessment of the predicted current flow changes post-construction.

The effects of the mitigation plan on the value of *Acropora* critical habitat also needs to be fully analyzed and included in the record of decision for the proposed project. As previously stated, NMFS does not believe the boulder reef mitigation alternative would replace the functions and values of critical habitat lost within the project area over the lifetime of the project. The NMFS recommended mitigation of coral nurseries with outplanting, however, could have significant beneficial impacts on the function of critical habitat. With proper design and operation, this mitigation method could create increased incidences of successful fertilization and fragmentation on both sides of the Port Everglades OEC and increase the conservation function of critical habitat in the vicinity of the project. The USACE needs to fully analyze the net impacts of the project, including the selected mitigation plan, on designated critical habitat, not only to do a thorough comparison of alternatives, but also to ensure the project does not destroy or adversely modify critical habitat, as required by the ESA.

Underestimate of Seagrass Impacts

The draft EIS describes how seagrass beds, in particular *Halodule wrightii*, *Halophila decipiens*, and *Halophila johnsonii*, expand and contract over time. The seagrass survey data from seven seagrass survey events illustrate this point and are described in Appendix H. In particular, the draft EIS points out this expansion and contraction may be a long-term survival strategy of *H. johnsonii* and other seagrass species (Virnstein et al. 2009). For impact assessment purposes, it is important to consider the broader seagrass habitat and not just the currently vegetated portions. However, the draft EIS describes impacts to seagrass based only on the vegetated portions of the beds documented in the 2009 survey. The draft EIS does not describe impacts to areas historically mapped and previously ground-truthed to contain seagrass. These areas represent the available expansion habitat that will no longer be available after the project is constructed. NMFS believes USACE significantly underestimates the amount of seagrass that would be impacted.

A GIS analysis was used to examine the changes in seagrass coverage between 2000 and 2009. NMFS determined that the cumulative seagrass habitat documented in these seven surveys is approximately 19.45 acres (draft EIS Appendix H), and approximately 8.45 acres of seagrass habitat impacts are proposed³. This impact estimate is more than double the seagrass impact described in the draft EIS.

Battelle (2011) also recommended USACE complete a bathymetric survey to identify the extent of potentially suitable seagrass habitat (the report used the more general term submerged aquatic vegetation or SAV). The specific water depths recommended were 0.0 feet to -6.0 feet NGVD. This survey would provide a more complete assessment of seagrass habitat versus seagrass acreage that could then be used as a baseline reference for future seagrass mapping and permitting activities since seagrass bed distribution can vary greatly at any point of time. Fully addressing this recommendation would contribute to resolving concerns NMFS has with the underestimate of seagrass impacts. In the review of a preliminary version of the EIS (Attachment 1), NMFS recommended the draft EIS clearly describe where seagrass impacts would occur and the amount of seagrass habitat present in these areas. The draft EIS does not address this comment.

Seagrass Mitigation

West Lake Park Seagrass Mitigation Credits

The restoration planned to be performed by Broward County at West Lake Park is proposed for use as compensatory mitigation for seagrass impacts associated with the port expansion. However, the restoration was not set up as a mitigation bank when NMFS completed its EFH review of the restoration work under SAJ-2002-0072 (IP-LAO). According to the ledger contained in this permit (Attachment 5), there are 2.2 seagrass credits available at West Lake Park. The USACE mitigation plan describes the need to use 2.4 seagrass credits. Using the

³ NMFS requires the GIS shapefiles for the revised TSP in order to refine this estimate.

impact estimate that includes 8.45 acres of historically mapped and ground-truthed seagrass habitats and the Unified Mitigation Assessment Method (UMAM) scores applied by the USACE (which are in dispute per the section below), over 5 seagrass credits would be needed from West Lake Park. Thus, using either impact assessment, there are not enough seagrass credits available at West Lake Park.

Low Unified Mitigation Assessment Method Scores

Florida's UMAM was the type of functional assessment used to determine the mitigation amount and the USACE acknowledges in their permit that, "USACE UMAM scores on this project were done separately from those submitted by the applicant in conjunction with South Florida Water Management District, future scoring should be done in line with those values which can be found in the file." In July 2011 (Attachment 1), NMFS requested the functional assessments. The draft EIS does not contain the UMAM score sheets for the impacts or the mitigation so NMFS cannot verify the scoring was done in accordance with the permit. A summary table of the UMAM completed for the impacts is provided in the USACE mitigation plan. Notably, 14 out of the 16 seagrass polygons assessed were given a score of 4 or less (out of 10) by the USACE, which corresponds to the habitat providing "minimal level of support to [benthic community] functions" (Form 62-345.900(2), F.A.C.). Five of the 16 seagrass polygons scored 1 or 2 for benthic community. These scores do not reflect NMFS field observations. Additionally, the USACE did not assign higher landscape support functions to seagrass habitats closer to the inlet and clear oceanic waters. The seagrass UMAM scores also do not reflect the best available science or agency input that was obtained from the USACE in 2005 (Attachment 6).

Inadequacy of Seagrass Habitat Mitigation at West Lake Park

Another issue previously raised by NMFS (Attachment 1) relates to the location of the mitigation site with respect to the impacts. While it may be appropriate to mitigate for seagrass impacts along the south access channel in West Lake Park, seagrass habitats located closer to the Port Everglades Inlet provide different functions than seagrass habitats located in more interior areas of the Port. The seagrass habitats at West Lake Park, which is located further away from the inlet and coral reefs, would not provide the same ecological services as the seagrass impacted through the expansion.

The proximity of seagrass to the Port Everglades Inlet increases the value of the seagrass habitats located near the inlet for oceanic and estuarine spawners. Habitat value during growth to maturity for gray snapper (*Lutjanus griseus*) and bluestriped grunt (*Haemulon sciurus*) is a function of distance from an ocean inlet (Faunce and Serafy 2007). For example, the planktonic larvae of gag grouper (*Mycteroperca microlepis*) move into estuaries and settle in the first available habitat, such as polyhaline seagrass beds near inlets (Ross and Moser 1995). Based on work completed in the Indian River Lagoon, Gilmore (1995) determined that seagrass habitats near ocean inlets offer optimum physical conditions with low variation in temperature and salinity and other physical parameters, as well as proximity to ocean spawning sites for reef species. Seagrass habitats near inlets typically provide habitat for more fishery species than seagrass away from inlets. A faunal transition and fish community change takes place within 5 km (3.1 miles) of the ocean inlet to the lagoon as one proceeds away from the inlet (Gilmore 1995). Other studies (e.g., Bushon 2006; Turtora and Schotman 2010) have also linked species

distribution and life history stages as a function of proximity to a coastal inlet. The continuity of the seagrass beds between the mitigation site and the inlet is important to fishery species. The proposed port modifications would further isolate seagrass beds at West Lake Park from the inlet, limiting their value in larval migrations and settlement. Accordingly, NMFS believes the UMAM scores for the West Lake Park seagrass should be lower than what the USACE has provided.

Cumulative Impacts

Coral Reefs and Hardbottoms

As described in Attachment 3, the draft EIS minimizes previous losses of hardbottom due to port construction activities by equating the proposed impacted amount to a percent of all the hardbottom located offshore Broward County. Equating the project impacts to a percent gives the appearance that impacts would be much less. The actual habitat loss is more relevant. Walker et al. (2012) published a peer-reviewed paper on the estimated historical losses of port and shipping activities in southeast Florida. They estimated that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef due to improper dumping of spoil material. Using county-wide mean coral density (2.6 per square meter) and percent cover (3.75 percent), Port Everglades development has historically impacted 6,149,000 corals equating to 180 acres of live tissue area. Using these same numbers and the impact scenarios presented in the draft EIS, scenario 1 (includes anchoring impacts outside the federal channel) would impact 380,000 corals with 1.36 acres of live cover, and scenario 2 (dredging coral reefs above -57 feet MLW and no anchoring impacts) would impact 177,000 corals with 0.63 acres of live cover.

The draft EIS does not describe any cumulative impacts for hardbottom. Although the effect of impacting six million corals is difficult to measure, it undoubtedly has some impact on surrounding communities. In addition, the burial of 178 acres of Outer Reef due to improper spoil disposal has a lasting effect on the system. This spoil remains in place today where rocks of all sizes are piled on the reef. These spoils likely shift during storms and continually impact the local community by scouring the substrate as evident in the Dial Cordy and Associates (2009) benthic assessment of previously impacted sites.

Water Quality

NMFS disagrees with the USACE determination that water quality impacts would only be temporary due to construction activities, and the project would not result in any foreseeable future actions that would result in a cumulative effect. On the ebb tide, water is advected seaward through the Port Everglades inner entrance channel. Several studies of this inlet have shown this water contains higher concentrations of nutrients and microbial contaminants compared to levels typically seen in the coastal ocean (Stamates et al. 2013; Futch et al. 2011). These substances have the potential to degrade the coastal environment. Enlargement of the channel brings the possibility of increasing the flux of these substances out of the inlet and into the coastal ocean.

Endangered Species Act Section 7 Consultation

NMFS continues to work with the USACE to obtain all the information necessary to conduct a Section 7 consultation for ESA-listed species and critical habitat under NMFS purview. Two comments on critical habitat are offered at this time. First, the draft EIS concludes that adverse effects to *Acropora cervicornis* and designated critical habitat from increased sedimentation would be insignificant. NMFS agrees that the findings and evidence reported in the paragraphs preceding that statement may support this finding for the species. However, it provides no basis for the determination about sediment effects to critical habitat. To evaluate that effect, the USACE would need to provide documentation regarding the duration of sediment residence (dependent on grain size and physical oceanography of the area) on adjacent hardbottoms (i.e., the essential feature) to be able to say the effect is insignificant for designated critical habitat. Second, NMFS requests clarification of the following point made in the draft EIS, “hardbottom communities exist in a dynamic environment . . . may be periodically covered and uncovered by sands.” NMFS requests a reference for this statement and the periodicity that is being referred to.

Essential Fish Habitat Consultation

As a cooperating agency, NMFS prepared *Characterization of Essential Fish Habitat in the Port Everglades Expansion Area*, which is included in the draft EIS Appendix H. This report describes the EFH and fishery resources in the project area and summarizes the biological resource surveys that have been completed. For complete descriptions of EFH in the project area, NMFS refers to this report. The main categories of EFH and HAPC that would be adversely affected by this project include coral, coral reef, and hardbottom; seagrass; mangrove; the coastal inlet; and unvegetated soft bottom habitats.

The report requires the addition of a section characterizing the existing channel bottom due to review of a video from October 18, 2006, that documents corals in the existing channel bottom. Notably, this video confirms the presence of corals that not only are EFH but also proposed to be listed by NMFS under the ESA, including rough cactus coral (*Mycetophyllia ferox*).

Impacts to Essential Fish Habitat

The USACE provided an initial determination that the project may adversely affect EFH and HAPCs. The USACE determined the magnitude of the impacts varies from temporary and insignificant to substantial and permanent. NMFS believes the impacts of the proposed project, along with project components that have been removed from the federal project but are still being pursued by the Port (i.e., dredging 8.4 acres of mangrove to expand a turning notch), result in more adverse impacts to EFH than what are described in the draft EIS, questioning USACE’s conclusion that the project’s cumulative impacts are negligible.

Essential Fish Habitat Assessment Information Needs

NMFS has considerable disagreement with the USACE on how seagrass and coral reef impacts and mitigation requirements have been determined. NMFS also has significant disagreement with the USACE on how water quality degradation and cumulative impacts are described in the

draft EIS. These issues are identified in the preceding and warrant thorough consideration prior to completing the EFH consultation for this project.

EFH Recommendations

NMFS finds the project would adversely impact EFH. Section 305(b)(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH conservation recommendations when an activity is expected to adversely impact EFH. Based on this requirement, NMFS provides the following:

EFH Conservation Recommendations

Prior to dredging seagrass or coral reef and hardbottom habitat to expand the Port Everglades Harbor, NMFS recommends the following:

1. The USACE shall provide a mitigation plan that assumes no less than 21.66 acres of direct impacts to coral reef and hardbottom habitats.
2. The USACE shall provide a mitigation plan that assumes no less than 19.31 acres of anchor impacts, in the case that the dredge equipment selected requires anchoring outside the federal channel.
3. The USACE shall provide a monitoring plan to evaluate physical and biological impacts that may occur outside the channel. This plan shall reflect substantial input by NMFS.
4. The USACE shall provide a mitigation plan that reflects no less than 111.87 acres of indirect impacts that would occur in the 150 meter zone surrounding the federal channel. The final EIS should clearly describe how the amounts of indirect impacts to coral reefs are determined.
5. In the case that blasting is required, USACE shall work with NMFS and other resource trustees to develop a monitoring program. Substantial input from NMFS shall be reflected in the final blasting monitoring plan.
6. The USACE shall update the HEA with scientifically defensible inputs on equivalency of natural coral reefs and boulder piles, recovery rates of dredged coral reef habitat, recovery rates of boulder piles, and discount rates. The final HEA shall reflect actual costs of boulder piles with substantial input from NMFS.
7. The USACE shall adopt a compensatory mitigation plan that is the most technically sound approach to offsetting the loss of coral, coral reef, and hardbottom habitat. The final coral reef mitigation plan shall not take credit twice for coral relocation. The final coral reef mitigation plan shall reflect input from NMFS.
8. As a project minimization measure, the USACE shall relocate all corals in accordance to Table 2 in the draft EIS Appendix E-4. Coral relocation shall occur in expansion areas and previously dredged areas. The coral relocation plan should include clearly defined performance standards, monitoring protocols, and schedule.
9. The USACE shall update the EIS to evaluate the potential for the deepening and widening of the OEC to create a “sink” or trench whereby coral fragments and larvae moving northward or southward along the reef line fall into the channel and become no longer viable. This update to the EIS shall reflect significant input from NMFS.
10. The USACE shall update the EIS to describe no less than 8.45 acres of seagrass habitat impacts. The EIS shall be updated to include historically mapped and ground-truthed

seagrass habitat areas that would be eliminated by dredging and no longer available as contraction and expansion habitat.

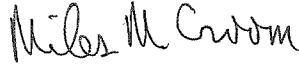
11. The USACE shall update the EIS to describe indirect impacts to seagrass habitat. This update shall reflect input from NMFS. Specifically, NMFS requests USACE update the EIS to identify each seagrass impact polygon on a map and provide a narrative that explains how the impact area was calculated for each seagrass impact area.
12. The USACE shall develop supplementary compensatory mitigation for seagrass impacts to account for the loss of all seagrass habitat that has been historically mapped and ground-truthed and will become unavailable as habitat after the dredging occurs. The additional mitigation shall appropriately address seagrass impacts that occur closer to or within the inlet. The plan shall address how the site selection for mitigation locations is supported by the best available literature. This plan should include clearly defined performance standards, monitoring protocols, and schedule. The mitigation amounts shall be based on a functional assessment that reflects NMFS and other resource trustee input.
13. The USACE shall update the cumulative impacts section and description of cumulative impacts to coral reefs and water quality. The EIS should be updated to acknowledge the findings of Walker et al. (2012) that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef as dredged material disposal, which resulted in the loss of over six million corals and approximately 180 acres of live coral tissue area.
14. The USACE shall require use of best management practices (BMP) to avoid and minimize the degradation of water quality and minimize impacts to hardbottoms and seagrass habitat, including the use of staked turbidity curtains around the work areas, marking of seagrass and hardbottom habitat to facilitate avoidance during construction, and prohibiting staging, anchoring, mooring, and spudding of work barges and other associated vessels over seagrass and hardbottom. These BMPs shall be coordinated with NMFS for approval prior to commencement of any work.

Section 305(b)(4)(B) of the Magnuson-Stevens Act and implementing regulation at 50 CFR Section 600.920(k) requires the USACE to provide a written response to this letter within 30 days of its receipt. If it is not possible to provide a substantive response within 30 days, in accordance with NMFS's "findings" with the USACE Jacksonville District, an interim response should be provided to NMFS. A detailed response must then be provided prior to final approval of the action. The detailed response must include a description of measures proposed by the USACE to avoid, mitigate, or offset the adverse impacts of the activity. If USACE's response is inconsistent with the EFH conservation recommendations, the USACE must provide a substantive discussion justifying the reasons for not following the recommendation.

Thank you for the opportunity to provide comments. Related questions or comments should be directed to the attention of Pace Wilber, Ph.D., or Ms. Cathy Tortorici. Dr. Wilber can be reached at 219 Fort Johnson Road, Charleston, SC, 29412, by telephone at 843-762-8601, or by e-mail at

Pace.Wilber@noaa.gov. Ms. Tortorici can be reached at the letterhead address. Ms. Tortorici may also be reached by telephone at 727-209-5953 or by e-mail at Cathy.Tortorici@noaa.gov.

Sincerely,



Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosures: Attachment 1: NMFS comments, dated July 11, 2011, on interim draft EIS
Attachment 2: Acreage analysis by NMFS
Attachment 3: Acreage analysis by Dr. Brian Walker, July 15, 2013
Attachment 4: HEA review by Dr. Richard Dodge, July 21, 2013
Attachment 5: West Lake Park mitigation credit ledger
Attachment 6: USACE UMAM scores

cc:

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Attachment 1



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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JUL 7 2011

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Colonel Alfred Pantano
 District Engineer, Jacksonville District
 Department of the Army Corps of Engineers
 PO Box 4970
 Jacksonville, Florida 32232

Dear Colonel Pantano:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the interim Draft Environmental Impact Statement (EIS), dated May 31, 2011, titled *Navigation Improvements, Port Everglades Harbor Broward County, Florida*, prepared by the U.S. Army Corps of Engineers, Jacksonville District (COE). This is the second version of the interim Draft EIS that the COE has asked NMFS to review as a cooperating agency under the National Environmental Policy Act. The higher priority issues NMFS has identified regarding the proposed work are discussed below so they may be resolved before a Draft EIS is released to the public. Other important issues and information needed for the essential fish habitat (EFH) and Endangered Species Act consultations are described in the matrix format requested by the COE (enclosed). Our comments reflect NMFS' responsibilities under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Fish and Wildlife Coordination Act, and Endangered Species Act (ESA).

By letter dated October 12, 2007, NMFS accepted the COE's invitation to participate as a cooperating agency in development of the EIS for the expansion of Port Everglades. In this letter, NMFS stated that as a cooperating agency we would provide technical assistance on how impacts to threatened and endangered species and to EFH should be identified and mitigated. However, in the years since we began working with the COE as a cooperating agency, NMFS has experienced considerable difficulty in having our input substantively incorporated into the resulting NEPA documents. To illustrate this point, fewer than 20% (33 out of 180) of the comments NMFS provided on the 2008 version of the interim Draft EIS are fully addressed in this latest version. NMFS invested significant time in the earlier review and, as a cooperating agency, we are disappointed that so few of our recommendations have been adopted to date. While we remain hopeful that we can reach agreement on those issues affecting NMFS trust resources, NMFS feels obliged to inform the COE that if NMFS' comments and recommendations are not adequately resolved in the forthcoming Draft EIS, NMFS will consider the option of referring the matter to the Council on Environmental Quality.



Coral Reef Impact Assessment: ESA-listed species, Compensatory Mitigation, Terminology, and Contingency Planning

Calculation of Coral Reef Impacts. The interim Draft EIS does not describe how impacts to coral reefs were determined. Dr. Brian Walker (Walker *et al.*, 2008b) concludes there would be 20.34 acres of direct impact to coral reefs; however, the interim Draft EIS describes 15.34 acres of direct impact to coral reefs. In June 2008, the COE informed NMFS that coral reefs located deeper than 56 feet¹ but still within the proposed expansion to the federal channel would be considered indirect impacts. NMFS assumes this approach by the COE results in the different total for impact acreage, but we cannot verify this because the impacts are not precisely described in the interim Draft EIS. For each coral reef impact area, please identify the impact polygon on a map and provide a narrative that explains how the impact area was calculated. Also, please provide a detailed description of the source of each direct and indirect impact. For example, coral reefs located within the federal channel that are not dredged but are immediately adjacent to the dredging would be severely and permanently injured through the physical processes of rubble movement and scour. This impact is not discussed in the interim Draft EIS and should not be lumped into a discussion of impacts from turbidity and sedimentation, which may be as severe and permanent by occurring through a different mechanism. However, the physical impact to coral reef structure and the biological response to these types of impacts would be different. This detail is needed in the EIS, and similar detail is missing for indirect and direct impacts from anchoring and vessel operations.

Acroporid species (elkhorn and staghorn coral) and their designated critical habitat. NMFS has significant concerns with the proposed widening and deepening of the Outer Entrance Channel (OEC). These impacts constitute new dredging that would permanently remove portions of the Middle and Outer Reef. According to the interim Draft EIS, approximately 15.35 acres of coral reef habitat would be directly and permanently impacted by dredging and 91.29 acres of coral reef habitat may be indirectly impacted (note that these estimates do not include the potential for additional reef impacts from the anchors and cables needed for operation of a cutterhead dredge). This coral reef habitat is designated as an EFH-Habitat Area of Particular Concern (HAPC) under the Magnuson-Stevens Act and as critical habitat designated under the ESA for threatened elkhorn coral (*Acropora palmata*) and staghorn coral (*Acropora cervicornis*)².

In 2008, NMFS determined that the key conservation objective for threatened elkhorn and staghorn corals is increasing the frequency of successful sexual and asexual reproduction; staghorn and elkhorn coral reproduce sexually via broadcast spawning and asexually via fragmentation. To accomplish this objective, NMFS determined that conservation of substrate of suitable quality and availability to support successful larval settlement, recruitment, and reattachment of fragments was needed. NMFS defined “substrate of suitable quality and availability” as “natural consolidated hard substrate or dead coral skeleton that is free from fleshy or turf macroalgae cover and sediment cover” (73 FR 72210). The coral reefs offshore from Broward County provide suitable substrate for meeting the key conservation objective.

¹ The EIS states that the Tentatively Selected Plan would dredge to -57 feet (pg 37).

² Due to time constraints, NMFS Protected Resources Division was not able to review the *Acropora* spp. survey report. We will review this document during ESA Section 7 consultation.

NMFS requests that the EIS evaluate the potential for the deeper and wider OEC to serve as a “sink” or trench whereby coral fragments moving northward or southward along the reef line fall into the channel and become no longer viable. The proposed action may exacerbate the “sink” effect by dredging through the middle and outer reefs, thereby cutting off the continuity of the reef and potentially impeding successful asexual reproduction (Ken Banks, Ph.D., Broward County, pers. comm., June 23, 2011).

Based on the information provided, NMFS believes the proposed action would undermine the key conservation objective (i.e., facilitating successful reproduction) and potentially hinder the recovery of threatened corals. Consequently, the proposed action is likely to adversely modify designated critical habitat for elkhorn and staghorn coral. NMFS will evaluate potential effects from the proposed project on elkhorn and staghorn coral and their designated critical habitat in our biological opinion. The loss of elkhorn and staghorn coral critical habitat due to the proposed action would be permanent and would not be offset by any form of mitigation. NMFS requests an analysis to determine how this potential “sink” effect (basically separating the critical habitat) would affect the critical habitat’s ability to conserve the species.

Effects of turbidity and sedimentation on corals. The analysis presented in Section 4.5.14.22 needs to be updated with additional literature from locally relevant studies. The interim Draft EIS states “a review of four [dredging] projects [in south Florida, including the Florida Keys] found that using Best Management Practices for turbidity and sedimentation control (e.g., ceasing dredging when turbidity levels exceed permitted standards) are protective of the coral and hardground environments surrounding south Florida sand borrow sites and navigation channels.” NMFS notes that permit SAJ-2003-00203 for the Key West harbor dredging project includes a more stringent turbidity limit (15 Nephelometric Turbidity Units, or NTUs) than what is normally required by the State of Florida. The basis for this requirement was research conducted by Telesnicki and Goldberg (2005) on two Florida coral species (*Dichocoenia stokesii* and *Meandrina meandrites*) that measured the photosynthetic and respiratory responses of corals subjected in the laboratory to turbidity ranges of 7 to 9, 14 to 16, and 28 to 30 NTU. By day four for *D. stokesii* and day three for *M. meandrites*, corals exposed to 14 to 16 NTU significantly differed from controls. In both cases, this level of turbidity produced a photosynthesis to respiration (P:R) ratio very close to 1.0; the ratio then declined to a ratio of less than 1.0 after six days. The stress from this level of turbidity also induced mucus production. The researchers concluded “while other species of scleractinians may have different reactions to turbidity, our data suggest that the standard of 29 NTU above background is not conservative and should be re-evaluated.” These researchers’ findings are relevant to the Port Everglades project. Due to the presence of both corals within the project footprint (DCA 2006; NMFS 2011), NMFS believes that a more conservative turbidity standard is warranted for the Port Everglades project and other dredge and fill projects in southeast Florida that occur in close proximity to coral reefs. Furthermore, the most recent and most local (Broward County) sedimentation study (Jordan et al. 2010) is not referenced in the interim Draft EIS. Jordan et al. (2010) concluded that sampling stations within close proximity to dredging in sand borrow areas exhibited higher collection rates and lower percent fines when compared to control stations. A thorough review of sedimentation effects on corals is also provided in this paper. NMFS recommends that the findings from Jordan et al. (2010), be summarized in this discussion as well.

Additionally, in this section of the interim Draft EIS, several unsubstantiated statements are made that should be removed unless supported by citation. For example, the interim Draft EIS states “the examples of adverse effects of turbidity and sedimentation on coral species often cited by resource managers are commonly projects in third world countries without the strict water quality protections that are in place in the U.S.” No studies are referenced to support this statement. The interim Draft EIS further states that these water quality protections are also protective of coral species, including *Acropora spp.* and its designated critical habitat, located near dredging operations. This statement should be supported by an appropriate reference.

NMFS believes the interim Draft EIS does not accurately characterize the results of Rogers (1983). While this reference is not provided in the literature cited, NMFS presumes the reference is to work in Puerto Rico where the sublethal and lethal effects of sedimentation were examined on five Caribbean coral species, including elkhorn coral and staghorn coral. Rogers (1983) found that elkhorn coral was the least tolerant of the species tested. Immediately after a single application of sediments (200 mg per square cm), the three elkhorn coral colonies released fine strands of mucus. After 6 days, algae were already growing on the smothered portions, both on the bleached sections of the corals and on the sediment accumulations. These colonies never recovered. While elkhorn coral was found to be the least tolerant of the species Rogers tested, staghorn coral fared better, presumably due to its cylindrical branches and almost spherical morphology. NMFS believes it is misleading to combine elkhorn and staghorn coral when discussing sedimentation effects. In addition to discussing the effects of sedimentation on staghorn coral, the interim Draft EIS should mention the less favorable results of Rogers’ experiments on the more sensitive elkhorn coral.

Coral reef mitigation. The mitigation proposed to offset the coral reef impacts is insufficient. While the deployment of boulder piles has been a practice in southeast Florida for coastal construction projects authorized by the Jacksonville District, there are no studies available that show that the creation of boulder piles can return ecological services similar to those that would be lost due to dredging the Middle and Outer Reefs. Considering the unprecedented scale of the planned coral reef impacts, NMFS believes the COE should invest additional effort in working with coral reef stakeholders to develop a mitigation plan that could adequately offset the magnitude and extent of coral reef impacts that would result from this project. NMFS is aware of several coral reef restoration and enhancement opportunities that may be relevant; for example, coral reef enhancement and restoration through tire removal³, water quality improvements⁴, creation of a coral nursery and outplanting, restoration of orphaned grounding or anchor drag sites, or a combination of these activities. NMFS encourages the COE to collect the necessary information beyond what has been collected to date by other agencies or universities to pursue these opportunities further.

A scientifically sound mitigation plan should be developed with substantive input from resource trustees. The plan should clearly document though appropriate use of functional assessments and analytic tools (e.g., Habitat Equivalency Analysis and Florida’s Unified Mitigation Assessment Method) that the injuries to the coral reef framework and biological communities would be offset

³ This mitigation option was vetted through the Port Everglades Reef Group during 2002-2005 (DCA 2005)

⁴ This mitigation option was vetted through the Port Everglades Reef Group during 2002-2005 (DCA 2005)

through the compensatory action(s). The plan should also be developed to ensure that appropriate coral species and size classes are scalable to the amount and type of coral reef mitigation that is planned (see NMFS 2011, Section 6.4). Furthermore, the mitigation plan should describe how the work would fully adhere to the Council on Environmental Quality's Appropriate Use of Mitigation and Monitoring Guidance (CEQ 2011) and the Army Corps of Engineers and Environmental Protection Agency's mitigation rule (33 CFR Parts 325 and 332/40 CFR Part 230).

Sea turtles and coral reefs. In addition to being an EFH-HAPC and designated critical habitat for elkhorn and staghorn coral, the coral reefs offshore from Broward County provide foraging and resting habitat for sea turtles that are listed under the ESA. Coral reefs are widely recognized as the resident foraging habitat of juvenile, subadult, and adult hawksbill sea turtles (*Eretmochelys imbricate*) (NMFS and FWS 1993). NMFS also recognized the importance of coral reefs as resting and foraging grounds for loggerhead sea turtles (*Caretta caretta*) (NMFS and FWS 2008). In the second revision to the Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle, NMFS states that the "negative impacts of dredging include destruction or degradation of habitat and incidental mortality of sea turtles" (NMFS and USFWS 2008). The proposed action would adversely affect foraging and resting habitat for loggerhead and hawksbill sea turtles. NMFS requests an analysis of how the proposed work (i.e., the permanent removal of coral reef habitat) may affect the various life stages of hawksbill and loggerhead sea turtles that are associated with coral reefs.

Coral reef terminology. Consistency is needed on how coral reefs are referenced in the EIS. In some instances, as many as nine different terms are used to describe the same feature. For example, for the feature NMFS refers to as the "Outer Reef," the EIS refers to this as: outer terrace (pg 102), outer tract (pg 142), third reef (pg 166), outer reef (pg 38), third outer reef (pg 31), Terrace 3 (pg 102), coral reef (page 193), hardbottom and reef communities (page 144), and low relief and high relief hardbottom (pg 145). Calling the same feature many different names is not technically correct and is confusing to the reader. NMFS recommends using the habitat classifications tied with the development of the coral reef maps. This is further supported by the terminology described in Moyer et al. (2003); Banks et al. (2007); Walker et al. (2008a); Walker et al. (2008b); and Collier et al (2008). These peer-reviewed publications should be the basis for the terminology.

The need for a contingency plan to adaptively respond to unauthorized coral reef impacts. As evidenced in the Key West channel dredging project (2004 to 2005), dredges can drift outside of the channel and damage sensitive benthic resources. In this case, the hopper dredge drifted outside of the channel limits, and the drag arm damaged NOAA trust resources within the NOAA Florida Keys National Marine Sanctuary in the Sanctuary. Due to the possibility of human error and the presence of coral reef communities immediately adjacent to the Port Everglades channel, it would be prudent to develop a contingency plan to avoid or minimize damage to NOAA's trust resources should an incident transpire similar to what occurred in Key West. The commitment to develop such a plan should be provided in the EIS.

Seagrass Impact Assessment and Compensatory Mitigation

Seagrass habitat area and calculation of seagrass impacts. NMFS (2011) used survey data from 2001, 2006, and 2009 to determine there are 19.45 acres of seagrass habitat in the project area (i.e., the project footprint and adjacent areas). A cumulative analysis of these seagrass surveys to yield the amount of seagrass habitat is supported by the best available scientific information on the biology of seagrass species present in the Port Everglades area. For example, Virmstein et al. (2009) concludes that the expansion and contraction of seagrass beds, also referred to as “pulsating patches” may be a long-term survival strategy of *Halophila johnsonii*. Summary information on the best available science on this issue can be found in NMFS 2011 (Section 2.1.1).

The interim Draft EIS does not clearly describe how the COE determined that the extent of impacts to seagrass habitat is 4.01 acres. Based on the results described in NMFS (2001), we believe that the interim Draft EIS substantially underestimates the amount of seagrass habitat that would be impacted through the planned dredging. Furthermore, seagrass habitats documented in the Outer Entrance Channel (1.04 acres) and indirect impacts to seagrass are not quantified or considered as environmental consequences. For each seagrass impact area, please identify the impact polygon on a map and provide a narrative that explains how the impact area was calculated. The impact amounts should be based on cumulative seagrass area. Please also provide a detailed description of the type of direct and indirect impact. For this purpose, please also include an evaluation of seagrass impacts that would result from the equilibration of channel side slopes. The EIS should clearly describe where these impacts will occur and how much seagrass is present in these areas.

Seagrass mitigation. The restoration planned to be performed by Broward County at West Lake Park is proposed for use as compensatory mitigation for seagrass and mangrove impacts associated with the Port expansion. However, the restoration was not set up as a permittee-responsible mitigation area (PROMA) or other type of mitigation bank when NMFS completed its EFH review of the restoration work under SAJ-2002-0072 (IP-LAO)⁵. A mitigation banking instrument or PROMA instrument should be developed and coordinated with NMFS for review and approval. At a minimum, the PROMA instrument should describe the available credits⁶, how they were determined, and the credit release schedule. In addition, NMFS requests to be provided the results from a functional assessment that shows the habitats impacted in order to complete the restoration work to demonstrate that impacts have been adequately mitigated and any other habitat tradeoffs in EFH will result in a net benefit to fishery resources.

Furthermore, seagrass habitats located closer to the Port Everglades Inlet likely provide different functions than seagrass habitats located in more interior areas of the Port. The seagrass habitats at West Lake Park, which is located further away from the inlet and coral reefs, would not

⁵ Special condition 16 of the permit authorized by the Jacksonville District for West Lake Park acknowledges that the restoration work may be used as compensatory mitigation for Broward County projects. Special condition 17 describes how mitigation credits could be accounted for through post-restoration monitoring and permit modification.

⁶ The South Florida Water Management District determined that 2.2 functional credits are available at West Lake Park, however the EIS Executive Summary (page iv) states that 3 functional units from West Lake Park would be needed. In contrast, the Mitigation Plan (page 11) states that 1 functional unit would be needed.

provide the same ecological services as the seagrass impacted through the expansion. This issue should be examined in the Draft EIS and through a functional assessment.

Alternatives and Objectives

The 2008 version of the interim Draft EIS did not identify objectives of the feasibility study. When NMFS agreed to participate as a cooperating agency, the COE stated the purpose of the project was to (1) evaluate potential project designs to provide increased safety, (2) enable efficiency and lower costs for future port navigation and utilization, and (3) protect the environment to the maximum extent practical while meeting the stated goals of the feasibility study. The current version of the interim Draft EIS presents revised objectives that include (1) decrease costs associated with vessel delays from congestion, channel passing restrictions, and berth deficiencies at Port Everglades, (2) decrease transportation costs through increasing economies of scale for cargo and petroleum vessels at Port Everglades, and (3) increase channel safety and maneuverability at Port Everglades for existing vessel use as well as for larger vessels, through the year 2067. Notably, the commitment to environmental protection is missing from the revised project objectives.

The 2008 version of the interim Draft EIS evaluates seven alternatives, whereas the current version thoroughly reviews only two alternatives, the Tentatively Selected Plan (TSP) and the No Action Alternative. Five alternatives were not thoroughly reviewed in the current version of the interim Draft EIS and now are proposed for elimination. This approach does not present a full, balanced review of alternatives. For example, the interim Draft EIS only presents disadvantages associated with the Lightering Alternative and concludes that lightering is not under the jurisdiction of the District, yet this alternative is not included in Section 2.6: Alternatives not within the jurisdiction of the lead agency.

An additional example is from statements provided to justify elimination of the Offshore Petroleum Alternative from further examination. The interim Draft EIS says the COE was unable to identify a pipeline route and a deepwater anchorage area that would avoid coral reef and hardbottom habitats, but there is no discussion of how the U.S. Maritime Administration was able to identify such areas in their EIS for the nearby Calypso Deepwater Port. The interim Draft EIS also inaccurately characterizes other issues with this alternative as intractable, when in fact they were resolved in the Calypso project, e.g., constructing the pipeline in the Navy exclusion area and increasing congestion and traffic were resolved in this particular example.

In response to our review of the 2008 version of the interim Draft EIS, NMFS recommended the COE fully evaluate an alternative or combination of alternatives that evaluates the potential to install a NOAA National Ocean Service Physical Oceanographic Real Time System (PORTS), a modified version of PORTS, or other current tracking system. In response to this, the COE indicates they will not consider a PORTS alternative and they cite information on the ineffectiveness of an Acoustic Doppler Current Profiler in the entrance channel (which alone does not constitute a PORTS). In the past, the COE has cited discussions with pilots and real time data issues; however, discussions NOAA staff has had with the pilots do not corroborate the elimination of a PORTS for this reason. NMFS continues to recommend the COE fully evaluate a PORTS as an alternative and in combination with other alternatives.

Further, the interim Draft EIS states that “should any of the cooperating agencies choose to provide a detailed analysis of any of these alternatives for incorporation into the EIS, they are invited and encouraged to do so.” This was not presented to cooperating agencies as an expectation when we agreed to serve in this capacity, nor were we aware that the project objectives and resulting elimination of alternatives would change so drastically that this might be necessary. Considering the expedited schedule for moving forward with the interim Draft EIS and due to staffing and funding constraints, NMFS is not prepared to perform as a cooperating agency in this capacity.

EFH Assessment

The information provided in the interim Draft EIS does not meet the requirements of the EFH provisions of the Magnuson-Stevens Act. While the COE may choose to integrate the required components of an EFH Assessment into various parts of the EIS, the various components of the interim Draft EIS as presented do not meet the requirements of 50 CFR 600.920(e)(3) and (4). NMFS would like to work with the COE to ensure that the requirements found at 50 CFR 600.920(e)(3) and (4) are included in the Draft EIS. Notably missing are items that pertain to the analysis of the potential adverse effects of the action on EFH and the managed species, the COE’s conclusions regarding the effects of the action on EFH, and details regarding proposed mitigation. In addition, pertinent literature is missing from the interim Draft EIS (see the literature cited for this letter and in NMFS 2011). Also a thorough analysis of alternatives to the proposed action is missing (see section above).

Endangered Species Act Section 7 Consultation

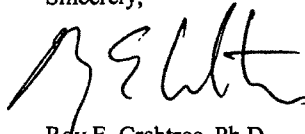
There are numerous references in the interim Draft EIS to NMFS’ opinion concerning how the proposed work may affect listed species and critical habitat under our purview. In our previous review of the 2008 interim Draft EIS, NMFS asked the COE to remove “placeholders” that were included in the document referencing NMFS’ concurrence or NMFS’ biological opinion concerning this project. To date, NMFS has not received all of the information needed to evaluate potential effects of the proposed work on listed species and critical habitat under our purview; therefore, it is inappropriate and incorrect to reference NMFS’ opinion in a public document given that we have not even received all of the information needed for our analysis. NMFS reiterates our request that such references to “NMFS’ concurrence” and “NMFS’ biological opinion” be removed from the EIS until those are obtained.

Closing

In view of the expectation that the EIS will be released to the public in January 2012, NMFS hopes the COE will soon propose a schedule to coordinate with us to fully address all of the above listed items, in addition to the other important issues identified in the enclosed matrix. Please direct inquires and correspondence related to the EFH consultation under the Magnuson-Stevens Act to the attention of Ms. Jocelyn Karazsia at (561) 616-8880, extension 207, or Jocelyn.Karazsia@noaa.gov. For further endangered and threatened species

coordination on this project, please contact Audra Livergood at (954) 356-7100 or at Audra.Livergood@noaa.gov.

Sincerely,



Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosures: Additional SERO comments on the EIS

cc:

F/SER3, David Bernhart, Audra Livergood
F/SER, David Keys, Noah Silverman
F/SER4, Miles Croom, David Dale
F/SER47, Jocelyn Karazsia

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NOAA NMFS PRD Comments
Interim DEIS
(VERSION 2: July 7, 2011)
PORT EVERGLADES FEASIBILITY STUDY DRAFT EIS
COMMENTS REVIEW MATRIX

These comments supplement the issues addressed in our letter dated July 7, 2011

AGENCY	COMMENT No.	SECTION/ PAGE/Line	COMMENTOR/ OFFICE	COMMENT	RESPONSE
NMFS SERO				It remains difficult for NMFS to fulfill our responsibility as a cooperating agency (or the intent of 40 CFR 1501.6 and 1508.5) due to the District's reluctance to substantively address the comments we provided during our review of the initial EIS in March 2008. To illustrate this point, less than 20% (approximately 33 out of 180) of our comments are fully addressed in the latest version of the EIS. NMFS invested considerable time in the 2008 review and in this review, and as a cooperating agency, we fully expect the District to carefully consider our comments and recommendations. In this regard, please address all the comments listed below, in addition to the comments we provided in March 2008. The latter set of comments is not re-stated here.	
NMFS PRD			Livergood/PRD	NMFS recommends that the dredge contractor and associated personnel participate in a resource awareness training prior to commencement of construction. We envision training similar to the training required for the Broward County Shore Protection Project (Segment III). The COE may wish to consider this type of training as a Conservation Measure that would potentially benefit ESA-listed species and other NMFS' trust resources.	
NMFS PRD		Exec Summ/iv/3	Livergood/PRD	DEIS states, "Pre-treatment of rock substrates may be necessary. Appropriate measures to safeguard protected species during this process will be undertaken." This is vague. Please elaborate on what is meant by "appropriate measures to safeguard protected species."	
NMFS PRD		Exec Summ/iv/21	Livergood/PRD	An up-to-date estimate (based on 2009 survey data) of the total acreage of areas that contain <i>H. johnsonii</i> (i.e., Seagrass Assessment Areas 2, 4, and 5, based on 2009 survey data). For the purposes of quantifying adverse effects on <i>H. johnsonii</i> , NMFS requests that the impact estimate be based on implementation of the Recommended Alternative, as described in the DEIS.	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	Exec Summ/iv/23	Livelihood/PRD	<p>PRD has significant concerns with the proposed widening and lengthening of the Outer Entrance Channel. These impacts constitute new dredging that will permanently remove portions of the middle and outer reef. According to the DEIS, approximately 15.35 acres of coral reef habitat would be directly impacted (i.e., permanently removed) by dredging and 91.29 acres of coral reef may be indirectly impacted (note that these estimates do not include the potential for additional reef impacts associated with anchor/cable placement from a cutterhead dredge). This coral reef habitat is both EFH-HAPC and designated critical habitat for threatened elkhorn coral (<i>Acropora palmata</i>) and staghorn coral (<i>Acropora cervicornis</i>).</p> <p>In 2008, NMFS determined that the key conservation objective for threatened elkhorn and staghorn corals is facilitating increased incidence of successful sexual and asexual reproduction. In order to facilitate increased incidence of successful reproduction, NMFS determined that the feature essential to the conservation of these species is substrate of suitable quality and availability to support successful larval settlement, recruitment, and reattachment of fragments. NMFS defined "substrate of suitable quality and availability" as "natural consolidated hard substrate or dead coral skeleton that is free from fleshy or turf macroalgae cover and sediment cover" (73 FR 72210). The coral reefs offshore from Broward County, Florida, provide suitable substrate necessary to meet the key conservation objective of facilitating increased incidence of successful sexual and asexual reproduction. Therefore, these reefs provide the feature essential to the conservation of threatened elkhorn and staghorn coral. Staghorn and elkhorn coral can reproduce sexually (via broadcast spawning) and asexually (via fragmentation). Perhaps the Port Everglades entrance channel acts a "sink" or trench whereby coral fragments attempting to migrate north or south along the contiguous linear reef fall into the channel and are no longer viable (Dr. Ken Banks, Broward County, pers. comm., 6-23-11). The proposed action may exacerbate the "sink" effect by dredging through the middle and outer reefs, thereby cutting off the continuity of the reef and potentially impeding successful asexual reproduction. Hence, the proposed action undermines the key conservation objective (i.e., facilitating successful reproduction) and potentially hinders the recovery of these threatened corals. Based on the preceding, the proposed action is likely to adversely affect designated critical habitat for elkhorn and staghorn coral. NMFS will evaluate potential effects from the</p>
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COMMENTS REVIEW MATRIX, *cont'd.*

				<p>proposed project on elkhorn and staghorn coral and their designated critical habitat in our biological opinion. The loss of elkhorn and staghorn coral critical habitat due to the proposed action would be permanent and would not be offset by any form of mitigation. NMFS requests an analysis to determine how this potential "sink" effect (basically separating the critical habitat) would affect the critical habitat's ability to conserve the species.</p>
NMFS PRD	Exec Summ/iv/23	Livergood/PRD		<p>DEIS states the proposed work includes the removal of 15.35 acres of hardbottom and reef habitats. Coral reefs are widely recognized as the resident foraging habitat of juvenile, subadult, and adult hawksbill sea turtles¹. NMFS also recognized the importance of coral reefs as resting and foraging grounds for loggerhead sea turtles². In the second revision to the Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (<i>Caretta caretta</i>), NMFS states that the "negative impacts of dredging include destruction or degradation of habitat and incidental mortality of sea turtles" (NMFS and USFWS 2008). The proposed action would adversely affect foraging and resting habitat for loggerhead and hawksbill sea turtles. NMFS requests an analysis of how the proposed work (i.e., the permanent removal of coral reef habitat) may affect the various life stages of hawksbill and loggerhead sea turtles that are associated with coral reefs.</p>

¹ National Marine Fisheries Service and U.S. Fish and Wildlife Service 1993. Recovery Plan for Hawksbill Turtles in the U.S. Caribbean Sea, Atlantic Ocean, and Gulf of Mexico. National Marine Fisheries Service, St. Petersburg, Florida

² National Marine Fisheries Service and U.S. Fish and Wildlife Service 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*) Second Revision. National Marine Fisheries Service, Silver Spring, Maryland

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		Exec Summ/iv/28 & 29	Livergood/PRD	DEIS states, "No direct impacts to protected species are anticipated." However, line 21 states, "unavoidable impacts include removal of 3.6 acres of protected Johnson's seagrass." Johnson's seagrass is a threatened species, protected under the ESA, and it would be directly impacted by proposed dredging. NMFS disagrees with the statement that no direct impacts to protected species are anticipated. We suggest deleting "no direct impacts to protected species are anticipated."	
NMFS PRD		Exec Summ/iv/30	Livergood/PRD	DEIS states, "the West Indian manatee population may have less forage available due to removal of seagrasses." NMFS notes that adult green sea turtles, protected under the ESA, also forage on seagrasses and may be indirectly affected due to loss of foraging habitat.	
NMFS PRD		Exec Summ/iv/30 & 31	Livergood/PRD	DEIS states, "No long-term impacts to water quality are anticipated due to turbidity monitoring and dredge shut-down protocols." Please specify what is the trigger for a dredge shut down for this particular project.	
NMFS PRD		Exec Summ/iv/34-36	Livergood/PRD	DEIS states, "USACE has proposed the following: (a) mitigate for the removal of 4.01 acres of seagrass and (b) the loss of 1.16 acres of mangroves in the project footprint (including within the channel and resulting side slopes) through use of an ongoing habitat improvement project at West Lake Park." The text "including within the channel and resulting side slopes" seems to refer to mangroves, but presumably this text should refer to seagrass impacts. Suggest moving this text up so it reads "(a) mitigate for the removal of 4.01 acres of seagrass (including within the channel and resulting side slopes)..."	
NMFS PRD		Exec Summ/iv/41-44	Livergood/PRD	As per the DEIS, USACE proposes to mitigate for the loss of approximately 15.35 acres of coral reef habitat by creating 16.74 acres of high-profile artificial reef habitat and 11.39 acres of low-profile hardbottom habitat. NMFS' position is that all 15.35 acres constitutes coral reef habitat (EFH-HAPC) and designated critical habitat for elkhorn and staghorn coral. The loss of approximately 15.35 acres of elkhorn and staghorn coral critical habitat would be permanent and would not be offset by mitigation.	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		2.7/47/10	Livergood/PRD	What is the estimated duration of construction? In the event that a clamshell dredge is used, will the COE require the contractor to use a sealed (or closed) bucket? A sealed bucket was used during the Key West Harbor dredging project in order to reduce the loss of dredged material from the bucket, thereby reducing turbidity in the water column. NMFS recommends use of a sealed bucket as a best management practice for this project.	
NMFS PRD		2.9.2.1/49/40	Livergood/PRD	DEIS states "Silt curtains may be deployed around the dredge if water quality standards cannot be met using operational controls." NMFS recommends silt curtains not be used in offshore areas where they are ineffective and may damage trust resources if they become detached and mobile.	
NMFS PRD		2.9.2.1/51/2	Livergood/PRD	DEIS states "A project-specific biological assessment has been developed for the Port Everglades project that includes the use of a hopper dredge as a construction technique (Appendix F)." NMFS received the biological assessment (BA) in 2004. The BA does not include up-to-date impact estimates for Johnson's seagrass (NMFS 2011 and DCA 2009) nor does it include species listed (elkhorn and staghorn coral) and critical habitat designated (for elkhorn and staghorn coral) since 2004.	
NMFS PRD		2.9.2.2/52/49-51	Livergood/PRD	In the event that a cutterhead dredge is used, will the dredge spud down within the project footprint? Does the COE anticipate spudding impacts to benthic resources located outside of (i.e., adjacent to) the project footprint? NMFS supports the avoidance/minimization measures listed on page 58 of the DEIS (i.e., use of surge buoys and restricted anchor placement).	
NMFS PRD		2.9.2.2/58/1-15	Livergood/PRD		

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		2.9.3.1/64/16-32	Livergood/PRD	DEIS states "The primary environmental impact of spudding or hydrohammer is noise and vibration. This constant pounding would serve to disrupt marine mammal behavior in the area, as well as impact other marine species. Using the punch barge will also extend the length of the project...Punch barging was previously attempted, unsuccessfully, at Port Everglades in 1981...The operation was very noisy and the vibration of the chisel on bottom caused direct impact to nearby structures, including homes (Alan Sosnow, pers. comm.)." Based on the preceding, is the COE eliminating spudding, hydrohammer, and punch barging from further consideration?
NMFS PRD		2.9.3.2/71/33	Livergood/PRD	DEIS states "Because of the potential duration of the blasting and the proximity of the inshore blasting to a seasonal manatee high use area (Port Everglades FPL discharge canal), a number of issues will need to be addressed." What is the potential duration of the blasting?
NMFS PRD		2.9.3.2/74/21	Livergood/PRD	Will the contractor be required to do pre-blasting charges (this was done in the Miami Harbor phase II project)?
NMFS PRD	2.9.5/76-81/35-50 (p.76) and 7-22 (p.79) and 1-17 (p.81)		Livergood/PRD	NMFS understands the purpose of the proposed "environmentally friendly bulkheads" (i.e., to minimize erosion to mangrove habitats from large ship wakes); however, the DEIS lacks sufficient information to fully evaluate potential effects on listed species from the bulkheads themselves and from construction of the bulkheads. For example, will the bulkheaded riprap be placed in water that is less than 1 meter deep? Will the bulkheads be designed with breaks in the riprap that are large enough to permit access by juvenile sawfish? Will the use of barges and/or the proposed piles impact Johnson's seagrass? Will the submerged riprap impact Johnson's seagrass? Will the staging areas impact mangroves? Will the proposed blasting be confined? Will there be a monitoring plan for protected species? Will the proposed dredging for the sideslope excavation impact Johnson's seagrass?

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		3.5.2/87/46	Livergood/PRD	DEIS states that Type 1 mangroves provide "minimal benefits to wildlife or protected species..." What is the basis for this statement? No citation is provided. Based on reviewing the DEIS and the EFH Assessment (Appendix H), NMFS understands that Mangrove Assessment Area #2 is part of the proposed action. As per the DEIS, Mangrove Assessment Area #2 is comprised of Type 1, 2, 3, and Type 4 mangroves associated with John U. Lloyd State Park (DEIS, pp. 87-88). Red mangroves are present within Type 1-4 mangrove communities (DEIS pp. 87-88). Red mangroves and shallow water less than 1 meter in depth provide habitat for smalltooth sawfish, particularly small and very small juveniles (74 FR 45353). It is unclear whether smalltooth sawfish are able to access red mangrove habitats that fall under Types 3 and 4. Please include a statement in the next version of the DEIS that clarifies whether gaps are currently present in the riprap of adequate size to allow smalltooth sawfish access to Type 3 and 4 mangrove areas. In addition, please include a statement in the next version of the DEIS stating whether shallow water habitat (less than 1 meter in depth) adjacent to red mangroves would be impacted by the proposed action and if impacts are proposed, please quantify impacts to shallow water habitats.	
NMFS PRD		3.5.2/88/8-22	Livergood/PRD	Figure 43 in the DEIS is pulled directly from the EFH Assessment (see Figure 1 in EFH Assessment); however, in Figure 1, the legend is labeled "Seagrass Distribution 2006." This label was deleted from Figure 43 in the DEIS. It is not clear why the label was deleted. NMFS recommends re-inserting the label so it is clear to the reader that both Figure 43 in the DEIS and Figure 1 in the EFH Assessment depict seagrass distribution in 2006 within the Port Everglades study area.	
NMFS PRD		3.6.1.2/94/1	Livergood/PRD		

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		3.6.2.101/42-44	Livergood/PRD	DEIS states, "Three first terrace sites FTL 4, FTL 5, and FTL 6 are known to have unusually high coral cover and FTL 6 is dominated by <i>Acropora cervicornis</i> ." These Broward County monitoring stations are not located on the "first terrace" they are located on the nearshore ridge complex (Ken Banks, Broward County, pers. comm. via e-mail on 6-21-11). "First terrace" should be replaced with "nearshore ridge complex" in the DEIS.
NMFS PRD		3.7.2.1/109/26-28	Livergood/PRD	DEIS states, "Seagrass surveys conducted for the project (DCA 2000, 2001, and 2006) found that <i>H. johnsonii</i> occurs within the SAC and DCC." NMFS requests that the DEIS be updated to reflect the 2009 survey effort as well as past survey efforts. As per the DCA 2009 survey report, <i>H. johnsonii</i> was also found in the NTB (see Figure 5 in DCA 2009 report).
NMFS PRD		3.7.2.2/109/40-41	Livergood/PRD	DEIS states smalltooth sawfish were once common in Florida as detailed by the draft Smalltooth Sawfish Recovery Plan (NMFS 2006). Please update the DEIS to reflect the Final Recovery Plan, which was published in the FR on Jan. 21, 2009 and is available at http://www.nmfs.noaa.gov/pr/pdfs/recovery/smalltoothsawfish.pdf
NMFS PRD		3.7.2.13/123/42-43	Livergood/PRD	DEIS states, "NMFS PRD leadership agreed that a modified methodology for surveying for <i>Acropora</i> spp. in 13 federal navigation channels within <i>Acropora</i> spp. critical habitat was warranted." NMFS notes that this may have been discussed at a previous meeting but an agreement (such as an MOA) was never made in writing.
NMFS PRD		3.7.2.13/124/Figure 48	Livergood/PRD	The nearshore ridge complex is notably absent from the <i>Acropora</i> spp. survey area even though the ridge complex contains suitable substrate essential to the conservation of elkhorn and staghorn coral (i.e., the essential feature) and the ridge complex is located north and south of the channel within the 150-meter indirect impact area as shown on Figure 48 in the DEIS. NMFS requests an explanation as to why portions of the nearshore ridge complex located within the indirect impact area were not surveyed for elkhorn and staghorn coral.
NMFS PRD		4.3.2/142/Table 22	Livergood/PRD	In Table 22, the impact calculation for <i>H. johnsonii</i> (sum of areas containing only <i>Hij</i> and areas of mixed SAV with <i>Hij</i>) is 3.57 acres. Does this calculation reflect the best available information (i.e., the EFH Assessment also referenced as NMFS 2011 and DCA 2009)? Based on the best available information, NMFS believes potential direct effects to <i>H. johnsonii</i> are approximately 4.05 acres. The DEIS should be updated to reflect the best available information.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		4.4.2.2/145/2-3	Livergood/PRD	DEIS states "This hardbottom provides an important habitat for many fish and invertebrate species." In addition to providing habitat for fishes and invertebrates, coral reefs provide foraging and resting habitat for at least two species of sea turtles (hawksbill and loggerhead sea turtles). Juvenile, subadult, and adult hawksbills use coral reefs for foraging and refuge habitat (NMFS 1993). Loggerhead sea turtles are also associated with coral reefs (NMFS and USFWS 2008). Recommend that the DEIS be updated to reflect the importance of coral reef habitat for sea turtles.
NMFS PRD		4.5.1.3/149/19-21	Livergood/PRD	DEIS states "Dredging would result in the removal of up to 3.57 acres of mixed or monoculture Johnson's seagrass habitat where it occurs along the SAC and Widenet." NMFS requests an up-to-date estimate (based on 2009 survey data) of the total acreage of areas that contain <i>H. johnsonii</i> (i.e., Seagrass Assessment Areas 2, 4, and 5, based on 2009 survey data). For the purposes of quantifying adverse effects on <i>H. johnsonii</i> , NMFS requests that the impact estimate be based on implementation of the Recommended Alternative, as described in the DEIS. Based on the best available information (NMFS 2011 and DCA 2009), NMFS believes that the proposed action is likely to adversely affect approximately 4.05 acres of mixed and monoculture <i>H. johnsonii</i> beds. The DEIS should be updated to reflect the best available information.
NMFS PRD		4.5.1.3/149/22-24	Livergood/PRD	DEIS states "Changes in bottom depth through deepening and widening efforts with the Port may limit the amount of available habitat suitable for Johnson's seagrass recolonization." NMFS concurs and would like to add that deepening beyond 3-4 meters - which is the maximum depth of occurrence observed for <i>H. johnsonii</i> (NMFS 2007, Kenworthy 2000, and Hamnerstrom et al. 2006) - is likely to impede post-dredging recolonization of areas that currently support <i>H. johnsonii</i> .
NMFS PRD		4.5.1.3/149/29-35	Livergood/PRD	DEIS states that the COE's impact estimate for <i>H. johnsonii</i> is based on the analysis contained in their 2004 Biological Assessment (BA), which estimates a maximum impact of 3.57 acres of mixed and monoculture <i>H. johnsonii</i> beds. NMFS notes that both the BA and the impact estimate contained therein are very likely outdated and the estimate should be superseded by the best available information (NMFS 2011 and DCA 2009). Based on the best available information, NMFS believes that the proposed action is likely to adversely affect approximately 4.05 acres of mixed and monoculture <i>H. johnsonii</i> beds. The DEIS should be updated to reflect the best available information.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		4.5.5.2/154/9-10	Livergood/PRD	<p>The COE's position, as stated in the DEIS, is that the loss of sea turtle foraging habitat from the proposed action would be offset by the proposed mitigation (i.e., creation of artificial reefs). NMFS disagrees with the COE's position. We do not believe that the creation of artificial reefs would offset the permanent loss of foraging and resting habitat for sea turtles.</p> <p>As a Conservation Measure, NMFS recommends that the dredge contractor be required to use shields on offshore dredge equipment lighting. This may help to avoid or reduce the potential for sea turtles to become disoriented.</p>
NMFS PRD		4.5.5.2/154/35-37	Livergood/PRD	<p>DEIS states "USACE made a determination that the potential impacts to North Atlantic right whales from the project are so unlikely as to be discountable in the Biological Assessment...Based on this information, NMFS issued a concurrence with USACE's determination of may affect, not likely to adversely affect for the proposed project..." We have two comments. First, we recommend that the text "NMFS issued a concurrence with USACE's determination of may affect, not likely to adversely affect for the proposed project" be deleted based on the fact that NMFS has not issued an opinion for the proposed project. Furthermore, both the 1995 and 1997 South Atlantic Regional Biological Opinions issued by NMFS to the COE for hopper dredging activities (and beach nourishment) from North Carolina through Florida East Coast concluded that increases in vessel traffic associated with hopper dredging is likely to adversely affect right whales and humpback whales. The 1995 BO states, "While dredging itself is not likely to be a problem (for whales), the transit of hopper dredges between borrow, channel, and disposal areas is likely to result in increased vessel traffic in the vicinity of humpback and right whales...ship strikes are one of the primary human-caused sources of mortality for both humpback and right whales, and increased vessel traffic may increase the likelihood of whale/vessel interactions." In the 1995 BO, NMFS concluded that right whales and humpback whales may be adversely affected due to increased vessel traffic associated with hopper dredging and disposal of dredged material, but severe impacts can be avoided through continued cooperation between dredge operators and endangered species observers during the seasons whales may occur in the project area.</p>
NMFS PRD		4.5.8/162/11-15	Livergood/PRD	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		4.5.10/163/37-39	Livergood/PRD	See previous comment. This same comment applies to humpback whales.	
NMFS PRD		4.5.14.2.2/169/27-28	Livergood/PRD	<p>The DEIS (page 169) states that a decision was made in consultation with NMFS not to relocate <i>Acropora</i> spp. colonies if any are identified during pre-construction surveys. We believe this may be a typographical error. NMFS has no recollection or record of agreeing not to relocate <i>Acropora</i> spp. colonies. In fact, this contradicts a previous commitment made by the COE. In a letter dated October 18, 2006, from the COE to NMFS, the COE committed to relocating elkhorn and staghorn coral colonies if such colonies were identified during pre-dredging relocation surveys and remediating ESA Section 7 consultation with NMFS (since relocation would constitute take). While we understand that no <i>Acropora</i> spp. colonies have been identified in the direct or indirect impact area to date, it is possible that <i>Acropora</i> spp. colonies exist in the project area and have not been identified by any surveys to date. Therefore, we believe the approach that the COE outlined in their October 18, 2006, is prudent and we consider the COE's commitment to re-locate any <i>A. cervicornis</i> or <i>A. palmata</i> colonies (should any be identified during relocation surveys) to be part of the proposed action.</p> <p>DEIS states "Although there is published literature concerning the effects of sedimentation and turbidity on coral reefs throughout the world, there is a paucity of peer reviewed published data from many recent dredging events that have taken place in southeast Florida." NMFS recommends the COE support the first part of this statement by citing peer-reviewed, published literature on the known effects of turbidity and sedimentation on corals (e.g., Telesnicki and Goldberg 1995, Rogers 1983 and 1990, Dodge and Vainys 1977, Philipp and Fabricius 2002). Furthermore, most of these studies (with the exception of Philipp and Fabricius 2002) examined the effects of sedimentation or turbidity on Caribbean corals and the findings would be relevant for southeast Florida since the species assemblages on Caribbean reefs are similar to those in southeast Florida reefs. Regarding the second part of the statement (i.e., there is a "paucity of peer reviewed published data from many recent dredging events in southeast Florida"), NMFS knows of at least one peer-reviewed study in southeast Florida that examined the effects of sedimentation on adjacent coral reefs in Broward County, Florida (Jordan et al. 2010). In this study, the sedimentation was associated with beach nourishment and dredging activities adjacent to reefs just south of Port Everglades in Segment III. NMFS recommends citing this study in the DEIS.</p>	
NMFS PRD		4.5.14.2.2/169/35-37	Livergood/PRD		

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	4.5.14.2.2/170/1 6-19	Livergood/PRD	<p>DEIS states “A review of four [dredging] projects [in south Florida, including the Florida Keys] found that using Best Management Practices for turbidity and sedimentation control (e.g., ceasing dredging when turbidity levels exceed permitted standards) are protective of the coral and hardground environments surrounding south Florida sand borrow sites and navigation channels.” NMFS notes that the COE permit for the Key West project included a more stringent turbidity limit (15 NTU) than what is normally required in the state of Florida. The basis for this requirement was research conducted by Telesnicki and Goldberg (1995) on two Florida coral species (<i>Dichocoenia stokesii</i> and <i>Meandrina meandrites</i>). The researchers subjected laboratory corals to turbidity ranges of 7-9, 14-16, and 28-30 NTU and measured the corals’ photosynthetic and respiratory responses. Corals exposed to 14-16 NTU were “significantly different” from controls beginning with day 4 in <i>D. stokesii</i> and day 3 for <i>M. meandrites</i>. In both cases, this level of turbidity produced a P:R ratio very close to 1.0 after 3-4 days and less than 1.0 after 6 days. Mucus production was noticeable at this level (14-16 NTU) of turbidity. The researchers concluded, “While other species of scleractinians may have different reactions to turbidity, our data suggest that the 29 NTU standard is not conservative and should be re-evaluated.” These researchers’ findings are relevant to the Port Everglades project. Due to the presence of corals both within and in close proximity to the project, NMFS believes that a more conservative turbidity standard is warranted for the Port Everglades project and other dredge and fill projects in southeast Florida in close proximity to coral reefs.</p>
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COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	4.5.14.2.2/173/1 3-16	Livergood/PRD	<p>Page 173 of the DEIS states, "The examples of adverse effects of turbidity and sedimentation on coral species often cited by resource managers are commonly projects in third world countries without the strict water quality protections that are in place in the U.S." The DEIS further states that these water quality protections are also protective of coral species, including <i>Acropora</i> spp. and its designated critical habitat, located near dredging operations. No citation is provided for this statement. NMFS supports Telesnicki and Goldberg's findings. Specifically, we believe the 29 NTU turbidity standard used in Florida may not adequately protect corals and should be re-examined for dredge and fill projects near coral reefs.</p>	
NMFS PRD	4.5.14.2.2/173/3 7-39	Livergood/PRD	<p>The DEIS mentions Caroline Rogers' work in Puerto Rico. Rogers examined the sublethal and lethal effects of sedimentation on five Caribbean coral species, including elkhorn coral (<i>Acropora palmata</i>) and staghorn coral (<i>Acropora cervicornis</i>). Rogers found that elkhorn coral was the least tolerant of the species she tested. Immediately after a single application of sediments (200 mg cm⁻²), the three elkhorn coral colonies released fine strands of mucus. After 6 days, algae were already growing on the smothered portions, both on the bleached sections of the corals and on the sediment accumulations. These colonies never recovered.³ While elkhorn coral was found to be the least tolerant of the species she tested, staghorn coral fared better, presumably due to its cylindrical branches and almost spherical morphology. NMFS believes it is misleading to lump elkhorn and staghorn coral together when discussing sedimentation effects. In addition to discussing the effects of sedimentation on staghorn coral, the DEIS should mention the less favorable results of Rogers' experiments on the more sensitive elkhorn coral.</p>	
NMFS PRD	4.5.14.2.2/173/4 9-50	Livergood/PRD	<p>DEIS states "we believe adverse effects to <i>A. cervicornis</i> from increased sedimentation will be insignificant. This determination is consistent with NMFS' previous findings in NMFS 2009." The NMFS 2009 citation is missing from the literature cited. It is unclear what document the COE is referencing here. Please add this citation to the literature cited.</p>	

³ Rogers, C. 1983. Sublethal and Lethal Effects of Sediments Applied to Common Caribbean Reef Corals in the Field. Marine Pollution Bulletin, Vol 14, No 10, pp. 378-82

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		4.7/178/14-15	Livergood/PRD	DEIS mentions the Ocean Express Pipeline and the Calypso project in the Cumulative Impacts section. These projects were never constructed and are no longer relevant.	
NMFS PRD		6.2/189/19-24	Livergood/PRD	DEIS states that consultation was initiated with NMFS upon completion and submittal of the Biological Assessment (in 2004). It also references NMFS' biological opinion as an appendix. As previously requested, please remove references to NMFS' biological opinion since NMFS has not yet issued an opinion on this project. In addition, we have not initiated consultation because we do not have all of the information needed to begin consultation.	

COMMENTS REVIEW MATRIX, *cont'd.*

NOAA NMFS HCD Comments

Interim DEIS
(VERSION 2: July 7, 2011)
PORT EVERGLADES FEASIBILITY STUDY DRAFT EIS
COMMENTS REVIEW MATRIX

These comments supplement the issues addressed in our letter dated July 7, 2011

AGENCY	COMMENT No.	SECTION/ PAGE/LINE	COMMENTOR/ OFFICE	COMMENT	RESPONSE
NMFS SERO				It remains difficult for NMFS to fulfill our responsibility as a cooperating agency (or the intent of 40 CFR 1501.6 and 1508.5) due to the District's reluctance to substantively address the comments we provided during our review of the initial EIS in March 2008. To illustrate this point, less than 20% (approximately 33 out of 180) of our comments are fully addressed in the latest version of the EIS. NMFS invested considerable time in the 2008 review and in this review, and as a cooperating agency, we fully expect the District to carefully consider our comments and recommendations. In this regard, please address all the comments listed below, in addition to the comments we provided in March 2008. The latter set of comments is not re-stated here.	
NMFS		Page ii, lines 35-41	HCD	The IDEIS states that USACE will mitigate for the direct removal of 10.37 acres of complex, high-profile, reef habitat through the creation of approximately 16.74 acres of high-profile, artificial reef habitat, and mitigate for the direct removal of 4.97 acres of less complex, low-profile hardbottom habitat by creating 11.39 acres of low-profile hardbottom.	
NMFS		Page iv, line 5	HCD	The terms "high-profile" and "low-profile," have not been used to characterize the coral reefs in the project area. While we understand CESAJ has used these terms on other projects, they are absent from the best available scientific information that characterize the coral reefs in Florida, therefore CESAJ should not continue to use the terms. There also seems to be an assumption that a low-profile coral reef provides lower ecological services than a high profile coral reef. In the absence of information to justify this, NMFS cannot agree with this assumption.	
NMFS		Section 1.3, page 18, 31	HCD	It is our understanding that EPA has not yet approved the ODMDS expansion and the existing capacity cannot accommodate this amount of dredge material, therefore statements such as "dredge disposal will occur at the Offshore Dredged Material Disposal Site west of the Port" are pre-decisional and should be removed until a final decision has been made.	
NMFS			HCD	This section is helpful in describing the project need for the post-Panamax vessels, however more detail on the next generation of oil tankers and cruise ships expected to call on the Port. Please provide the length,	

COMMENTS REVIEW MATRIX, *cont'd.*

				<p>breadth, and maximum draft and width of the next generation of oil tankers and cruise ships – similar to what is provided for the cargo containers. Other references are made to the “future design fleet” however the detail on the design is only provided for post-panamax vessels.</p> <p>In section 2.5.2.1 the trucking alternative is eliminated from further consideration partially because of the design consideration of Aframax (deep-draft petroleum vessels) however the design specifications for the new generation of this vessel type that are expected to call on Pt Everglades are not provided. This information is needed for NMFS to fully evaluate the alternatives.</p>
NMFS	1.3, page 18	HCD		<p>(NMFS identified this as a deficiency in our 2008 review of the iDEIS as well)</p> <p>For data quality purposes a citation should follow the following sentence, otherwise it should be removed: Additionally, NOAA has recognized the unpredictable currents and resultant safety issues at the Port Everglades entrance channel in its annual publication for mariners, “The Coast Pilot”.</p>
NMFS	Missing from the EIS	HCD		<p>A crucial missing piece of information is how far out into the coastal ocean the ebb tide plume is typically advected. NOAA AOML has some data in hand from the ADCPs they have deployed in shallow water in this area, the flows are about evenly divided between north and south (close to shore). Interestingly, the southern directed flows are often more energetic. CESAJ should fully evaluate and study how the plume behaves once it leaves the channel. In considering the fate of materials introduced into the waters of the Port Everglades channel it should be noted that the flow patterns in the channel during the flood tide and the ebb tide are somewhat different.</p> <p>During ebb tide, flow velocities are sufficiently high in the Port Everglades channel that any materials introduced into the channel will be quickly advected seaward to the coastal waters. Momentum will propel these waters eastward for some distance until the ambient coastal currents redirect the flow to (typically) the north or to the south. (Some preliminary data collected by NOAA AOML in this area suggest that, nearshore, coastal currents are roughly, evenly divided between southern flow and northern flow. Further from shore, the currents are more predominantly northern directed.</p> <p>During the flood tides, near surface (depth < 3m) velocities in the channel are often significantly less than the velocities at deeper depths and in some cases, a weak seaward surface flow persists during the landward flood tide flow at depth. Surface waters therefore, may not be driven inland as might be expected if the flow was not vertically stratified. This condition may allow surface water to accumulate in the basin until the next ebb tide or possibly still be transported seaward during the flood tide.</p>
NMFS	Section 1.4, Page 21	HCD		<p>The purpose of this Environmental Impact Statement is to “provide full and fair discussions of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment” (NEPA</p>

COMMENTS REVIEW MATRIX, *cont'd.*

				regulations 40 CFR 1502.1).	
NMFS			Section 1.5, Related Documents	HCD	CESAJ has stated that, as a project sponsor, they are a proponent of the project. It appears that this position has limited the ability of CESAJ to provide "full and fair discussions." The document NMFS HCD prepared is referenced and sections pasted in several sections of the document, please add the following citation to the list: NMFS 2011. Characterization of Essential Fish Habitats in the Port Everglades Expansion Area, 45 pp.
NMFS			Section 1.6, "Study team"	HCD	Less than 20% of the comments NMFS provided in version 1 of the EIS were fully accepted in version 2. Therefore, NMFS feels it is misleading to refer to us as part of a "study team". Several sections of the EIS, i.e., sections that characterize the coral reefs in the project areas and the mitigation plan, would be substantively different if we were actually part of a study team. Please refer to NMFS as a cooperating agency and identify the sideboards of our involvement – i.e., from our October 2007 letter, "providing technical assistance on how impacts to threatened and endangered species and to essential fish habitat (EFH) should be appropriately identified and mitigated". Furthermore, the term "study team" is not used in any section other than this one, therefore there seems to be little value to identifying one.
NMFS			Section 1.8, lines 27 -28	HCD	(NMFS identified this as a deficiency in our 2008 review of the EIS as well) The following sentence seems to be misplaced: "This document serves to initiate formal consultation with NMFS under the provisions of the Magnuson-Stevens Act for potential adverse effects to Essential Fish Habitat (EFH)." The section is named "Permits, Licenses, and Entitlements" and the EFH consultation requirement does not fall under this heading. Suggest re-wording the section heading or deleting.
NMFS			Section 2.1 Objectives	HCD	This section should discuss how the planning objectives have changed over time. According to the information provided, the planning process started in 2001, however the planning objectives have changed substantively in 2004 and 2007. Since the selection and elimination of alternatives is so closely tied to the objectives, more detail should be provided on how objectives have changed over time and the drivers for the change.
NMFS			2.2.2, Measures Considered for Use in Plan Alternatives	HCD	The EIS states that some of the measures (=project components) independently meet all the objectives, other measures meet the objectives when considered combined with other measures, and some measures, e.g., lightering or the north turning basin, the EIS does not state if the objectives are or are not met. After each measure, the EIS should clearly identify with objectives will be met.
NMFS			2.5.2.2, Lightering Alternative	HCD	The conclusion that USCG homeland security issues are significant to the point that eliminating the Lightering Alternative is warranted is not supported by an analysis in the EIS. The EIS inaccurately portrays the memorandum as USCG recommending against Lightering, when in fact the memorandum advised there is a risk associated with these activities. Please provide more detail and necessary revisions to this section.
NMFS			2.5.2.2, Lightering Alternative	HCD	For data quality purposes, the EIS should cite the actual USCG memorandum and not a private consulting firm's website as the citation.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS		2.5.2.2, Lightering Alternative	HCD	The EIS describes elimination of the Lightering Alternative is partially justified because of issues with small vessels (not enough anchor chain, effects of sea state and winds). However, the Lightering Alternative would only be relevant to larger vessels that cannot access the port due to depth and width constraints. The analysis should be revised and updated accordingly.	
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	More text, a figure, or a table should be provided to further describe how three acres of hardbottom and reef habitats were eliminated.	
NMFS		2.7 Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	"Planners reduced the width of the terminus (i.e., the width of the channel at the point where vessels would enter the channel) from 1,000 feet to 800 feet. This reduced the impacts to hardbottom and reef habitats by approximately three acres."	
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	Coral transplantation is planned for an unidentified number of corals greater than 25 cm in diameter or height. In order for NMFS to accept this as a mitigation measure, a detailed plan that includes the number of corals, specific relocation sites, monitoring and performance measures must be provided for our review.	
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	The size class for the relocation of corals (25 cm) is not substantiated. Other CESAJ authorized projects (Broward Segment III, SJA-1-1999-5545) have successfully relocated corals at a much smaller size class. Monitoring reports from this project substantiate the need to relocate scleractinian corals at smaller size classes (6, 7, 8, 9, 10 cm diameter). The corals relocated from this project had a 98% survival success rate at 18-months post-transplantation (NSUOC, 2006).	
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	Nova Southeastern University Oceanographic Center (NSUOC). 2006. Stony Coral Transplantation Monitoring. Fourth Monitoring Report: 18 Month Post-Transplantation Monitoring Event, 40 pages.	
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	The EIS states that the reduction of the time to complete the project is a mitigation measure. Up to this point in the EIS there has been no discussion on this measure. Specifically, what has changed to reduce the construction time?	
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: assurances that the actual cost of all resource agency approved compensatory mitigation and associated monitoring be included in the budget for the project. This cost should also include contingency mitigation and monitoring.	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Relocation of octocorals with a strong central spine (of the genera <i>Gorgonia</i> , <i>Eunicea</i> , <i>Plexaura</i> , <i>Plexaurella</i> , <i>Muricea</i> , or <i>Pterogorgia</i>).	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Through this EIS process, we have learned that CESAJ defines "coordinate" differently than NMFS. Commitments are needed to ensure that CESAJ will work with NMFS and other resource trustees so that our <u>substantive input</u> is included in mitigation and monitoring plans that are relevant to our trust resources.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of the compensatory mitigation plan.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Performance award for completing the project on time and without injury to resources, similar to Key West Harbor Dredging.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of blasting plan and associated biological monitoring (fish kills).	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of biological monitoring plans.	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of plan to monitor (before, after, control, impact) for indirect impacts, i.e., the coral reef habitats deeper than -56 that CESAU does not believe will be directly impacted	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of plans to monitor (before, after, control, impact) for indirect impacts, i.e., the seagrass habitats that would be impacted through equilibration of side slopes, sedimentation, turbidity.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of resource awareness training for all contractors and subcontractors.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of coral reef sedimentation monitoring plan.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of coral reef turbidity monitoring plan.	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	2.9.1, overview of Construction of Recommended Plan (2E)	HCD	For data quality purposes, the actual Act should be the citation and not a personal communication citation in "USACE does not specify types of equipment and construction methods within its specifications due to the requirements of the Competition in Contracting Act, that requires Federal agencies to limit flow specific specifications are written to prevent limiting competition among contractors (C. Tolle, USACE-SAJ Contracting Officer, pers. comm.).
NMFS	2.9.3.2, Confined blasting, page 65	HCD	In order for NMFS not to consider this as a dredge material disposal option, CESAJ should further explain under what circumstances (including rock specification) the following would occur: The harder, consolidated rock obtained from inside the port may be used in the construction of artificial reefs for mitigation.
NMFS	2.9.3.2, Confined blasting, Page 71	HCD	The EIS should acknowledge that some of the assumptions (i.e., that blasting causes minimal effects to biological resources) may not apply in this case since: The San Juan Harbor project's heaviest delay was 375 lbs per delay and in Miami it was 376 lbs per delay. Based on discussions with USACE's geotechnical engineers, it is expected that the maximum weight of delays for Port Everglades will be larger since the rock is much harder than what is seen at the Port of Miami.
NMFS	2.9.5, Other Construction Details, page 76	HCD	In our version 1 comments, we requested design specifications and a map of areas where the "environmentally-friendly bulkheads" are planned. CESAJ indicated "partial concurrence" with this comment. Please provide a map of these areas.
NMFS	2.9.5, Other Construction Details, page 76	HCD	The drawing provided (figure 36) is not sufficient to show that (as stated in the EIS), "the rip-rap would allow sufficient water to pass through the rocks to continue flushing of mangroves located behind them and allow juvenile fishes access to the mangroves. Notches in the rip rap, similar to those at the JUI mangrove areas, may also be able to be installed to allow greater flushing and subsequent access by juvenile fishes." We note that the notches are also not shown on the drawing and these will be critical to determine if fish ingress and egress is possible.
NMFS	2.9.5, Other Construction Details, page 76, line 37	HCD	It is not accurate to state "NMFS... developed an "environmentally-friendly bulkhead (EFB)..." We request the following change (in italics): FWS and NMFS developed <i>the concept of an EFB</i> .
NMFS	3.2, Land Use, page 81, line 45	HCD	For data quality purposes, the most recent census data should be included in the EIS
NMFS	3.5.1, Upland habitat, Page 85	HCD	Fig 39 is not included in the EIS
NMFS	3.5.2, Wetlands, Page 86, line 30	HCD	The report NMFS HCD prepared should be referred to as "Characterization of Essential Fish Habitat in the Port Everglades Expansion Area" or (NMFS 2011). It should not be referred to as an "EFH analysis" (Appendix H)

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	3.5.2, Wetlands, Page 86, line 30	HCD	In the comment above, appendix G (not H) should be referenced.	
NMFS	Page 86, Line 44 Page 88, lines 24-25 page 89, line 38 page 90, line 8 page 91, lines 8, 27, and 47 And anywhere else in the document	HCD	Please change "NMFS EFH Assessment (Appendix H)", to "Characterization of Essential Fish Habitat in the Port Everglades Expansion Area" or (NMFS 2011). Also please list the accurate appendix, where referenced.	
NMFS	3.5.2, Wetlands Figure, 40, page 87	HCD	Please change the caption to: Mangrove Assessment Areas Hatching indicates mangrove habitat and numbered arrows point to assessment areas identified by colored polygon. Figure from NMFS 2011 (and modified from DCA 2001).	
NMFS	3.5.2, Wetlands Page 87, line 25	HCD	This parentheses should include reference to figure 40 and figure 41	
NMFS	3.5.2, Wetlands Figure 41, page 88	HCD	Please add the following to the figure caption: (figure from NMFS 2011)	
NMFS	3.5.2, Wetlands	HCD	The mangrove types referred to in this section is not clear. Is a <i>type</i> a habitat characterization, a particular area, or both?	
NMFS	Several places in the document	HCD	Some revisions were made to the final report (NMFS 2001). Please make sure any sections that have been cut and pasted are from the final version sent to CESAJ on June 3, 2011.	
NMFS	3.6, Marine Resources, Page 92, lines 17-18	HCD	For data quality purposes, the date should be included in all personal communication references	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS		3.6.1.1, Marine Resource Investigations, lines 11-14	HCD	<p>From the EIS: "The 1999 environmental baseline surveys for seagrasses occurred within the project area, which started approximately 1,200 feet north of the Port Inlet south, along the AIWW, to approximately 1,000 feet south of the DCC and along the DCC to Port Denison (DC&A 2000) (Figure 43)."</p> <p>"Port Denison" is not a feature that NMFS is familiar with (nor is it identified in figure 43). Please describe where this is located. NMFS can also add to figure 43, if CESAJ would like.</p>	
NMFS		3.6.1.1, Marine Resource Investigations	HCD	DCA 2000 is missing from the literature cited	
NMFS		3.6.1.1, Marine Resource Investigations	HCD	<p>The EIS states "In 2006 seagrass surveys were conducted in the same project area as 1999 surveys (not including areas further south than ~1,000 feet south of the DCC) (DC&A 2006)."</p> <p>This sentence should be revised to state: <i>In 2006 seagrass transects were placed in areas where seagrass had been previously documented in the 1999 surveys. Transects that did not contain seagrass in 1999 were not resurveyed in 2006. In addition, the 2006 survey did not include areas if the AIWW located more than ~1,000 feet south of the DCC) (DC&A 2006).</i></p> <p>This distinction is important because it is unknown if any areas that were unvegetated in 1991 recruited seagrass in 2006. This is depicted in figure 2 in DCA 2006.</p>	
NMFS		3.6.1.1, Marine Resource Investigations	HCD	<p>In 2009, seagrass surveys were conducted in the same project area as 2006 surveys (not including areas further south than ~1,000 feet south of the DCC) (DC&A 2009, see Appendix D).</p> <p>This sentence should be revised to state: <i>In 2009 seagrass transects were placed in areas where seagrass had been documented in the 2006 surveys (not including areas further south than ~1,000 feet south of the DCC) (DC&A 2006).</i></p>	
NMFS		3.6.1.1, Marine Resource Investigations	HCD	<p>If in 2006 and 2009, reconnaissance surveys were performed for the entire project area, the project area, survey approach, and survey conditions (visibility, etc.) should be described.</p> <p>Please add to the caption: (table from NMFS 2011, Appendix G)</p>	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	3.6.1.2, <i>Seagrass Species Biology and Ecology</i> and figure 43	HCD	Please add to the caption (figure from NMFS 2011, Appendix G)	
NMFS	3.6.1.3, <i>Local Seagrass Biogeography</i> page 96 lines 34-35	HCD	Please change "NMFS EFH Assessment (Appendix H)" to "Characterization of Essential Fish Habitat in the Port Everglades Expansion Area" or (NMFS 2011). Also please list the accurate appendix, where referenced.	
NMFS	3.6.1.4, <i>Water Quality and Local Seagrasses</i> page 96, line 16	HCD	This line refers to NMFS 2011 as Appendix A, please list the accurate appendix, where referenced.	
NMFS	3.6.2, Hardbottom Communities	HCD	This section should be renamed to "Coral Reef" or "Hardbottom and Coral Reef". Several publications (see Reef Terminology section of our letter and Rohmann et. al 2005, in the journal "Coral Reefs") term the feature that is described in this section as "Coral Reef." Not naming it as such appears to be an attempt to avoid calling the feature a reef. Rohmann, S., Hayes, J., Newhall, R., Monaco, M., Grigg, R. 2005. The area of potential shallow-water tropical and subtropical coral ecosystems in the United States. <i>Coral Reefs</i> . 14 pages	
NMFS	3.6.2, Hardbottom Communities	HCD	The first paragraph in this section largely refers to what the coral reef system is not; NMFS recommends this section be revised to characterize the corals reefs in the project area. If CESAJ wants to point out differences between high latitude coral reefs and corals reefs to the south that should be accomplished in another section (not the introductory paragraph in the section that describes coral reefs).	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS		3.6.2, 3.6.2, Hardbottom Communities page 99, lines 8-9	HCD	<p>The characterization of nearshore hardbottom communities off southeast Florida does not include the best scientific information. In particular the statement "These hardbottom areas are comprised of exposed rock with a fine covering of sand" is out-dated and does not reflect the best available information on this habitat type (e.g., CSA 2009 – CESAJ served on the technical advisory team for the preparation of this report).</p> <p>Continental Shelf and Associates. 2009. Ecological Synthesis of Nearshore Hardbottom Habitats in Southeast Florida, 267 pages.</p>	
NMFS		3.6.2, 3.6.2, Hardbottom Communities page 99, lines 7-13 Page 103-104	HCD	<p>Nearshore hardbottom habitats are generally describes as the hardbottom features in 0 to 4 meters water depth (CSA 2009). The portion of the EIS refers to shallow colonized pavement in the nearshore hardbottom as well, which is not accurate.</p> <p>"This habitat is very ephemeral in nature and the species associated with this habitat must be able to quickly recover from the stresses imposed by the environmental conditions." This is an overgeneralization and should be updated with the best available information as found in CSA 2009 (full reference provided in the preceding row).</p>	
NMFS		3.6.2, 3.6.2, Hardbottom Communities page 99, line 43	HCD	<p>For data quality purposes, the following statement should be followed by a citation or deleted: "These communities can be expected to recolonize these areas after future dredging events, as they have done so in the past"</p>	
NMFS		3.6.2, 3.6.2, Hardbottom Communities page 101-103	HCD	<p>Since this section is under revision, we do not see the value in providing line-by-line comments. However if the goal of this section is to provide a characterization of the coral reef habitats in the project area, we recommend CESAJ adopt a similar approach as in the seagrass section which includes use of relevant sections of NMFS 2011.</p> <p>Regardless, this is an important component of the EIS and we recommend CESAJ coordinate this section with cooperating agencies for review prior to the public version of the EIS.</p>	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	3.6.2, 3.6.2, Hardbottom Communities page 103 Lines 48-49	HCD	For data quality purposes, we recommend CESAJ incorporate more recent literature in the EIS. This section states: "These hardbottom communities have been characterized many times in the past (Dodge 1991; Seaman 1985)." Update literature can be found in NMFS 2011. All the references cited in NMFS 2011 were provided to CESAJ in June 2011.
NMFS	3.6.4, Essential Fish Habitat	HCD	The EFH section is incomplete and "under review". Since this section is under revision, we do not see the value in providing line-by-line comments. However if the goal of this section is to provide a characterization of the coral reef habitats in the project area, we recommend CESAJ adopt a similar approach as in the seagrass section which includes use of relevant sections of NMFS 2011.
NMFS	3.7.2.1, <i>Johnson's Seagrass</i> , page 109 line 25-26	HCD	Additionally, this is an important component of the EIS and we recommend CESAJ coordinate this section with NMFS for review prior to the public version of the EIS. The northernmost range of Johnson's seagrass has been extended to 21.5 km north of Sebastian Inlet (Vimstein and Hall 2009).
NMFS	3.10, Hazardous, Toxic, and Radioactive Waste, lines 4-5	HCD	Vimstein, R. W., and Hall, L. M. 2009. Northern range extension of the seagrasses <i>Halophila johnsonii</i> and <i>Halophila decipiens</i> along the east coast of Florida, USA. <i>Aquatic Botany</i> 90: 89-92. This section states: "Sediments sampled within the OEC, IEC, NTB, MTB, and STB have been tested and found suitable for ocean disposal." For data quality purposes, please provide citations from the studies and include the full reference in the literature cited section.
NMFS	3.17, Economics and Logistics, Section Economics and logistics	HCD	This section should be expanded in scope to include economic benefits that natural resources that would be negatively affected provide. Information from: Johns, G. M., Leeworthy, V. R., Bell, F. W., & Bonn, M. A. (2001) <i>Socioeconomic Study of Reefs in Southeast Florida</i> . Final Report. Hazen and Sawyer Environmental Engineers & Scientists Fonseca, M.S., W.J. Kenworthy, G.W. Thayer. 1998. Guidelines for the Conservation and Restoration of Seagrasses in the United States and Adjacent Waters. U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Coastal Ocean Office, 1315 East-West Highway, Silver Spring, Maryland 20910. 222 pp. Web: http://www.cop.noaa.gov . Fonseca, M., Kenworthy, J., Julius, B., Shuttler, S., and Fluke, S. 2000. Handbook of Ecological Restoration. Davy and Perrow, eds. Cambridge University Press. Chapter 7: Seagrasses, 23 pages

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	3.19 Navigation Safety	HCD	This section is under development. An evaluation of NOAA PORTS to increase navigation safety at the port should be included in this section.	
NMFS	4.1, Environmental Consequences	HCD	This section states "See section detailing effects to Essential Fish Habitat where "water column" is noted in order to review effects on surface waters."	
NMFS	4.3, Wetlands	HCD	It is unclear where this information is provided	
NMFS	4.3, Wetlands Page 142	HCD	It is unclear how CESAJ determined 1.16 acres of mangrove would be dredged (direct impact). Also, the EIS does not quantify the indirect impacts to mangroves that would result from equilibration of the side slopes or sedimentation and turbidity. Please update this section accordingly.	
NMFS	4.7, Cumulative Impacts	HCD	Figure 5.1 depicts that the mangroves in the turning notch will be dredged. This contradicts information in the EIS stating that this component of the project has been eliminated	
NMFS	4.7, Cumulative Impacts	HCD	This section presents a narrow review of cumulative impacts. Please add a summary table of habitat impacts by project and habitat type. Please include the habitat impacts for all of the activities that are referred to by reference as well.	
NMFS	4.7, Cumulative Impacts	HCD	CESAJ's conclusion on cumulative impacts, is not supported by any analysis. Please provide the analysis used to determine "USACE anticipates that any cumulative impacts due to past and future projects at the Port and within its vicinity are negligible and not significant."	

Attachment 2

Review of Severe Impacts to Coral Reef and Hardbottom in the Federal Channel
that Would Result from Expansion of Port Everglades
July 31, 2013

Prepared by:

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Brian Walker, PhD, Nova Southeastern University
Jocelyn Karazsia, NOAA National Marine Fisheries Service

Summary: NOAA's National Marine Fisheries Service (NMFS) and Nova Southeastern University characterized the coral reef impacts that would result from the Port Everglades Expansion Project and conclude 21.66 acres of coral reef located in the federal channel will be severely impacted by the planned expansion. This estimate of direct impacts is approximately 6.49 acres larger than the estimate in the draft Environmental Impact Statement (EIS) prepared by the U.S. Army Corps of Engineers (USACE). Coral reef communities in the channel would be directly impacted through: (1) removal by the dredge, (2) coral fragments and dredged material including rubble and sediments moving downslope or down current abrading and shearing coral reef organisms from the substrate, and (3) fractures in the reef framework, lithified coral and underlying rock destabilizing attachment of coral reef organisms. The latter two impacts create an unstable coral reef environment resulting in lower coral abundance and fewer large coral colonies. The steeply sloped, eastward facing spur-and-groove reef habitats are particularly at risk from the downslope movement of sediment and rubble. The draft EIS describes a tentatively selected plan that includes expanding the Outer Entrance Channel from the existing width of 500 feet to 800 feet and deepening the channel from approximately -42 feet Mean Low Water (MLW) to -57 feet MLW. USACE's estimate of direct impacts to coral reef habitats, approximately 15.17 acres, is limited to removal by the dredge and the draft EIS further concludes there will be no impacts to coral reef communities outside the dredged footprint. Figure 1 depicts the areas at-risk of fracture impacts, and it may be possible to minimize a portion of the 8.16 acres of severe impacts at Port Everglades by stabilizing the seafloor immediately following the dredging, however, such reef stabilization is not proposed in the draft EIS.

Introduction: Channel creation or widening may result in a total loss of coral reef organisms and structure (Walker et al. 2012; PBSJ 2008). Dredging impacts may include reef fracturing from static and dynamic loading during dredging activities (Maharaj 2001; PBSJ 2008); fractured material eroding during storms (NOAA 2002; Edwards and Gomez 2007); rubble or sediment moving downslope and shearing or burying coral reef habitats (Edwards and Gomez 2007; Collier et al. 2008); and chronic sedimentation. Unstabilized rubble can delay recovery of an injury area for decades or prevent recovery of impacts to corals altogether (Edwards and Gomez 2007). Gilliam and Moulding (2012) found the increased rubble at coral injury sites significantly lowered the number of stony coral species, the percent cover and density of stony corals, and the size of the largest coral colony present. The same study found increased coral rubble significantly lowered the biomass of sponges and the number of genera and percent cover for octocorals. While rubble may be suitable for coral recruitment, it is not suitable substrate for continued coral colony growth or reef development (Edwards and Gomez 2007; Gilliam and

Moulding 2012). Lastly, coral reef injury sites have lower rugosity, which is an important habitat parameter for finfish (Walker et al. 2009, Pittman and Brown 2011), with fish abundance and species richness higher on more rugose reefs.

Three approaches have been used to quantify and characterize the direct impacts that would occur to coral reef habitat from expanding the Port Everglades federal navigation channel. Each approach is briefly described below and results provided in Table 1:

- Walker et al. (2008) quantifies impacts to the Outer Reef and the Middle Reef using available habitat maps and the proposed channel expansion area. This analysis assumes that all coral reef and hardbottom habitats within the channel expansion footprint, regardless of depth, would be directly impacted.
- The draft EIS concludes only the coral reef habitats located within the federal channel expansion area and shallower than -57 feet MLW would be directly impacted.
- This report concludes the coral reef habitats located within federal channel and in water depths shallower than -57 feet MLW would be directly impacted by the dredge removing the corals and underlying substrate. In addition to these impacts, the coral reef habitats deeper than -57 feet MLW would also be adversely affected by coral fragments and dredged sediments moving downslope or down current shearing coral reef organisms and by fractures in the rock and lithified coral propagating into the reef framework destabilizing the attachment of coral reef organisms.

Methods: Coral reef habitats seaward of the Inner Reef were examined in a GIS. GIS layers used in this assessment include:

- impact maps provided by the USACE
- bathymetry provided by Dr. Brian Walker (Nova Southeastern University)
- benthic habitat maps provided by Nova Southeastern University
- LIDAR digital elevation model surface provided by Nova Southeastern University
- hill-shaded LIDAR images provided by Nova Southeastern University

Coral reef habitats were delineated by Dr. Brian Walker using these GIS layers. Habitat classifications are based on Walker et al. (2008), which is based on the NOAA hierarchical classification scheme used in other NOAA mapping efforts in the Atlantic/Caribbean and described in Kendall et al. (2001) and Kendall et al. (2006).

Results: Two linear reefs are located within the assessment area: the Linear Reef-Middle and Linear Reef-Outer (Figures 1 and 2). Linear-Reef Middle is composed of one habitat type, referred to as linear reef. The Linear Reef-Outer is composed of colonized pavement, linear reef, and spur-and-groove habitats (Figure 2). In addition, 0.498 acres of previously undocumented coral reef or hardbottom habitat occurs west of this reef and appears to be a western extension of the colonized pavement (Figure 2). Each of these three areas is discussed below in greater detail.

Linear Reef-Middle located in water depth greater than -57 feet MLW: This habitat consists of the eastern side of the Linear Reef-Middle habitat from the proposed dredged depth of -57 feet to approximately -67 feet MLW at the eastern edge and includes 2.144 acres of steeply sloped reef face habitat (ranging from near vertical to approximately 3:1 slope) downslope from the proposed dredged channel (Table 4). NMFS characterizes the physical impact that would occur

as fractured reef framework, substrate scarring, erosion of fractured reef framework, increased rubble, displacement and shearing of biota, rubble burial or partial burial of coral reef, rubble and sediment movement downslope, rubble abrasion of coral reef, sedimentation (Table 2). NMFS also expects that fish assemblages would negatively affected by turbidity and exhibit lower species richness and lower abundance. In addition, NMFS expects reduced number of stony corals, reduced stony coral percent cover, reduced largest coral colony size, reduced sponge biomass, reduced octocoral percent cover, reduced octocoral genera, and adverse effects to corals from increased sedimentation and turbidity. Furthermore, the landscape scale negative impacts that would occur include habitat fragmentation, reduced edge habitat, and reduced topographic complexity.

Linear Reef-Outer, Colonized Pavement greater than -57 feet MLW: This habitat is located on the western side of the Linear Reef-Outer habitat, from -57 feet MLW to approximately -64 feet MLW and includes 1.582 acres of moderately sloped (greater than 3:1) reef habitat (Table 4). The proposed elevation of -57 feet MLW will be similar to the depth of the adjacent unconsolidated sediments, which will result in chronic sedimentation impacts to reef habitats due natural sand transport. NMFS expects the impacts to be the same for Linear-Reef Middle (Table 2).

Linear Reef-Outer, Spur and Groove greater than -57 feet MLW: The eastern face of the Linear Reef-Outer spur-and-groove habitat includes 3.914 acres of steeply sloped (the reef generally ranges from near vertical to approximately 3:1, high-complexity, coral reef habitat downslope of the limits of dredging (Table 4). This habitat slopes steeply from the existing elevation of -45 feet MLW to approximately -76 feet MLW. NMFS expects the impacts in this area to be the same as in other linear reef areas (Table 2).

Previously unmapped hardbottom/boulders in depths greater than -57 feet MLW: Previous mapping was based on a one-acre minimum mapping unit, thus patches of coral reef habitat smaller than one acre were not delineated. The current effort used a smaller minimum mapping unit and found 0.087 acres of hardbottom/boulders adjacent (east) of the Linear Reef-Middle (Table 3), and a 0.498-acre western extension of Linear Reef-Outer (Table 4) within areas previously mapped as sand. Although in situ confirmation of these areas is lacking, topographic signatures in LIDAR-based bathymetry indicate that these areas are likely hardbottom or boulders that include coral reef communities.

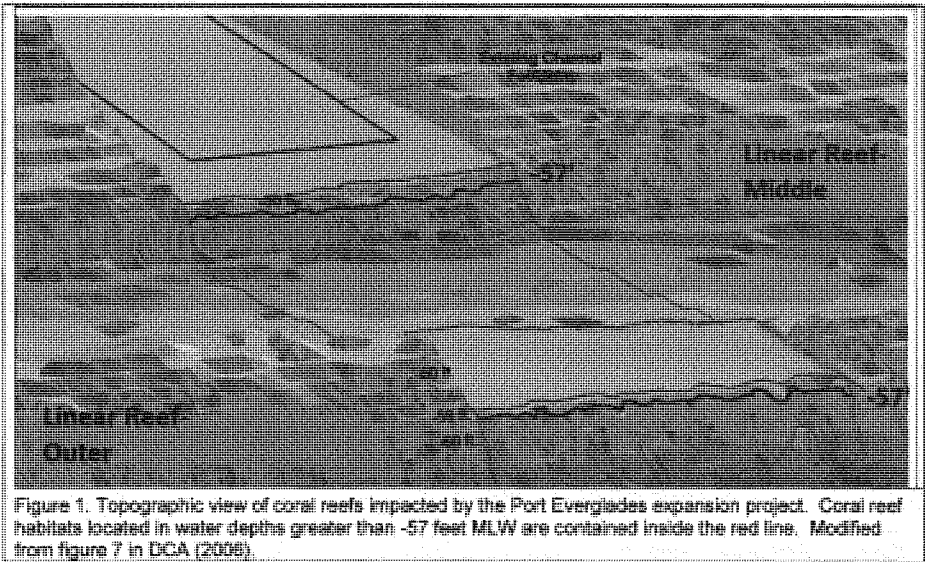
Discussion: NMFS expects severe impacts to 21.66 acres of coral reef habitat from expansion of the Port Everglades Outer Entrance Channel, 8.16 acres of the impacts will be to coral reef habitats deeper than -57 feet MLW, which are not included in the draft EIS (Tables 3 and 4). The steeply sloped, eastward-facing reef spur-and-groove habitats are particularly at risk due to the downslope movement of sediment and rubble. While these 8.16 acres of impact are outside the dredging footprint, the impacts are nonetheless severe. The physical and biological impacts to this habitat type include but are not limited to fractured reef framework, increased rubble, reduced topographic complexity, fish assemblage lower species richness and abundance, reduced number of stony coral species, and reduced stony coral and octocoral percent cover (Table 2). The final EIS should include these areas as direct impacts. Tables 3 and 4 also include the addition of 0.59 acres of previously unmapped hardbottom or boulder habitats and correction of

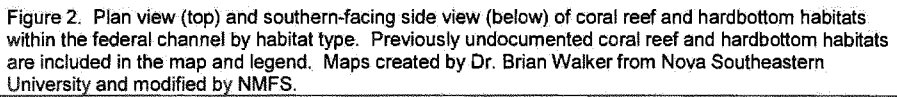
inaccurate estimates of impact areas to mapped habitats. In addition to these habitat impacts, NMFS expects fish assemblages to become significantly smaller and species richness to decline due to the loss of topographic complexity resulting from the project. Further, the increased width of the proposed channel will extend the area of reduced habitat complexity and reduced cover for reef fish, resulting in greater habitat fragmentation (Caddy 2008). The reduced cover provided to fish as a result of dredging the habitat could result in increased predation on managed species and other motile organisms that cross the expanded channel.

Chronic impacts to coral reefs from sedimentation and turbidity after dredging can have a greater impact than acute stress (Rogers 1979). Indirect impacts from the Port Everglades Expansion project are estimated to be 117.49 acres, based on an unverified assumption that sedimentation and turbidity impacts will be limited to a 150 meter mixing zone around the channel. Research has shown the vicinity of Port Everglades has a very complex and dynamic hydrologic regime (Stamates et al. 2013). Dredging activities in the vicinity of Port Everglades resulted in a turbidity plume greatly exceeding the 150 meter mixing zone that has been used as the basis for calculating indirect impacts in the USACE assessment (Figure 3). Indirect impacts to coral reefs differ from direct impacts in temporal and spatial scales but may be as severe as direct impacts. Relying on an unverified assumption that sedimentation and turbidity impacts only occur within the 150 meter mixing zone is expected to under estimate the extent and magnitude of indirect impacts from the project.

Recommendations:

1. USACE should update the EIS and EFH Assessment for the Port Everglades Expansion Project to reflect 21.66 acres of direct impacts to coral reef located in the federal channel.
2. Indirect impacts should be examined using GIS information and hydrographic modeling, with a supporting literature review, to determine the extent and magnitude of indirect impacts.
3. The compensatory mitigation plan should describe how direct impacts of 21.66 acres and an as yet undetermined amount of indirect impacts to coral reef habitats would be fully offset.
4. USACE should modify the dredging plan to include, as an impact minimization measure, substrate stabilization to reduce the amount of coral reef habitat adversely affected by coral fragments and dredged rubble and sediments moving downslope or down current, abrading and shearing coral reef organisms and by fractures in the reef framework, lithified coral and underlying rock destabilizing the attachment of coral reef organisms.





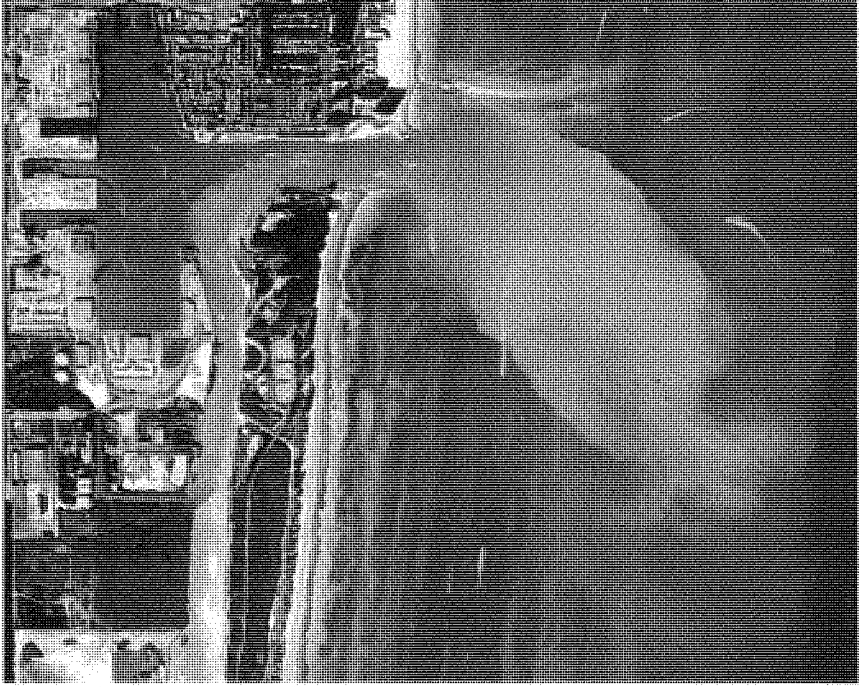


Figure 3. Dredging operations in at Port Everglades in 1981 (top) and 2013 (bottom). Sources: Stamates et al. 2013 (top) and Dr. Brian Walker, Nova Southeastern University (bottom). Both photos show turbidity plumes in excess of 150 meters from the channel.

Table 1: Results from three approaches to describe the direct impacts that would occur to coral reef habitat within the federal channel from Port Everglades expansion.

Study Characterization	Direct Impacts	Direct impacts deeper than -57 feet MLW
Walker et al. (2008)	20.34 acres	Included in direct impact calculations
USACE (2013)	15.34 acres	Included within indirect impacts injury category within and 150 meters outside federal channel
Present Study	15.56 acres	6.11 acres

Table 2: Expected impacts to coral reef and hardbottom habitat types in water depths greater than -57 feet MLW and previously unmapped habitats in the Port Everglades federal channel.

Category of impact expected	Linear Reef Middle >57 ft MLW	Linear Reef Outer, Colonized Pavement >57 ft MLW	Linear Reef Outer, Spur and Groove >57 ft MLW	Previously unmapped hardbottom >57 ft MLW	Previously unmapped hardbottom <57 ft MLW
Physical Impacts					
fractured reef framework	x	x	x		
substrate scarring	x	x	x	x	x
erosion of fractured reef framework	x	x	x		
increased rubble	x	x	x	x	x
displacement and shearing of biota	x	x	x	x	x
rubble burial or partial burial of coral reef	x	x	x	x	x
rubble and sediment movement down slope	x	x	x	x	x
rubble abrasion of coral reef	x	x	x	x	x
sedimentation	x	x	x	x	x
Biological Impacts - Fish					
fish assemblage lower species richness	x	x	x	x	x
fish assemblage lower abundance	x	x	x	x	x
turbidity	x	x	x	x	x
Biological Impacts - Benthic					
reduced number of stony corals	x	x	x	x	x
reduced stony coral percent cover	x	x	x	x	x
reduced stony coral density	x	x	x	x	x
reduced largest colony size	x	x	x	x	x
reduced sponge biomass	x	x	x	x	x
reduced octocoral percent cover	x	x	x	x	x
reduced octocoral Genera	x	x	x	x	x
sedimentation	x	x	x	x	x
turbidity	x	x	x	x	x
Ecological Impacts - Landscape					
habitat fragmentation	x	x	x		
reduced "edge" habitat	x	x	x		x
reduced topographic complexity	x	x	x	x	x

Table 3: Coral reef impacts within the federal channel by habitat type in water depths less or equal to -57 MLW. Table modified from Walker et al. (2008) and Karassia and Wilber (2011). Updates to impact estimates from previous analyses resulted from incorporation of higher resolution bathymetry and improved GIS analyses.

Habitats within the Federal channel	Type	Modifiers	Area (ft ²)	Acres (ac)	Type ac
Coral reef and Colonized hardbottom	Outer Reef	Spur and Groove	16,800	0.386	8.764 ¹
		Linear Reef-Outer	179,395	4.118	
		Colonized Pavement-Deep	185,560	4.260	
	Middle Reef	Linear Reef-Middle	202,388	4.646	4.733 ²
		Previously Unmapped Hardbottom/Boulders	4,102	0.087	
Inlet Channel Floor	Inlet Channel Floor	Inlet Channel Floor	2,341,644	28.59	53.76
Soft Bottom	Sand	Sand	1,228,497	28.20	28.20

¹ USACE (2013) estimates 10.10 ac; Walker et al. (2008) estimates 13.54 ac

² USACE (2013) estimates 5.07 ac; Walker et al. (2008) estimates 6.80 ac

Table 4: Coral reef impacts within the federal channel by habitat type in water depths greater than -57 MLW.

Habitats within the federal channel deeper than -57 MLW	Type	Modifiers	Area (ft ²)	Acres (ac)	Type (ac)
Coral reef and Colonized hardbottom	Outer Reef	Spur and Groove	170,481	3.914	6.016
		Colonized Pavement	68,927	1.582	
		Linear Reef - Outer	947	0.022	
		Previously Unmapped Hardbottom/Boulders	21,598	0.498	
	Middle Reef	Linear Reef-Middle	93,398	2.144	2.144

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Attachment 3

Hardbottom and Reef Community Mapping

The EIS does a poor job outlining exactly what was done to determine the areas of impacts to the reef communities. It mentions that Dial Cordy mapped the area using video cameras and benthic assessments, however no mapping protocols were provided to determine how the mapping was performed. Almost all of the figures showing the reefs (Figs. 6, 51, 73, and 74) depict polygons created by Nova Southeastern University for FWC and FL DEP without citation. Only Figure 59 in the EIS cites the habitat maps. No discussion is provided on how these polygons were drawn or the criteria and purpose behind them.

All mapping efforts are contingent upon their own objectives and scope. The results directly depend on the methodology, scale, and classification scheme developed to meet the mapping objectives. The maps used by the USACE created by NSU were developed for a county-wide mapping of benthic habitats. Due to the scale of mapping reefs county-wide and budgetary constraints, there were compromises made in the map scale. Ideally maps would be created at the finest scale possible. Limits were placed on the Broward mapping effort to draw polygons at a 1:3000 scale with a minimum mapping unit of 1 acre. This has implications on the results. The limitation on the polygon scale means that edges won't be precise at scales finer than 1:3000. This affects the amount of area calculated from the polygons. Because it was not economically feasible (outside of the budget) to trace every intricate small feature at the finest scale, limitations of the minimum mapping unit (polygon size) were set to 1 acre. The limit on minimum mapping unit means that features less than 1 acre were not included in the map. This also affects the amount of habitat area calculated by the polygons. Finally the classification was designed around what habitats could be depicted at the scale and minimum mapping unit using the remote sensing datasets at hand. The primary remote sensing dataset was lidar from 2001 collected by Broward County. This was supplemented by aerial photography where possible, mostly in the nearshore. Therefore broader classifications were used to depict the environment than what might be used with different technology or on a project of smaller scale.

In the mid-2000s, members of the Port Everglades Research Group (FWC and NSU) recommended the offshore reefs within the Port Everglades project footprint should be mapped at a finer scale. Apparently the USACE did not take this advice into consideration as it was not reported in Appendix E3, the Reef Group Recommendations Report. Although the NSU county-wide maps met their objectives well and were measured to be accurate at a large scale, a finer-scale map would have produced better results to determine impacts around Port Everglades. For example, Broward County is planning a sand bypass project on the north side of Port Everglades. Although the NSU maps were available, the county decided to perform a finer scale mapping for the project area. This resulted in a much finer-scale mapping effort with a scale and classification fitted to the project objectives. Figure 1 shows a comparison of these results. The sand bypass polygons are the black outlines on top of the county-wide colored map. The edges of features changed significantly as well as habitat classifications and polygon sizes. These differences were due to a change in the scope of the mapping effort and the finer-scale mapping criteria used. A similar result would be expected from a finer-scale mapping around Port Everglades.

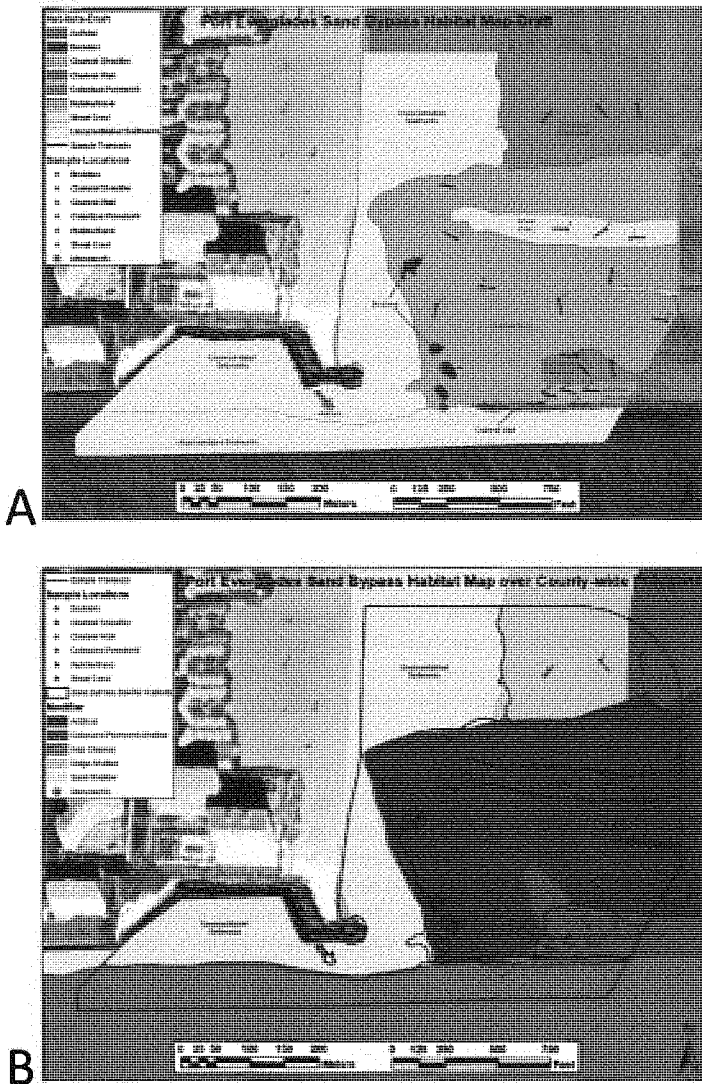


Figure 1. A. Final fine-scale sand bypass map. B. Sand bypass map overlain on the larger-scale county-wide NSU map. The finer-scale map shows more defined habitat edges, smaller features, and a classification scheme designed for the specific area of interest. It is likely that a finer-scale map of Port Everglades project would likely benefit in a similar way.

Attachment 3

Benthic Habitat Impacts

As stated above, the county-wide habitats are not a precise representation of the Port Everglades project footprint and may not depict the habitats at the most appropriate scale. However, we use them here for comparison to the USACE methodology and results to determine impact areas for mitigation.

The EIS does not do a good job explaining how benthic habitat impact areas were determined. The best we can tell, the county-wide polygons were clipped to depth contours in the lidar data and the area shallower was summed for direct impacts. Proposed alternative 2E (TSP) has several areas listed for impacts based on the selected depth. Although this was done for 5 depths we focused here on the -59 as it also pertains to the Port Everglades EIS Appendix 2E – Mitigation. Much of the following discussion may likely apply to the impacts at other depths as well.

Appendix 2E did not explain the methodology behind calculating the impacts areas for mitigation well. One confusing aspect was on page 12 it states “Scenario 2, i.e., in the event of no cable and anchor impacts, would result in 16.64 acres of impact to the middle and outer reef combined, of the project is dredged to the recommended alternative – 57 feet total dredge depth ($50+7+1+1 =$ authorized depth (ft) + required underkeel clearance + required overdredge (ft) + allowable overdredge (ft)).” This is confusing because, aside from grammatical errors, it states -57 ft depth yet parenthetically adds up to -59. We assume -59 to be the appropriate contour to allow for comparable results.

Before evaluating the habitat areas for direct impact, mapping data were inspected to see if all habitats were captured in the county-wide NSU maps. In 2008, Broward County conducted a repeat lidar survey with higher resolution and better processing techniques. These data depicted the seafloor better than the 2001 data. A visual inspection of these data showed that several apparent hardbottom features were not included in the original 2004 NSU maps. It was also apparent that some of the habitat edges needed adjusting due to a difference in map scale. New polygons were created to delineate the new features evident in the lidar data. Since this was not a funded effort, no groundtruthing was performed on these areas, however the researcher performing the interpretation (Dr. Brian Walker) has over 10 years’ experience translating bathymetric data into benthic habitats throughout southeast Florida with greater than 90% accuracy depicting hardbottom habitats. The areas are labeled “Previously Unmapped Hardbottom/Boulder” in the figures. Next the -59 ft contour was created from the 2008 lidar digital elevation model to use for the polygon edge. Separate non-overlapping hardbottom habitat polygons were depicted above and below this line and areas were calculated for each. Figure 2 depicts the final map of direct impacts within the channel including the previously unmapped areas.

Next, the potential direct impacts from the cutterhead dredge anchoring operation was determined by clipping the anchor impact areas to the updated map polygons and calculating the acreage of each habitat (Figure 3). This was not limited to certain depths like the previous analysis.

Finally, the indirect impacts were calculated for a scenario with anchoring (Figure 4) and without anchoring (Figure 5) in a similar manner.

Attachment 3

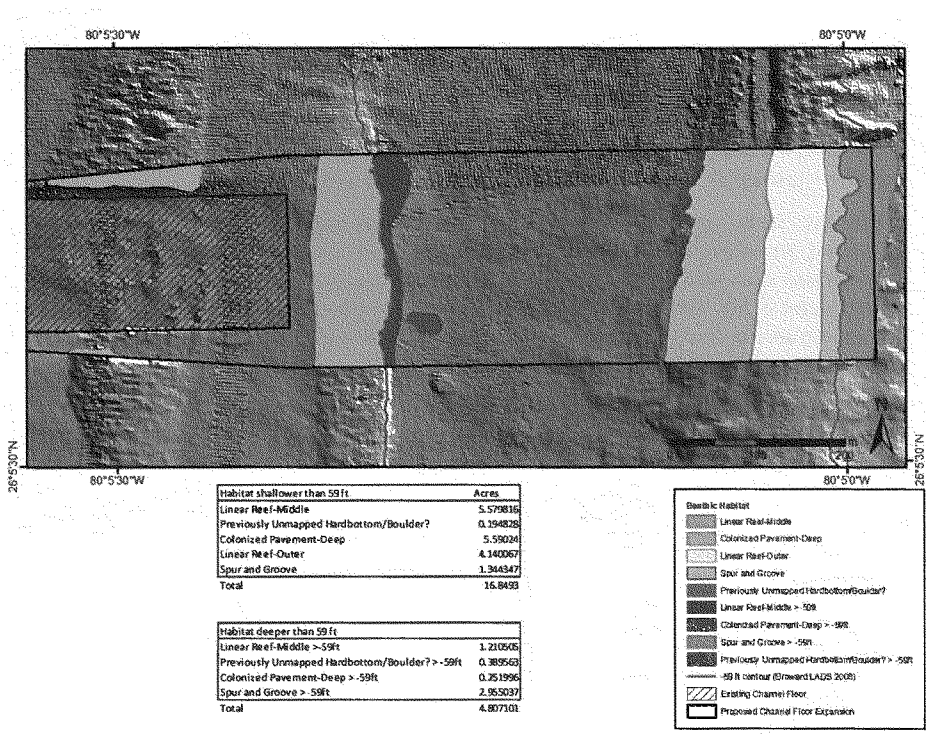


Figure 2. Updated habitat map with refined edges and previously unmapped hardbottom features within the proposed channel expansion area depicted. The red line is the 2008 lidar -59 ft contour. Areas are tabulated for all habitats shallower than -59 ft (top) and deeper than -59 ft (bottom).

Attachment 3

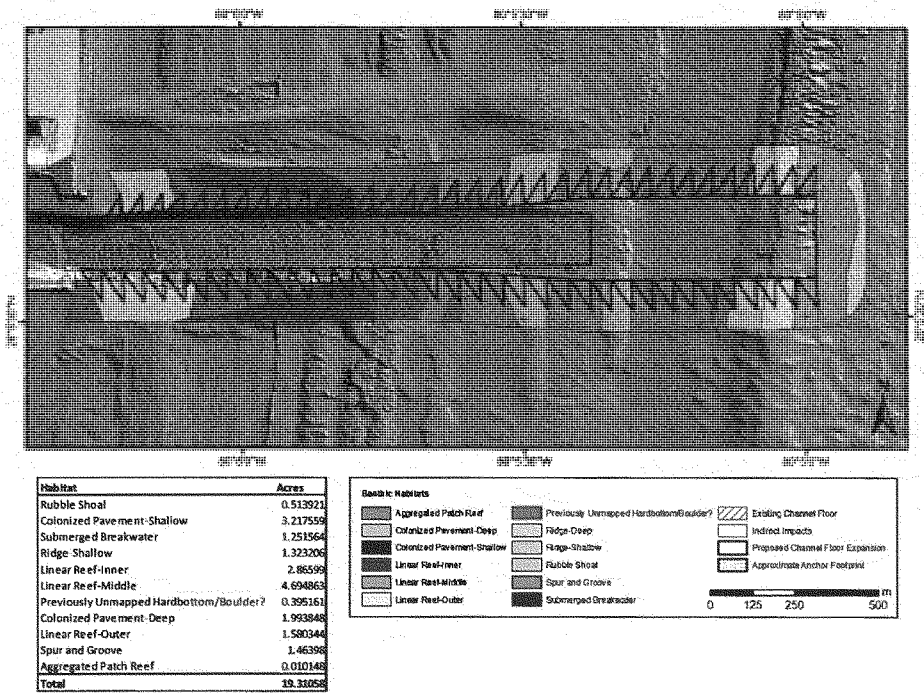


Figure 3. Updated map showing the potential anchoring impacts from a cutterhead dredge operation (habitats within triangles only). This map includes refined edges and previously unmapped hardbottom.

Attachment 3

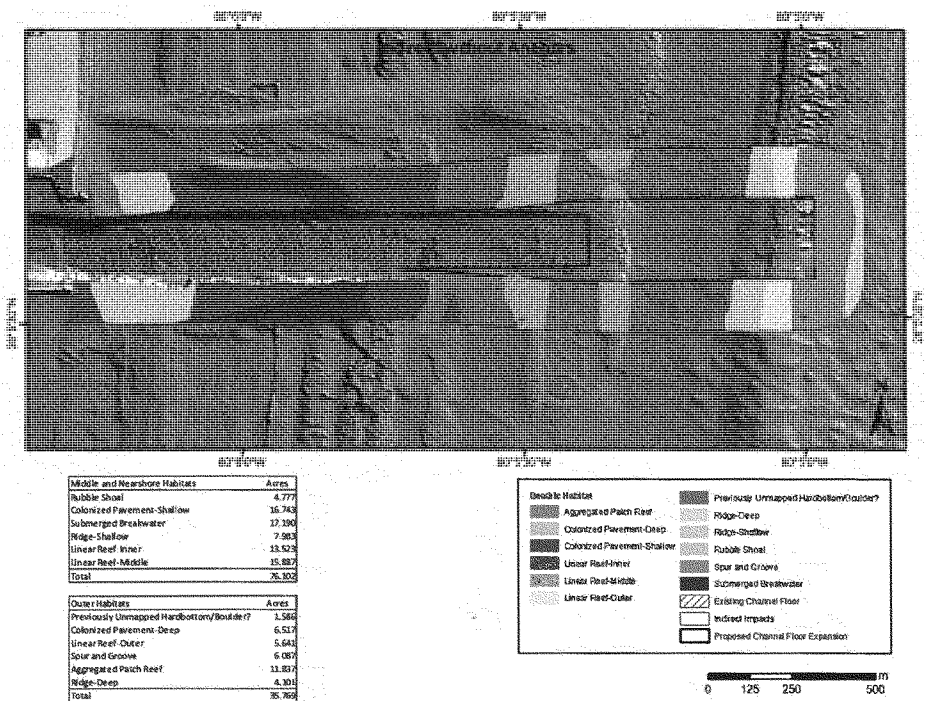


Figure 4. Updated map showing the potential indirect impacts dredge operation for scenario without anchoring. This map includes refined edges and previously unmapped hardbottom.

Attachment 3

The draft EIS minimizes previous losses of hardbottom due to port construction activities by equating the proposed impacted amount (which is wrong according to Appendix 2E) to a percent of all the hardbottom in Broward County. Equating it to a percent makes the impacts seem much less. What's more relevant is the actual amount lost. Walker et al. (2012) published a peer-reviewed paper on the estimated historical losses of port and shipping activities in SE FL. They estimated that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef due to improper

Attachment 3

dumping of spoil material. Using county-wide mean coral density (2.6 m^{-2}) and percent cover (3.75%), historically PE development has impacted 6,149,000 corals equating to 180 acres of live tissue area. Using these same numbers, the direct impacts for scenario 1 will impact 380,000 corals with 1.36 acres of live cover and scenario 2 will impact 177,000 corals with 0.63 acres of live cover.

Furthermore the EIS does not describe any cumulative impacts for hardbottom. Although the effect of impacting 6 million corals is difficult to measure, it surely must've had some impact on surrounding communities. In addition, the burial of 178 acres of Outer Reef due to improper spoil disposal had a lasting effect on the system. This spoil remains in place today where rocks of all sizes are piled on the reef. These likely shift during high energy events and continually impact the local community. This is why the communities in the Dial Cordy 2009 benthic assessment are lower than the controls at the previously impacted sites.

Walker, B. K., Gilliam, D. S., Dodge, R. E., & Walczak, J. (2012). *Dredging and shipping impacts on southeast Florida coral reefs*. Paper presented at the Proceedings of the 12th International Coral Reef Symposium, 19A Human impacts on coral reefs: general session, Cairns, Australia, 9-13 July 2012.

Attachment 4

July 21, 2013

Dear Tom and Jocelyn,

I've revised my comments to NOAA based on an analysis of the Appendix E2 Cost Analysis document of the DEIS that I did not have previously. Please disregard prior comments. The attached is still a working draft and may change based on the meeting in the coming week, but I think are pretty near final.

Best

Dick

draft

Comments for NOAA's consideration for inclusion in their review of the ACE DEIS on:

DEIS Appendix E: Port Everglades Navigation Improvements- Draft Comprehensive Mitigation Plan and Incremental Cost Analysis

And

DEIS Appendix E2: Mitigation Requirements Analysis for Hardbottom Resources Associated with Port Everglades Harbor Navigation Improvements

Comment Summary:

The DEIS gives details of the ACE's decision on extent of impact (direct and indirect) from dredging, and using their "modified" Habitat Equivalency Analysis (HEA), the type of and amount of the ACE chosen mitigation (boulders).

- The ACE uses incorrect amounts (areas) of impact, including by neglecting areas that will be directly impacted below the 57' dredging depth.
- The ACE uses an inappropriate 0% discount rate in its "modified" HEA. The HEA is an economic model and not intended to be used with a zero discount rate.
- The ACE choice of mitigation is boulders with coral transplants. These will not provide services upon maturity equivalent to those of the natural reef. The ACE has incorrectly assumed they will.
- The HEA inputs and results in Appendix E2 and not the same as those of the Cost Analysis.
- Many of the DEIS HEA input parameters used by the ACE are not supported by the best available science.

Attachment 4

- The inputs chosen by the ACE for their HEAs underestimate amount of mitigation required.
- An Alternate HEA has been developed as part of these comments using: corrected direct impact areas for the Outer and Middle Reefs to include the area below 57'; 3% discount rate; and corrected equivalence that boulders upon maturity reach 50% of services of the natural reef.
- The ACE DEIS HEA for Scenario 2 in the DEIS Appendix E Cost Analysis requires 32 acres less mitigation than the more correct Alternate HEA.
- Accordingly ACE project mitigation costs are significantly underestimated by using the underestimated mitigation amount.
- Table 9 of the Cost estimate there is no justification given for using a much small \$ amount for cost per acre of boulders with transplants.
- The ACE plan lacks input from the ACE's independent technical review performed by Battelle
- The NOAA recommended mitigation program is scientifically valid and preferred.
- The NOAA recommended mitigation program is more cost efficient than the ACE version, had ACE calculated their HEA with correct inputs.
- NOAA should be given responsibility for impact analysis, determination of mitigation type and amount, and implementation of the resultant program.

Introduction

The entire DEIS, including the Mitigation/HEA Appendix E2, and the Mitigation Cost Analysis is extensive and complex. It is not possible to provide a complete analysis in the short comment period allowed.

The comments here will review aspects of the ACE impacts and mitigation findings, identify concerns, recalculate the HEA to show an example of appropriate amount of the ACE mitigation type using more proper inputs, and discuss other issues.

ACE DEIS Impact & Mitigation:

The ACE DEIS in Appendix E2 presents results (for -57' dredging) for 5 categories of impact:

- Direct removal of Outer and Middle reef/hardbottom,
- Direct impact from placement of anchors and cables
- Direct impact to the channel wall
- Indirect effects of sedimentation and turbidity to the Middle Reefs.
- Indirect effects of sedimentation and turbidity to the Outer Reefs.

The results are framed in two scenarios. The scenarios are identical with the exception that Scenario 1 includes an estimate of direct impacts from Anchor and Cables while Scenario 2 does not include Anchor/Cable impacts. This is because the ACE states they do not yet know which

Attachment 4

type of dredge will be used and the type of dredge will affect the degree of Anchor and Cable image. Scenario 1 is stated to be the worst-case effects and Scenario 2 is the least case effects for this category of injury.

Only results for Scenario 2 are presented in the ACE DEIS Appendix E Cost Analysis and Direct impact from Anchors and Cables are omitted. The Cost Analysis uses different HEA assumptions for the Direct removal impact.

The ACE states that mitigation for only the direct impacts on the Outer and Middle reef will be conducted initially. Mitigation for other impacts (Anchor and Cable direct and other impacts from sedimentation/turbidity) will be conducted after a post-hoc survey is accomplished to quantify that impact.

The comments to follow a detailed discussion of results of the DEIS Appendix E Cost Analysis Scenario 2 four categories of Impact in Scenario 2: direct impact to the Outer and Middle Reefs, Direct to Mid Channel Wall Impacts, Indirect Outer reef impacts and Indirect impacts all other habitats.

Scenario 1 potential direct Impact from Anchors and Cables while not included in the DEIS Cost Analysis will also be discussed.

Habitat Equivalency Analysis (HEA) to Determine Amount of Mitigation.

There are many parameters that need to be included in an HEA to best determine the amount of compensation necessary. The following table provides the HEA parameters and their values used for the ACE DEIS HEA (of Appendix E Cost Analysis) and for the Alternate HEA calculated for these comments.

Nearly all ACE parameter values are used in the two HEAs. There are three that change in the Alternate HEA. These are highlighted in Yellow.

TABLE 1

INJURY: Direct to Mid Outer Reefs	HEA Input
Pre-injury service level	100%
Degree of service lost of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	15%
Injury recovery time to equilibrium (years)	50
COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%

Attachment 4

Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	30y 0%-100%, then 20y at 100%
COMMON to INJURY & COMPENSATORY	

INJURY: Direct to Channel Wall	HEA Input
Pre-injury service level	100%
Degree of service lost of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	95%
Injury recovery time to equilibrium (years)	26
COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%
Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	26

INJURY: Indirect Outer and All Other Habitats	HEA Input
Pre-injury service level	100%
Degree of service lost of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	98%
Injury recovery time to equilibrium (years)	3
COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%
Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	50

COMMON Parameters to INJURY & COMPENSATORY	HEA Input
# of injured area units	ACE, NOAA
Date of Injury/ Date of Compensatory Action	2012
Discount rate per time unit	0%, 3%
Shape of recovery trajectory/ trajectory to equilibrium =	Linear
Value-injured/value restored= 1/	1., .50
End of HEA Calculations	Non-In perpetuity, i.e. to times shown above

The only parameter values that are different between the ACE HEA and the Alternate HEA are the:

- Extent of impact

Attachment 4

- Discount Rate
- Equivalence of the impact area (natural reef) to the compensatory action (the boulders).

Other values for other HEA parameters should be considered and will be discussed later.

Amount of Impact

The ACE as discussed by NOAA and others has used an incorrect amount of acreage impact for Middle and Outer Direct Impact (and for potential Anchor/Cable impact). The ACE only considers the direct impact amount ABOVE 57' depth. Nevertheless, habitat will be destroyed below 57' and needs to be included. For Middle and Outer Reefs there are significant deeper than 57' reef portions that will be directly affected by dredging generated rubble and subsequent rubble mobility. NOAA provides a cogent analysis that the reef areas below 57' should be treated as direct injury.

The ACE has determined the amount of Outer and Middle reef area to be destroyed above 57' to be 15.17 acres. NOAA has determined that impact to the Middle and Outer reefs when taking into account the amount of affected reef area below 57' is a total of 21.65 acres. The corrected acreage impacts have an increase of over 5 acres in direct impact to Middle and Outer Reefs.

Discount Rate

Use of 0% Discount Rate

The DEIS states that by law the ACE is permitted to only use a 0% discount rate in their HEA calculations.

However, page 29 of the DEIS Appendix E2 has the following statement:

"As previously stated, Under Office of Management and Budget Circulars A-4 and A-94 (Regulatory Analysis and Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, respectively), when federal agencies are determining costs and benefits of a federal water resources development project, no discounting should occur (emphasis added). Specifically Circular A-94 states "Specifically exempted from the scope of this Circular are decisions concerning water resource projects (guidance for which is the approved Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies." The Port Everglades Feasibility Study, and all of the components of that study, falls under the aforementioned water resource principles and guidelines."

The statement seems to clearly indicate that the current project under consideration is exempt from the "no discounting" rule. This would mean discounting is permissible. Review of

Attachment 4

circulars A-94 and A-4 does not seem to require the Corps use a 0% discount rate. In fact the circulars discuss the use of a variety of non-zero discount rates.

The HEA method was designed to be used with a finite discount rate. The use of a finite discount rate is discussed in any HEA explanation in the literature. A good example is the document by Ray (Ray, G. L. 2007. Habitat equivalency analysis: A potential tool for estimating environmental benefits. EMRRP Technical Notes Collection (ERDC TN-EMRRP-EI-02). Vicksburg, MS: U.S. Army Engineer Research and Development Center). The explanation clearly cites the HEA's use of and NOAA's rationale for a finite discount rate.

The mitigation document (DEIS Appendix E2) in fact also explains the need for using a finite discount rate on page 2: *"Therefore, the quantities of ecological services occurring at different times are not valued on an equivalent basis and must be adjusted before they can be compared in a meaningful way. This adjustment process, known as discounting, permits one to examine quantities occurring at different times on a comparable basis."*

Use of 3% Discount Rate

It is common practice to use a 3% Discount Rate (DR) in an HEA. NOAA (and others) recommends this amount in published literature. The HEA prepared of the DEIS does not utilize a discount rate (more properly it uses a 0% discount rate) for the calculations. The ACE refers to their method as the "modified HEA". Use of a 0% Discount Rate will provide a lower amount of mitigation in comparison to results using a Discount Rate above 0%.

The Alternate HEA presented below uses a 3% Discount Rate as recommended by NOAA.

It is noted that the ACE uses a Discount Rate of 3.75% in their Economic Analysis of the DEIS.

Degree of Equivalency Between Natural Reef and Mitigation (Boulders)

The assumptions of an HEA require that the type of compensatory action (= mitigation) chosen be equivalent to the habitat being injured. The DEIS clearly states this necessity in Appendix E that the services of the habitat of injury should be *"ecologically equivalent to the service that will be provided by the replacement habitat"*. Otherwise a factor must be applied to create equivalency.

The DEIS choice of mitigation for impacts to the reef are piles of boulders. The DEIS assumes that the compensatory action choice of boulders, upon maturity, will have identical services as the natural reef to be impacted.

There is literature which indicates that artificial reefs, including those composed of boulders, are not equivalent to those of natural habitat. For example, Miller et al. (2009) documented an

Attachment 4

overall lack of similarity between natural reef and artificial reef assemblages. Gilliam (2012) concluded the length of time boulder reefs require to mitigate lost reef resources in southeast Florida, assuming a total loss of the impacted community from events such as dredging, exceeds the age of the oldest boulder reef assessed in this study (17 years). Kilfoyle et al. (2013) show nearshore natural and artificial hardbottom habitats have dissimilar usage by the early life history stages of species managed under the fishery management plan for snappers and groupers. Statistically significant higher abundances occurred on natural nearshore hardbottoms compared to the artificial habitat

While the above references do not specify the exact degree of dissimilarity, it is safe to say there is not 100% equivalence. This assumption is valid in the "smell test" of logic. A pile of boulders is not a coral reef and will not over time become a coral reef. Therefore the boulders will provide lower degree of habitat services compared to those of a coral reef.

A more reasonable approach would be to consider that the ratio of the services of the natural reef to a pile of boulders upon reaching equilibrium) would be on the order of $1.0/0.50 = 2.0$. In other words, upon maturity boulders would provide 50% of the services as the natural reef.

Table 1 below gives the results of the ACE Appendix E Cost Analysis HEA compared to the Alternate HEA using corrected impact numbers for all categories, a 3% Discount Rate, and corrected equivalence of natural reef to boulders:

Attachment 4

Table 1: Comparison of ACE DEIS Cost Analysis HEA to Alternate HEA

Scenario 2 Impact Amount & Mitigation Requirement in acres For dredging to -57'	ACE DEIS IMPACT -57'	ACE DEIS MITIGATION	NOAA Corrected Impact -57'	ALTERNATE MITIGATION Using NOAA Corrected IMPACT, 3% DR, & Reef/Comp ratio= 1/.5= 2
Impact in Acres Category				
Middle and Outer Reef Direct Impacts	15.17	19.05	21.65	50.103
Middle Reef Channel Wall Impacts	0.36	0.32	0.36	0.61
Direct Anchor and Cable Impacts	0	0	0	0
Outer Reef Indirect Impacts -Construction	37.69	0.04	41.78	0.155
Middle/nearshore Impacts – Construction	75.55	0.08	78.25	0.289
Total Requirement		19.49		51.158

For Scenario 2, the DEIS Cost Analysis HEA results in 19 mitigation acres. The Alternate HEA results in 51 acres.

DEIS Cost Analysis HEA results are near 32 acres underestimated.

The DEIS ACE “modified HEA” underestimates the mitigation required by using an incorrect 0% discount rate, a lower than accurate impact area, and an incorrect comparison of the level of services of the boulders upon maturity as compared to a natural reef.

The clear driver in the total Requirement is the amount of impact to the Middle and Outer Reefs. Results for the other categories are lower than appropriated due to poor choice of other input values and should be recalculated using more correct values to be discussed later.

Cost Calculation

Attachment 4

The main DEIS document states on page 259 "The total estimated cost for this alternative, which includes the cost of coral translocation, is estimated at \$20.13M. Details can be found in Appendix E comprising the mitigation plan and related sub-appendices."

Appendix E Cost estimation is NOT easily found on the Web version of the DEIS. However, it is on the CD version.

Had proper inputs to the ACE DEIS HEA been used the amount of mitigation required and associated costs would have been much higher and much greater than the costs of NOAA's preferred alternative. This is illustrated below in Table 2

Table 2: Mitigation Cost Comparisons of ACE result to the Alternate HEA

	Cost with ACE Table 8	Cost with Corrected Area	Cost with Corrected Area & Cost/Acre
Total mitigation area (acres) required to offset impacts	19.49	51.16	51.16
Cost per Acre	\$588,524	\$588,524	\$1,225,000
Coral Relocation (Not more than 12,235 colonies) (included above)	\$8,662,380	\$8,662,380	\$8,662,380
Total Mitigation Cost	\$20,132,713	\$38,771,267.84	\$71,333,380.00

In the DEIS Appendix E Cost Analysis, the last column of Table 8 presents an area of 19.49 acres of mitigation multiplied by a cost of \$588,524 per acre plus \$8,662,380 for a total cost of \$20,132,713. This is shown above in Table 2 in column 1.

With proper HEA inputs of the Alternate HEA, the mitigation area should be 51.16 acres. Using the ACE cost estimate \$588, 524 per acre plus \$8,662,380, the revised total cost is: \$38,771,268.

The Cost/Acre figure of \$588, 524 in the ACE DEIS Cost Estimate Table 8 provided for boulder mitigation and coral transplants is not justified. This figure stands in stark contrast to the cost/acres of other and similar options which are \$1.2M. Without justification, the \$588, 524 number appears artificially deflated. Instead, using the \$1,225,000 cost /r acre estimate provided in Table 8 for essentially the same mitigation (boulders with coral transplants placed on top of tires), the total cost is **\$71,333,380.!**

It should be noted that the DEIS stated the cost of the NOAA NMFS mitigation recommendation is estimated to cost approximately \$35.6M to \$42.3M (including risk contingencies). **Hence the NOAA NMFS plan is significantly less than the ACE plan had it been correctly calculated.**

Attachment 4

Indirect Impact Mitigation Calculations

The DEIS in Appendix E2 and in the Cost Estimate say that amount of mitigation (and hence the costs) for indirect Impacts will not be calculated prior to construction. Surveys will be taken after construction to determine the amount of impact and this will be used to determine the amount of mitigation. The ACE then takes an inconsistent approach and in fact estimates indirect impact and potential direct impact.

In DEIS Appendix E2, the ACE HEA Scenario 1 includes direct impact from the Anchors and Cables that may be needed depending on the type of dredge as well as the indirect from sedimentation and turbidity. It also includes the direct impact from the Channel Wall as well as the indirect from sedimentation/turbidity. In the Cost Estimate, however, the impact from Anchors and Cables is excluded.

There are several problems with this approach.

First the Anchors and Chains impact should be included as a contingency. The ACE has had enough experience with dredging to be able to reasonable include a probability factor about the kind of dredge to be used. The amount of Anchor and Chair mitigation as shown in Table 17 of Appendix E2 is large (7.83 acres) and would be even larger if calculated with the correct inputs. The ACE has inexplicably considered the impact on the footprints to be only 50%. It would likely be 50% with complete removal of all living organisms. A more correct 100% injury as well as the other inputs used in the Alternate HEA (3% discount rate, proper equivalence of boulders to natural reef) should have been used to calculated possibly needed mitigation.

Second the impacts associated with sedimentation and turbidity have been predicted by the ACE to be miniscule (2%) and only to last 3 years. The dredging itself is predicted by the ACE to last up to 5 years. There is likely to be injury associated with the sedimentation and turbidity, it will not instantly be healed upon cessation. There will be lasting effects. Hence the mitigation for these categories is substantially underestimated. The DEIS uses too low of an estimate of impact (2%) and recovery time (3 years) for their HEA. These estimates should be revised upwards (e.g on the order of 15% and 50 years) to be more accurate and thus to provide for contingency funds for mitigating likely indirect impacts.

The ACE state the amounts of indirect impacts will be determined by post-construction monitoring and these will determine the amount of mitigation. However, it is unclear if the DEIS cost estimate includes sufficient amounts of funds to be available if for mitigation if needed.

Attachment 4

An accurate estimate of the amount of direct impacts of Anchor and Cables and indirect impacts of sedimentation and turbidity should be conducted so that accurate costs can be determined and contingency funds made available to secure additional mitigation if needed.

Support for NOAA mitigation plan

The DEIS Appendix E2 includes “5.2.3 Preferred Reef Mitigation Alternative 2 (NMFS-Developed Plan)”

NOAA NMFS has been a cooperating agency with USACE for development of the Environmental Impact Statement (EIS) and has independently estimated that the tentatively selected plan impact. NOAA NMFS recommends mitigating these impacts by propagating coral colonies at in-water and land-based nurseries and then outplanting the colonies to suitable recipient sites in Broward County’s offshore waters. NMFS estimated that this approach would require approximately 20 years to complete and would cost approximately \$35.6M to \$42.3M (including risk contingencies). This cost is less than the ACE plan when the ACE plan calculated correctly.

NOAA NMFS’s recommendation is preferable to the ACE plan and is based on successful and scientifically valid coral propagation and enhancement programs in Atlantic and Caribbean waters, including those of the project area, Broward County.

The plan involves establishing a stock coral population in on-land and off-shore nurseries. The physical and genetic origin of each coral will be tracked to ensure that both nursery and outplanting operations are scientifically responsible. Regular maintenance will be performed on nursery structures and the corals. When nursery corals have grown to an appropriate size for high probability of survival on natural reefs (e.g., usually requires 12 to 18 months), the corals will be outplanted.

Species to propagate and outplant will include staghorn coral and other species based on findings from recent coral restoration studies, historical survey data, and results of monitoring.

Recipient sites would include those to maximizes likelihood of survival and minimize risk from human disturbances.

NOAA will also include replacement of lost 3-dimensionality using corals and artificial reefs in their plan.

In addition to eventually establishing those colonies on recipient sites, NOAA NMFS assumes that additional coral translocation will occur as an impact minimization measure and that such costs will be included in the budget for minimization.

Attachment 4

The NOAA program including coral propagation and outplanting program is based on existing NMFS coral recovery programs, partnership with local resource agencies (e.g., FDEP), academic institutions (e.g., NSUOC), and others in Florida. The alternative is designed to maximize the chances of successful coral reproduction; larval transport; settling and colonization areas; and genetic mixing. The proposal is consistent with the NMFS Acropora Recovery Strategy (under development) and for other coral species proposed to be listed under the Endangered Species Act.

NOAA should be given responsibility for impact analysis, determination of mitigation type and amount, and implementation of the resultant program.

Inaccuracies and Inconsistencies:

The Abstract results of the main DEIS is not consistent with those presented in DEIS Appendix E2.

The Appendix E2 HEA inputs are inconsistent with the HEA inputs of the Appendix E Cost plan.

Indirect Impact Monitoring

Monitoring for determination of the extent of indirect impacts is insufficient to accurately determine effects. The proposed sampling design presented is sketchy and does not provide a power analysis that will allow determination of sample size needed to detect differences of various amounts.

Battelle

P 4 of the DEIS states "... the outcomes presented in this report were calculated with input values selected by USACE in consultation with DC&A. DC&A, in association with the Battelle Memorial Institute, developed these input values for these HEAs using peer-reviewed scientific literature, ..."

There is no reference given to Battelle contribution. Battelle did review the Corps mitigation plan and found issues with Corps choice of parameters.

Time for recovery

P4 Corps states "For the purpose of the Port Everglades HEA, the method employed by the Corps uses a Landscape HEA with stony corals as the representative proxy for the entire habitat

Attachment 4

affected. While stony coral coverage is <1% in the project footprint and vicinity (Gilliam *et al.* 2004, DC&A 2008), we did not use a proportional analysis to calculate the coral impacts. Instead, the losses are calculated as the amount of time it would take for the slowest-growing members of the ecosystem, in this case the stony corals, to recover to baseline, for the entire project footprint."

This is worth noting for discussion of recovery rates. The ACE has used 50 years for direct impacts and for the compensatory action (boulders) to reach maturity. These time estimates are likely underestimated given the age of oldest corals in the vicinity in excess of 100 years. 100 years for recovery is preferred.

Counting Avoidance Minimization as Mitigation

The Corps is assigning their 50 year recovery rate to boulders by including a factor due to transplantation of corals from the impact area to them. In the Cost Estimate a time of 30 years to maturity (100% is assigned that persists to 50 years).

This time reduction is inappropriate. The first step in impact analysis is avoidance and minimization. Avoiding impact by removing corals from the impact site minimizes impact. As an example, one way to determine the reduction of injury impact would be to calculate the total number of corals that would be killed from the Direct Impacts to the Outer and Middle Reefs.

DEIS Appendix E2	Corals Killed with no removal
Middle Reef Corals	10,801.0
Outer Reef Corals	89,943.0
Total	100,744.0

DEIS Cost Estimate	Corals to be Removed
Mid & Outer Reefs	12,235.0

% impact reduction	12.14%
--------------------	--------

Using information from the DEIS Appendix E2, the total number to be killed is 100,744. The DEIS Cost estimate indicates up to 12,235 would be removed. Thus this would be a 12% reduction of impact.

Attachment 4

Even if the translocated corals are used for reduction of time to maturity for the ACE choice of mitigation, such credit for discussion purposes at the Core groups meetings was only 10 years.

For a conservative approach, assume that the correct recovery rate is 75 years. Taking off 10 years for the contribution to recovery rate would be a recovery period of 65 years. This was used as a reasonable assumption by the Core Group.

It is telling that the DEIS uses 50 years in Appendix E2 and 30 years in the Cost Estimate. This gives the appearance of juggling the recovery figures as HEA inputs to minimize HEA outputs.

Attachment 5

		Size (Acres)	Project	Relative Functional Gain (RFG)	Mitigation Credit (FG)	Management Items
I. Master Plan - ESTIMATED MITIGATION CREDIT FOR WEST LAKE PROJECT						
A. Physical Habitat Alteration						
1	Structural habitat along the Intracoastal Waterway ICWW	1.9	Structure/ fill			
2	Mangrove protection and enhancement by trap placement	24.0	Enhancement	0.26	6.24	
3	Supplemental structural habitat along Dania cut-off Canal	2.0	Structure/ fill			
4	Mangrove protection by trap placement	8.0	Enhancement	0.26	2.08	
5	Nuisance/Exotic Plant Control	8.4	Enhancement	0.11	0.92	
6	Spoil island and exotic dominated upland areas conversion					
6a	Mangrove	24.0	Creation	0.42	10.08	
6b	Mud Flat/tide pool	7.0				
6c	Channel	8.6	Creation	0.65	0.14	
6d	Seagrass	8.0	Creation	0.16	1.28	Seagrass
6e	Maritime Hammock	13.4	Creation	0.23	3.08	
7	Mangrove expansion from Dania Cut-off Canal to open water	23.0	Creation	0.26	0.42	
B. Land Acquisition (within existing park)						
1	Outparcel Acquisition					X
2	Vacate utility easements					X
3	Vacate FIDM easements					X
4	Outparcel Acquisition: OUTSIDE IMPROVEMENT AREAS	23.0	Preserv.	0.08	1.84	
C. Habitat Improvements						
1	Creation of Manatee Protection Areas					
1a	Seagrass/manatee protection area in Whiskey Creek (WC)	9.0	Preserv.	0.03	1.0	Seagrass
1b	Seagrass/manatee protection - ICWW south of Dania Beach Blvd.	21.0				Seagrass
2	Enhance/protect bird nesting, and feeding habitat					X
3	Establishment of Osprey towers					X
4	Mud flat/tide pool creation from Brazilian pepper areas in Dania Salt Marsh	1.5	Restoration	0.22	0.33	
5	Protect/preserve sea okeye fields from exotic invasion	10.0	Enhancement	0.22	2.20	
D. Hydrologic Improvements						
1	Dania Salt Marsh (DSM)/flushing channel improvements	3.5	Enhancement	0.22	0.77	
2	Desilt existing culverts					X
3	Increase number of or upsize culverts					X
4	Desilting channels/ongoing maintenance dredging					X
E. Miscellaneous Improvements						
1	Remove the barges at Whiskey Creek (expose bottom for SAV recruitment)	0.5	Enhancement	0.08	0.04	Seagrass
	TOTAL	174.30				
	Mangrove Mitigation Credits				20.57	
	Seagrass Mitigation				2.22	
	Other Mitigation Credits				17.45	

US Army Corps
of Engineers

File # SAJ-2002-72(IP-LAO)

ATTACHMENT 6 (NOTE: This refers to the Corp's file)

Attachment 6

Seagrass UMAM data done by transect numbers**Landscape**

PE-8 - 8

PE 10 - less connectivity, smaller bed less fish and wildlife service benefits. Landscape score – 6

PE-1 - 8

P34 – Landscape 8

PE 33 – Landscape 6

P35 – Landscape 6(lumped with PE10)

P32 – (0.acres) Landscape 6 (lumped with PE10) *2

PE24/PE25 (0.6 acres) - Halodule wrightii; sparse coverage – Landscape – 8

PE-19 – Johnsonii bed - .05 acres – very small; next to John U Lloyd park – 6

PE-17 – .13 acres/.05 acres - larger bed – mixed species; higher community level - 7

PE-12, 13, 14, 15 - .84 bed; larger bed; across from Westlake park – 8. Health dense beds; high contiguous

D16 – 7

Water

Water area #1

Transects - #8, 10, 1, 35, 34, 35 – Water score – 7

Water area #2

Transects - #33, 32 – Water Score – 8

Water area #3 –

Transects #25, 24, 19, 17 – Water Score – 6

Water area #4 -

Transect – 12, 13, 14, 15 – Water Score – 8

Water area #5 – Dania CutOff Canal

Transect D16 – Water Score – 6

water quality changes every 6 hours.... In and out – every 6 hours. Poor water quality followed by good water quality.

Sand bottom is a limiting factor; light is major limiting factor.

Community Structure -

Jocelyn completely disagrees with the way this section was scored, will formally address

PE-8 – Sparse bed – 4

PE-10 – 3-4% coverage; not as much diversity; solitary shoots w/no coverage – 2

PE-1, 2, 3 – 10% coverage; abundance is .3 (impact area); solitary blades.... Center of bed is 5% with edges very sparse – 3

PE-35 – 1% coverage – 2 (just like 10)

PE-34 – 25% coverage johnsonii – just under 5% density – 7.

PE 33 – no grass found in the quadrats - 2

PE 32 – higher coverage than PE 35 – 22% quadrants and 1.75% numerous shoots – 5-25% cover – 4

PE 24-25 – *Halodule wrightii*; few shoots, $\frac{1}{4}$ to $\frac{1}{8}$ coverage – 3

PE-19 – no grass found in quadrats – 2

PE-17 – 5

PE – 12, 13, 14, 15 – 8 (bed across channel from 12, 13, 14, 15)

D16 - 2



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

Planning Division
Environmental Branch

18 JUN 2013

Virginia Fay
Asst. Regional Administrator
NMFS-SERO-HCD
263 13th Ave South
St. Petersburg, FL 33701

Pursuant to the National Environmental Policy Act (NEPA), this letter constitutes the Notice of Availability of the Draft Feasibility Study and Environmental Impact Statement (EIS) for the Proposed Navigation Improvements at Port Everglades Harbor, Broward County, Florida. This letter also serves to convey the EFH Assessment incorporated in the project EIS.

The draft Feasibility Study and EIS are available for viewing on USACE's website under the project name Port Everglades Feasibility Study at
["http://www.saj.usace.army.mil/About/DivisionsOffices/Planning/EnvironmentalBranch/EnvironmentalDocuments.aspx#PE"](http://www.saj.usace.army.mil/About/DivisionsOffices/Planning/EnvironmentalBranch/EnvironmentalDocuments.aspx#PE).

The District initiated coordination with NMFS under the EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) through the March 5, 2001 NEPA scoping letter and a response to that Scoping letter from NMFS dated April 26, 2001. Per the May 3, 1999 EFH Finding between NMFS and the USACE-Jacksonville District, the EFH Assessment for the project is integrated within the Draft EIS. Per the 1999 Finding, the February 2004 "Preparing Essential Fish Habitat Assessments: A Guide for Federal Action Agencies" document and 50 CFR 600.920(e)(3), an EFH Assessment must include the specific items. Each item will be addressed in the table below with a reference to where the information is located in the EIS.

EFH Required Item	EIS Location(s)
Description of the Proposed Action	What is the action? - <i>Section 1.1 - Project Objective</i> - <i>Section 2.2 - Objectives</i> What is the purpose of the action? - <i>Section 1.3 - Project Need</i> How, when and where will it be undertaken? - <i>Section 2.9 - Construction of the Tentatively Selected Plan</i> What will be the result of the action? - <i>Section 2.3.2 - Recommended Alternative/Tentatively Selected Plan</i>
Analysis of the potential adverse effects (individual and cumulative) of the action on EFH and the management species	What EFH will be affected by the action? - <i>Section 3.6.3 - Essential Fish Habitat</i> - <i>Section 3.5.2 - Wetlands (Mangroves)</i>

	<ul style="list-style-type: none"> - <i>Section 3.6.1 – Seagrass Communities</i> - <i>Section 3.6.2 – Hardbottom and Reef Communities</i> - <i>Section 3.6.4 – Other Fisheries Resources</i> - <i>Section 3.7.2.13 – Staghorn & Elkhorn corals</i> - <i>Section 3.7.2.14 – Corals Proposed for Federal Protection</i> <p>What are the adverse effects to EFH that could occur as a result of this action?/ How would they impact managed species?/ What would be the magnitude of effects?/What would the duration be?</p> <ul style="list-style-type: none"> - <i>Section 4.3 – Wetlands (Mangroves)</i> - <i>Section 4.4.1 – Seagrass Communities</i> - <i>Section 4.4.3 – Essential Fish Habitat</i> - <i>Section 4.4.4 – Other Fisheries Resources</i> - <i>Section 4.5.2 – Johnson's seagrass</i> - <i>Section 4.5.10 – Staghorn & Elkhorn corals</i> - <i>Section 4.5.11 – Corals proposed for federal protection</i> - <i>Section 4.29 – Cumulative Impacts (Specifically 4.29.6)</i>
Proposed Mitigation	<i>Section 5.2 – Proposed Mitigation Appendix E – Mitigation Plan</i>

Additionally, the Guidance states that for projects that may have substantial impacts on EFH, additional information may be necessary. These additional items are addressed throughout the EIS and the information provided in the table below.

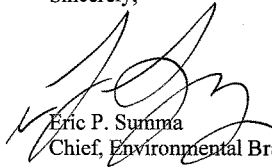
EFH Additional Information Item	EIS Location(s)
Results of on-site inspections to evaluate the habitat and the site-specific effects of the project	<ul style="list-style-type: none"> - <i>Section 3.5.2 – Wetlands (Mangroves)</i> - <i>Section 3.6.1 – Seagrass Communities</i> - <i>Section 3.6.2 – Hardbottom and Reef Communities</i> - <i>Section 3.6.4 – Other Fisheries Resources</i> - <i>Section 3.7.2.13 – Staghorn & Elkhorn corals</i> - <i>Section 3.7.2.14 – Corals Proposed for Federal Protection</i> - <i>Appendix D – Natural Resource Reports</i>
Review of pertinent literature and related	<i>Literature cited throughout EIS, Natural</i>

information	<i>Resource Reports, Mitigation Plan and ESA Consultation package with NMFS (for listed and proposed corals and designated critical habitat which are also EFH).</i>
-------------	--

The District has determined that the effects of the construction of the Proposed Navigation Improvements at Port Everglades Harbor, Broward County, Florida may adversely affect designated essential fish habitats and habitats of particular concern. The magnitude of the impacts will vary based on the type of habitat ranging from temporary and insignificant to substantial and permanent. Impacts have been avoided and minimized significantly since the project was originally coordinated under NEPA through the proposed in 2001, remaining impacts to habitats are unavoidable. Impacts to mangroves have been reduced by 98%; and impacts to hardbottom & reef communities have been reduced by 58%. Impacts to seagrasses have changed over the project life, not due to changes in project footprint, but due to the ephemeral nature of these specific grass species.

Please provide all comments under NEPA and the MSFCMA to the Draft Feasibility Study and EIS by August 13, 2013. If you have any questions, please contact Mrs. Terri Jordan-Sellers at 904-232-1817 or Terri.Jordan-Sellers@usace.army.mil.

Sincerely,



Eric P. Summa
Chief, Environmental Branch



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
 263 13th Avenue South
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Mr. Eric Summa
 Planning Division
 Department of the Army Corps of Engineers
 PO Box 4970
 Jacksonville, Florida 32232

June 3, 2011

Dear Mr. Summa:

In response to a request from the Jacksonville District, and in partial fulfillment of our agreement to serve as a cooperating agency in the preparation of the Environmental Impact Statement (EIS) for the Port Everglades Expansion Project, we have prepared a report, *Characterization of Essential Fish Habitat in the Port Everglades Expansion Area*. The District may reference this information the EIS and Essential Fish Habitat (EFH) assessment to describe the habitats that would be affected by this project. While the report by itself does not constitute an EFH assessment, it contains several of the mandatory and other components described at 50 CFR 600.920(e)(2).

This report has been peer reviewed by several NOAA scientists and resource managers, including staff from the NOAA Restoration Center in St. Petersburg, Florida; NMFS Protected Resources Division in Ft. Lauderdale, Florida; and NBOAA Coral Reef Conservation Program in Silver Spring, Maryland; and the NOAA Center for Coastal Fisheries and Habitat Research in Beaufort, North Carolina. Records of all technical and editorial comments received are available should they be needed and the final report reflects all change requested. Most importantly, all reviewers concluded the information contained in the report accurately describes the habitats in the Port Everglades area.

Thank you for the opportunity to provide the report. Related correspondence should be directed to the attention of Ms. Jocelyn Karazsia at our West Palm Beach office, which is co-located with the US Environmental Protection Agency at USEPA, 400 North Congress Avenue, Suite 120, West Palm Beach, Florida, 33401. She may be reached by telephone at (561) 616-8880, extension 207, or by e-mail at Jocelyn.Karazsia@noaa.gov.

Sincerely,

/ for

Miles M. Croom
 Assistant Regional Administrator
 Habitat Conservation Division



Characterization of Essential Fish Habitats in the Port Everglades Expansion Area

This report was prepared by:
Jocelyn Karazsia and Pace Wilber, Ph.D.
NOAA National Marine Fisheries Service
Southeast Region, Habitat Conservation Division

June 3, 2011

Outline

1. Essential Fish Habitat Overview	4
2. Seagrass.....	7
2.1 Review of literature, related information, and views of recognized experts on the habitat or species that may be affected	
2.1.1 Community composition in the Port Everglades area	
2.1.2 Ecological function of seagrass and seagrass as EFH	
2.2 Review of available seagrass surveys	
2.3 Cumulative seagrass assessment area	
3. Mangroves.....	15
3.1 Review of literature, related information, and views of recognized experts on the habitat or species that may be affected	
3.1.1 Ecological function of mangroves and mangroves as EFH	
3.2 Review of available mangrove surveys	
4. Soft bottom habitat as EFH.....	20
5. Port Everglades Inlet as EFH.....	21
6. Hardbottoms, coral, and coral reefs.....	22
6.1 Review of pertinent literature and related information, and views of recognized experts on the habitat or species that may be affected	
6.2 Review of available coral reef surveys	
6.3 Description of cumulative coral age in the expansion area	
6.4 Scleractinian impact scaling using size/species-frequency distribution resource equivalency analysis within the Middle and Outer Reef	
7. Port Everglades Habitat Linkages.....	34
8. Literature Review.....	37

Tables

Table 1: Federally managed species in the Port Everglades project area and habitat affinities.....	5-6
Table 2: Seagrass surveys performed in the Port Everglades area between 2001 to 2009.....	11
Table 3: Cumulative seagrass area by assessment site.....	13
Table 4: Corals documented in Port Everglades field studies.....	24
Table 5: Coral reef and fish surveys performed in the Port Everglades area between 2001 to 2008.....	25
Table 6: Distribution of scleractinian colony size by species, reef, and zone, as encountered in visual belt transects off Port Everglades in March 2006.....	26
Table 7: Coral reef area by habitat type.....	27
Table 8: Literature review of massive coral growth rates.....	32
Table 9: Literature review of brooding coral growth rates.....	33
Table 10: Summary of coral age estimates by coral type in the Pt Everglades expansion area.....	34

Figures

Figure 1: Seagrass assessment areas.....	12
Figure 2: 2001 to 2009 seagrass species transition along South Access Channel.....	15
Figure 3: Mangrove assessment areas.....	18
Figure 4: Mangrove and tidal creek habitat within and adjacent to the Port Everglades expansion area....	19
Figure 5: Coral reef habitat types within the Port Everglades expansion area.....	27
Figure 6: Representative photos from Port Everglades field studies.....	28
Figure 7: Overlap of Gilliam and Walker (2008) study area.....	30

List of Acronyms

EFH	Essential Fish Habitat
HAPC	Habitat Area of Particular Concern
SAFMC	South Atlantic Fishery Management Council
FDEP	Florida Department of Environmental Protection
DCC	Dania Cut-off Canal
AIWW	Atlantic Intracoastal Waterway
IEC	Inner Entrance Channel
OEC	Outer Entrance Channel
SAC	South Access Channel
MTB	Main Turning Basin
FMP	Fishery Management Plan
EIS	Environmental Impact Statement

1. Essential Fish Habitat Overview

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) require regional fishery management councils and federal agencies to promote protection, conservation, and enhancement of essential fish habitat (EFH). The EFH provisions of the Magnuson-Stevens Act support one of the Nation's overall marine resource management goals - maintaining sustainable fisheries. Achieving this goal requires maintenance of the quality and quantity of habitats necessary for fishery resources.

The Magnuson-Stevens Act defines EFH as "...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Rules promulgated by the National Marine Fisheries Service (NMFS) in 2002 further clarify EFH with the following definitions: **waters** - aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; **substrate** - sediment, hardbottom, structures underlying the waters, and associated biological communities; **necessary** - the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and **spawning, breeding, feeding, or growth to maturity** - stages representing a species' full life cycle. EFH may be a subset of all areas occupied by a species. Acknowledging that the amount of information available for EFH determinations will vary for the different life stages of each species, the rule directs the fishery management councils and NMFS to use the best available information, to take a risk averse approach to designations, and to be increasingly specific and narrow in the delineations of EFH as more refined information becomes available.

The rule also provides for fishery management councils and NMFS to consider more limited designations for each species. Habitat Areas of Particular Concern (HAPCs) are subsets of EFH that are rare, particularly susceptible to human-induced degradation, especially important ecologically, or located in an environmentally stressed area. In general, HAPCs include habitats important for the migration, spawning, and rearing of fish or shellfish. Actions with potential adverse impacts to HAPCs are more carefully scrutinized and subject to more stringent conservation recommendations.

The South Atlantic Fishery Management Council (SAFMC) designates mangrove; seagrass; hardbottom, coral, and coral reefs; intertidal flats; coastal inlets; and other bottom habitats within the Port Everglades project area as EFH (SAFMC 1998). In addition, the Mid-Atlantic Fishery Management Council designates coastal inlets as EFH for bluefish and the NMFS designates coastal inlets as EFH for a variety of sharks.

Within southeast Florida, including the Port Everglades project area, nearshore bottom, coral, coral reef, live/hardbottom, mangroves, seagrass, and coastal inlets are HAPCs (SAFMC 1998). Managed species that commonly inhabit the study area include pink shrimp (*Farfantepenaeus duorarum*); spiny lobster (*Panulirus argus*); and members of the 73-species snapper-grouper complex, including bluestriped grunt (*Haemulon sciurus*), French grunt (*H. flavolineatum*), mahogany snapper (*Lutjanus mahogoni*), yellowtail snapper (*Ocyurus chrysurus*), and red grouper (*Epinephelus morio*). These species use inshore habitats as juveniles and sub-adults, and offshore hardbottom and reef communities offshore as adults. Other species of the snapper-grouper complex commonly seen offshore in the study area include gray triggerfish (*Balistes capricus*) and hogfish (*Lachnolaimus maximus*). Coastal migratory pelagic species also commonly utilize the offshore area adjacent to the study area, including cero (*Scomberomorus regalis*) and Spanish mackerel (*S. maculatus*). As many as 60 coral species can occur off the coast of Florida (SAFMC 2009) and these resources fall under the protection of the SAFMC coral, coral reefs, and live/hardbottom Fishery Management Plan (FMP).

Table 1: Federally managed species, categorized by FMP, and species habitat affinity in the Port Everglades project area

Fishery Management Plan (FMP)	Federally Managed Species Known to Occur in Pt Everglades		EFH within the Pt Everglades Expansion Areas	HAPC within the Pt Everglades Expansion Areas
Snapper/grouper FMP	Grunts (all 11 species)		Outer Entrance Channel	
	Black margate (<i>Anistotremus virgatus</i>) ¹	Juvenile snappers (<i>Lutjanus</i> spp.) ²	live/hardbottom and coral reefs	medium to high profile hardbottoms
	Parrotfish (<i>Micropogonias undulatus</i>) ²	Mutton snapper (<i>Lutjanus analis</i>) ²	attached macroalgae	nearshore hardbottom areas
	Grunts (<i>Haemulon</i> spp.) ²	Schoolmaster (<i>Lutjanus apodus</i>) ²	unconsolidated bottom (soft sediments)	all thermotypic coral habitats and reefs
	Margate (<i>Haemulon album</i>) ²	Gray snapper (<i>Lutjanus griseus</i>) ²		
	Tointate (<i>Haemulon aurolineatum</i>) ²	Dog snapper (<i>Lutjanus jaco</i>) ²		
			Interior Areas of Port Everglades	
	Smallmouth grunt (<i>Haemulon chrysargyreum</i>) ²	Mahogany snapper (<i>Lutjanus mahogoni</i>) ²	submerged aquatic vegetation (SAV); seagrass and macroalgae	mangrove habitat
	French grunt (<i>Haemulon flavolineatum</i>) ²	Lane snapper (<i>Lutjanus synagris</i>) ²	tidal creeks	seagrass habitat
	White grunt (<i>Haemulon plumieri</i>) ²	Yellowtail snapper (<i>Ocyurus chrysurus</i>) ²	estuarine scrub/shrub (mangrove fringe)	coastal inlet
	Bluestriped grunt (<i>Haemulon sciurus</i>) ²	Grouper and Sea breams (12 of 21 species)		
	Sailor's choice (<i>Haemulon parra</i>) ²	Rock hind (<i>Epinephelus adscensionis</i>) ²	unconsolidated bottom (soft sediments)	
	Cottonwick (<i>Haemulon melaurum</i>) ²	Red grouper (<i>Epinephelus morio</i>) ²		
	Spanish grunt (<i>Haemulon macrostomum</i>) ²	Red hind (<i>Epinephelus guttatus</i>) ²		
	Porgies (5 of 9 species)	Coney (<i>Cephalopholis fulva</i>) ²		
	Porgy (<i>Calamus</i> spp.) ²	Graysby (<i>Cephalopholis cruentata</i>) ²		
	Jailhead porgy (<i>Calamus bajonado</i>) ²	Bank sea bass (<i>Centropristis ocyurus</i>) ²		
	Knobbed porgy (<i>Calamus nodosus</i>) ²	Black grouper (<i>Mycteroperca bonaci</i>) ²		
	Littlehead porgy (<i>Calamus procerus</i>) ²	Gag (<i>Mycteroperca microlepis</i>) ²		
	Saucereye porgy (<i>Calamus calamus</i>) ²	Scamp (<i>Mycteroperca phenax</i>) ²		
	Sheepshead porgy (<i>Calamus penne</i>) ²	Yellowfin grouper (<i>Mycteroperca venenosa</i>) ²		
Sources of information: DCA 2001 DCA 2006 no subscript indicates reported in both both DCA 2001 & 2006 ¹ Not reported in DCA 2001 or DCA 2006, but reported in Ferro et al. 2005		Jacks (5 of 8 species)	Yellowmouth grouper (<i>Mycteroperca interstitialis</i>) ²	
		Blue runner (<i>Caranx cryos</i>) ²	Tilfishes (1 of 3 species)	
		Bar jack (<i>Caranx ruber</i>) ²	Sand tilefish (<i>Molacanthus plumieri</i>) ²	
		Horse-eye jack (<i>Caranx latus</i>) ²	Triggerfishes (3 of 3 species)	
		Yellow jack (<i>Caranx bartholomaei</i>) ²	Gray triggerfish (<i>Balistes capricornis</i>) ²	
		Almaco jack (<i>Seriola lalandi</i>) ²	Queen triggerfish (<i>Balistes vetula</i>) ²	
		Wrasses (2 of 2 species)	Ocean triggerfish (<i>Canthidermis sufflamen</i>) ²	
		Puddingwife (<i>Halichoeres radiatus</i>) ²	Spadefishes (1 of 1 species)	
		Hogfish (<i>Lachnolaimus maximus</i>) ²	Spadefish (<i>Chaetodipterus faber</i>) ²	
Shrimp FMP (Penaeid)	None observed but since commercial fisheries exists to the north and south of the inlet, the presence of pink shrimp (<i>Farfantepenaeus duorarum</i>) is likely. DCA 2001 states that pink shrimp commonly inhabit the study area.		Outer Entrance Channel	
			offshore marine habitats used for spawning and growth to maturity (sand bottom)	
			Interior Areas of Port Everglades	
			subtidal and intertidal non-vegetated flats; all interconnected water bodies (to connect areas with appropriate sediment types)	coastal inlet
Spiny lobster	None observed, but highly likely. DCA 2001 states that <i>Paralimnargus</i> commonly inhabit the study area.		Outer Entrance Channel	
			coral and live/hardbottom habitat	coral/hardbottom habitat from Jupiter inlet through the Dry Tortugas
			shallow subtidal bottom	
			sponges	
			unconsolidated bottom (soft sediments)	
			Interior Areas of Port Everglades	
			seagrass	
			algal communities (<i>Laurencia</i> spp.)	
			mangrove habitats (prop-roots)	
Coastal Migratory Pelagics	Spanish mackerel (<i>Scomberomorus maculatus</i>) ²		Outer Entrance Channel	
			high profile rocky bottom	nearshore hardbottom south of Cape Canaveral
			barrier island ocean-side waters from the surf break to the shelf break	<i>Phragmatopoma</i> worm reefs
			Interior Areas of Port Everglades	
			seagrass	

Table 1 cont'd:

Fishery Management Plan (FMP)	Federally Managed Species Known to Occur in Pt Everglades		EFH within the Pt Everglades Expansion Areas	HAPC within the Pt Everglades Expansion Areas
	<i>Acropora cervicornis</i> ¹	<i>Mycetophyllia frax</i> ²	Outer Entrance Channel	
Coral, Coral Reefs, Live/Hardbottom Habitat	<i>Agaricia agaricites</i> ²	<i>Mycetophyllia lamarckiana</i> ²	rough, hard, exposed, stable substrate from Palm Beach County south through the Florida Reef Tract in 30 m depth	nearshore (0-4 m, 0-12 ft) hardbottom
Sources of information:	<i>Agaricia lamarcki</i> ²	<i>Phyllangia americana</i> ²	for ahermatypic corals hard substrate in subtidal to outer shelf depths	offshore (5-30 m, 15-90 ft) hardbottom from Palm Beach to Fowey Rocks
¹ DCA 2001	<i>Calypophyllia natans</i> ²	<i>Porites astreoides</i> ²	EFH for <i>Antipatharia</i> includes rough, hard, exposed, stable substrate offshore in high (30-35‰) salinity waters in depths exceeding 18 m (54 ft)	<i>Phragmatopoma</i> worm reefs
² OCA 2006	<i>Dichocoenia stokesii</i> ²	<i>Porites porites</i> ²	EFH for octocorals (excludes the Order Pennatulacea) includes rough, hard, stable substrate in subtidal to outer shelf depths	
³ FDEP 2008	<i>Diploria clivosa</i> ²	<i>Scolymia</i> spp. ²		
	<i>Diploria labyrinthiformis</i> ²	<i>Briareum</i> ²		
	<i>Diploria strigosa</i> ²	<i>Ellisella</i> ²		
	<i>Eusmilia fastigiata</i> ²	<i>Erythropodium</i> ²		
	<i>Leptoseris cucullata</i> ²	<i>Eunicea</i> ²		
	<i>Madracis decactis</i> ²	<i>Ichligorgia</i> ²		
	<i>Madracis pharensis</i> ²	<i>Muricea</i> ²		
	<i>Manicina areolata</i> ²	<i>Muriceopsis</i> ²		
	<i>Meandrina meandrites</i> ²	<i>Plexaura</i> ²		
	<i>Montastraea annularis</i> ²	<i>Plexaurella</i> ²		
	<i>Montastraea cavernosa</i> ²	<i>Pseudoplexaura</i> ²		
	<i>Muxia angulosa</i> ²	<i>Pseudopterogorgia</i> ²		
	<i>Mycetophyllia aliciae</i> ²	<i>Pterogorgia</i> ²		
Highly Migratory Species FMP	Finetooth shark (<i>Carcharhinus isodon</i>) ¹		Outer Entrance Channel	
	Lemon shark (<i>Negaprion brevirostris</i>) ^{1, 3}		lemon and nurse sharks have habitat affinity for coral reefs	
¹ Willey & Simpfendorfer 2007	Tiger shark (<i>Galeocerdo cuvier</i>) ¹		Interior Area of Port Everglades	
² Steele & Williams 1981	Atlantic sharpnose shark (<i>Rhizoprionodon terraenovae</i>) ¹		tiger and Atlantic sharpnose sharks have affinity for seagrass habitats	
³ Ferre et al. 2005	Nurse shark (<i>Ginglymostoma cirratum</i>) ^{1, 2, 3}		nurse and lemon sharks have affinity for mangrove habitat	
	Bonnethead (<i>Sphyrna tiburo</i>) ¹		tiger, finetooth, and Atlantic sharpnose sharks have affinity for soft bottom habitats	

While not part of the currently proposed action, the Port is considering additional work that may impact two of the seagrass assessment areas (see Figure 1, areas 6 and 7) and six of the seven mangrove assessment areas (see Figure 3). The Council on Environmental Quality (1997) directs that descriptions of baseline conditions in the Affected Environment Section of the Environmental Impact Statement (EIS) provide the necessary context for evaluating cumulative effects in other sections of the EIS. Based on this guidance, mangrove and seagrass assessment areas that are not part of the currently proposed action are included in this appendix of the EIS. This approach recognizes the mobility of fishery resources within nearby habitat types and among different habitat types.

2. Seagrass

2.1 Review of literature, related information, and views of recognized experts on the habitat or species that may be affected

2.1.1 Community composition of seagrass in the Port Everglades area

Since 1999, the seagrass community in the Port Everglades area has included *Halophila decipiens*, *H. johnsonii*, and *Halodule wrightii*. The seagrass habitats are spatially and temporally dynamic, but persistently present within each of the seven assessment areas (Figure 1; Table 3). Regardless of species composition or developmental stage, seagrass patches and entire beds can move, the rate of which may vary on scales of weeks to decades (SAFMC 2009). The expansion and contraction of seagrass beds, also referred to as “pulsating patches” may be a long-term survival strategy of *H. johnsonii* (Virmstein et al. 2009) and other seagrass species. For impact assessment purposes, it is important to consider the broader seagrass habitat and not just the currently vegetated portions. Seagrass habitats include not only continuous vegetated beds, but also patchy environments with unvegetated areas between the patches as part of the habitat (SAFMC 2009). Available data show that patchy habitats provide ecological functions similar to continuous meadows (Murphey and Fonseca 1995). The absence of seagrass in a particular location during an isolated survey event does not necessarily mean that the location is not viable seagrass habitat and could be considered as potential habitat if the environmental conditions are suitable. It could indicate present conditions are unfavorable for growth at that moment in time, and the duration of this condition could vary from months to years (SAFMC 2009).

Virmstein et al. (2006) observed seagrass coverage expansion within a year and concluded that seagrass responds rapidly to changing environmental conditions. Because seagrass coverage and density in the Port Everglades area are dynamic, this may also indicate high resilience to changing environmental conditions. However, the consequences of human development and other anthropogenic pressures in a coastal basin and the loss of natural hydrologic buffers can compromise an estuary’s resilience to rapidly recover from natural pressures, e.g., hurricanes and seasonal salinity fluctuations (Steward et al. 2006).

Halophila decipiens

Halophila decipiens is the only seagrass species identified in all seven assessment areas during survey events. *Halophila decipiens* is also the only seagrass species that has been observed in assessment areas 1 (Outer Entrance Channel, OEC) and 3 (Inner Entrance Channel, IEC) (Figure 1). This species is highly fecund and cosmopolitan, occupying niches that larger-sized perennial species cannot utilize (Hammerstrom and Kenworthy 2003). The short life history of *H. decipiens* and the apparent existence of a buried, but moveable seed bank indicates that spatial organization of this community is dictated first by large-scale dispersal of plant propagules (to hundreds of meters) and then, within a growing season, through physical perturbation, bioturbation, and clonal organization of the seagrass operating over very small distances (Fonseca et al. 2007). This species can contribute to a more clumped distribution early in the growing season with subsequent vegetative extension. Fonseca et al. (2008) point out that large-scale disturbance events, such as hurricanes, act to redistribute *H. decipiens* propagules, whereupon clonal

organization of the plants in their spring to fall existence likely dictates the pattern of seafloor occupation. Furthermore, bioturbation plays an important role in either burying seeds or bringing seeds to the sediment surface where they can germinate. They further note that this species appears to have the facility for resiliency of natural disturbances (e.g., hurricanes) of its community that appear to be able to move the seed bank hundreds, if not thousands, of meters, leading to tremendous seasonal changes in the spatial distribution of the plants. The small seed size and the burial of unvegetated substrate by sediments, coupled with movement along with sediment is a plausible mechanism to explain the inter-annual patterns of seagrass distribution (*sensu* Josselyn et al. 1986). Thus, the definition of “seagrass habitat” for *Halophila* can be highly misleading if presently vacant spaces among patches are not properly considered as requisite space for persistence of the community (*sensu* Fonseca et al. 1998).

Although *H. decipiens* is small and present only through a few months of the year, the species provides significant sediment stabilization (Fonseca 1989). Despite a small size and a relatively low rate of production, *H. decipiens* makes an important contribution to primary production in an ecosystem (Iverson and Bittaker 1986). It is important to note that *H. decipiens* communities are a mosaic of seasonally ephemeral seagrass patches that provide the valuable ecological functions recognized for the larger seagrasses (Hammerstrom et al. 2006), therefore the patchy abundance of *Halophila* is a function of the genus dynamics and should be recognized as the ambient condition (Jud Kenworthy, PhD., personal communication, NOAA National Centers for Coastal and Ocean Science, 2010). Rapid growth, high turnover rates, and labile tissues make *Halophila* spp. a good source of nutrition for several marine herbivores and detritivores (Kenworthy et al. 1989).

Halodule wrightii

Halodule wrightii occurred in four of the seven seagrass assessment areas including areas 2, 5, 6, and 7. It was not observed in any of the seagrass assessment areas in 2006 (DCA 2006), however it was observed in the middle and southern reaches of the Port Everglades area during 2008 and 2009, primarily in assessment areas 5, 6, and 7. *Halodule wrightii* is a highly productive seagrass under a variety of light, nutrient, and salinity conditions and because of this it is known to have ubiquitous distribution and an opportunistic strategy as a colonizing species (Dunton 1996). This species can persist under diminishing environmental conditions by reclamation of nutrients and stored reserves from senescing shoots and rhizomes (Onuf 1996). Rhizome growth and branch rate for *H. wrightii* is high compared to climax seagrass species (e.g., *Thalassia testudinum*) which allows the species to rapidly occupy the space it colonizes, however it has a high shoot mortality and low life expectancy which implies it may not occupy the space over a long period of time (Gallegos et al. 1994).

Heidelbaugh (1999) conducted a study within a 372 m² (0.09 acres) study area that examined benthic fauna associated with seagrass and unvegetated bottoms and collected 117 species and 690 macrofaunal organisms from *H. wrightii* beds. The most abundant infaunal organisms belonged to the phylum Nematoda while the most abundant epifaunal species were amphipods and tanaids. The majority of macrofaunal organisms consisted of decapod crustaceans (*Callinectes sapidus*), fishes (*Eucinostomus* sp.), and some gastropods (especially *Bursatella leachii*). An additional study compared nekton densities among *H. engelmannii*, *H. wrightii*, and nonvegetated habitats and, similar to the results of the Heidelbaugh (1999) study, found higher densities in the seagrass habitats (King and Sheridan 2006). These studies and others (Sheridan and Livingston 1983; Stoner 1983; Lewis 1984) conclude that on a per plant biomass basis, *Halodule* provides as much fish and infaunal habitat value as other species with higher above-ground biomass, such as *Thalassia testudinum*.

Halophila johnsonii

Under the Endangered Species Act, the Jacksonville District will separately consult with NMFS on potential effects to threatened *H. johnsonii* from the proposed action, however it is important to note that Johnson's seagrass, like other seagrass species, is also designated as EFH.

Halophila johnsonii was documented by at least one survey in all assessment areas except the OEC and IEC. In 2006, *H. johnsonii* was not observed in two assessment areas where it was previously observed (areas 5 and 6), however it returned to these areas in 2009 (Figure 2). The expansion and contraction of *H. johnsonii*, also referred to as "pulsating patches", may be a long-term survival strategy (Virstein et al. 2009). The persistent presence of high density, elevated patches of *H. johnsonii* on flood tidal deltas near inlets suggests that it is capable of sediment stabilization (NMFS 2007). Given the similarities between the morphology of other *Halophila* spp. and *H. johnsonii*, it is reasonable to assume that *H. johnsonii* has the same capabilities as these other species to provide important ecological functions and services to the coastal ecosystem of southeastern Florida (NMFS 2007).

In the Heidelberg study (1999), *H. johnsonii* beds yielded a total of 126 species (69 epifauna and 57 infauna). Three hundred and twenty macrofaunal organisms were collected from *H. johnsonii* beds. NMFS has concluded that the conservation of *H. johnsonii* will not only maintain the diversity of the seagrass communities, but also the important biodiversity and biophysical characteristics of the entire ecosystem (NMFS 2007).

2.1.2 Ecological functions of seagrass and seagrass as EFH

The SAFMC designated seagrass as EFH for species managed under the snapper-grouper, spiny lobster, and coastal migratory pelagics FMPs. See Table 1 for a list of species associated with seagrass habitats and documented in the project area. Gray snapper (*Lutjanus griseus*) was observed in both reef fish surveys (DCA 2001; DCA 2006). Other studies from Florida have reported that young gray snapper are frequently captured in shrimp trawls in seagrass beds at night (Serafy et al. 2007). Other species managed under the snapper-grouper FMP that show an affinity for seagrass habitat include juvenile dog snapper (*L. joci*), goliath grouper (*Epinephelus itajara*), bluestriped grunt, spiny lobster, and pink shrimp. Additionally, species managed under the highly migratory species FMP, such as tiger (*Galeocerdo cuvier*) and Atlantic sharpnose (*Rhizoprionodon terraenovae*) sharks have an affinity for seagrass habitats.

Many ecological functions are associated with seagrass, including nutrient recycling, detrital production and export, sediment stabilization, and provision of food and habitat for many life stages of numerous marine species. The most well-known function of seagrass is the role as habitat for numerous fishes and invertebrates. Some species spend their entire lives within seagrass beds and others utilize them only during certain stages of their life cycles (usually the postlarval and juvenile stages). Seagrass beds are one of the primary nursery habitats for coastal marine fauna because of their abundance of prey items as well as the protection they provide from predators. Like many of the larger species, *Halophila* species provide organic matter, habitat structure, and food for benthic feeding organisms (Valentine and Heck 1999). In addition, *Halophila*-based ecosystems provide important food for herbivorous reptiles (Ross 1985).

Seagrass habitats perform numerous important functions in coastal ecosystems that aid in successful spawning, feeding, and growth of several seasonal and resident fishery species, thus serving as EFH. SAFMC (2009) provides a review of several studies which have concluded that, although juvenile fish and shellfish can use other types of habitat, many estuarine species rely on seagrass for either part of their life history or some aspect of their nutrition, and that the loss or reduction of this habitat will produce concomitant declines in juvenile fish settlement. Seagrass habitat type is essential to many species of commercial, recreational and ecologically important shellfish and finfish (SAFMC 2009). *Halophila*-

based ecosystems, as occur in the Port Everglades project area, are particularly important habitats for penaeid shrimp (Ross 1985). Scientific evidence also indicates other species have a strong reliance on seagrass habitats, including blue crabs and spiny lobster (SAFMC 2009).

One of the more important functions of seagrass as EFH is the nursery role. Seagrass habitats serve as nurseries for juvenile fish and their food sources. Seagrass habitats also affect ecological processes which enable fish to grow and mature to different ontogenetic stages, eventually reaching adult forms and emigrating to other habitats (Orth et al. 1984; Koenig and Coleman 1998). Several studies indicate that juvenile fishes are the most abundant age group in seagrass beds, especially in more temperate waters (SAFMC 2009). In particular, juvenile yellowtail snapper and French grunt are highly associated with seagrass beds (Cocheret de la Moriniere et al. 2002). Seagrass functions as a nursery is critical for many estuarine dependent fishery species in the South Atlantic region such as gag (*Mycteroperca microlepis*), flounders (family Pleuronectidae), red drum (*Sciaenops ocellatus*), weakfish (*Cynoscion regalis*), and striped mullet (*Mugil cephalus*) (Thayer et al. 1984).

The same ecological characteristics of seagrass beds that make the habitat favorable for juveniles similarly benefit larval fish and invertebrates. There have been a few studies dealing with larval fish settlement and use of seagrass habitats. Parish (1989) documented that seagrass provides habitat for settling postlarvae and developing juvenile reef fishes. Seagrass beds are important for the brooding of eggs (for example, Atlantic silverstripe halfbeak, *Hyporhamphus unifasciatus*) and for fishes with demersal eggs (e.g., rough silverside, *Membras martinica*). Larvae of spring-summer spawners such as anchovies (*Anchoa* spp.), gobies, (*Gobiosoma* spp.), northern pipefish (*Syngnathus fuscus*), weakfish, southern kingfish (*Menticirrhus americanus*), red drum, silver perch (*Bairdiella chrysoura*), rough silverside, feather blenny (*Hypsoblennius hentz*), and halfbeaks are present and use seagrass beds (SAFMC 2009).

A large proportion of the seasonal residents of seagrass habitats in the South Atlantic region spawn offshore on continental shelves and reefs, enter the estuaries in late winter and early spring and take up residency until fall or until they reach a certain ontogenetic stage when they move to other habitats or offshore to renew this cycle. The proximity of seagrass to the Port Everglades Inlet may increase the value of the seagrass habitats located near the inlet, in particular for oceanic and estuarine spawners. Gilmore (1995) concluded that estuarine-ocean inlet seagrass meadow fish faunas are ontogenetically coupled with rich nearby ocean reef fish communities and support the richest estuarine ichthyofauna (214 species from seagrasses, 282 from ocean inlets). In addition, ocean inlet seagrass meadows are preferred habitat for mutton snapper juveniles (*Lutjanus analis*) (Gilmore 1995). Red drum, speckled trout (*Cynoscion nebulosus*), and weakfish spawn near inlet systems in late summer and fall and use seagrass as nursery areas (Street et al. 2005). In addition to seasonal and migratory species, there are resident fish species and other fauna that continuously utilize seagrass beds (Sogard et al. 1987).

In addition, seagrass habitats transfer unique biological, physical and chemical characteristics to water bodies which both directly and indirectly contribute to the necessary attributes of EFH (Zieman 1982; Thayer et al. 1984). Seagrass habitats play an important role as EFH by influencing the environment they grow in as well as adjacent environments. Essentially, seagrass habitat affects water flow, velocity, and turbulence, thereby creating an environment favorable to settlement of fish and fish food. Organic and inorganic particles settle into the seagrass beds providing nutrients and food, enriching the environment and enhancing secondary production. In turn, the substrate is stabilized, nutrients are temporarily conserved within the meadows and water quality is improved by the presence of seagrass. These ecological services enhance the environmental conditions favoring high rates of primary and secondary production in support of healthy and abundant fish communities (SAFMC 2009).

2.2 Review of available seagrass surveys

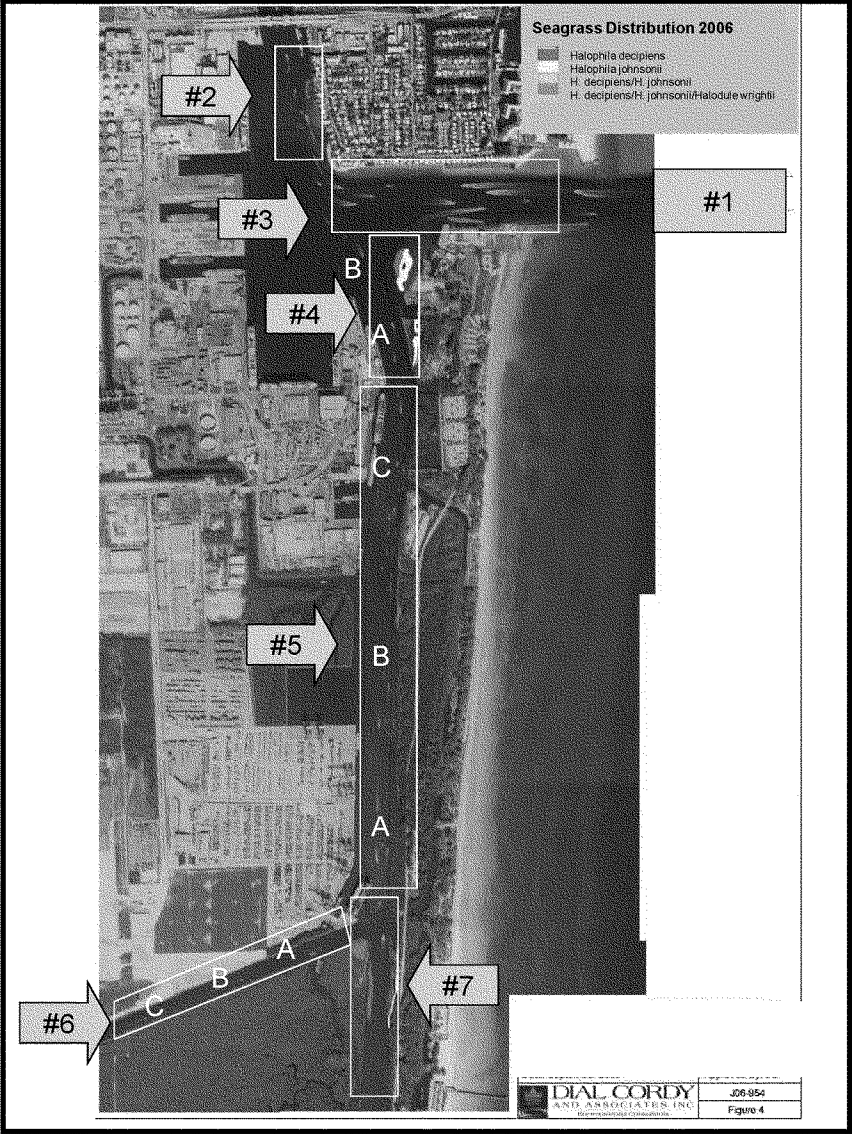
NMFS characterized seven seagrass assessment areas that were defined based on similarities in water depth, water quality and clarity, and landscape position (Figure 1). A summary of each assessment area is provided below and is based on six seagrass mapping, surveying, or verification efforts conducted in Port Everglades between 1999 and 2009 (Table 2).

Table 2: Seagrass surveys performed in the Port Everglades Area between 2001 to 2009

Study reference	Date of Study	Spatial Scope of Survey
DCA 2001	1999 to 2001	Expansion area (except Outer Entrance Channel) and surrounding areas
DCA 2001	2001	Outer Entrance Channel
DCA 2006	2006	Areas where seagrass was observed in DCA 2001
FDEP 2008	2008	Project area, except Outer Entrance Channel and portions of the South Access Channel
Miller Legg 2009	2008 to 2009	Dania Cut-off Canal
DCA 2009	2009	Expansion area, except Outer Entrance Channel

DCA (2001), based on a survey performed from 1999 to 2001, documented 8.71 acres of seagrass within the study area. This survey report includes results from an integrated video assessment conducted in May 2001 that identified *Halophila decipiens* in the OEC. DCA (2006), based on a survey performed in 2006, documented 8.44 acres of seagrass within the study area. The Florida Department of Environmental Protection (FDEP, 2008) provided seagrass polygon and point data from an interagency verification survey in the Port Everglades Area during June 2008. This verification survey was completed by representatives of FDEP, NMFS, Broward County, Jacksonville District, Florida Fish and Wildlife Conservation Commission (FWC), and Fish and Wildlife Service. The purpose of the verification survey was to define specific seagrass assessment areas for the purposes of completing a Uniform Mitigation Assessment Method, to verify the results of previous surveys, and to determine if seagrass had expanded into new areas. In August 2008 and August 2009, additional surveys were completed along the Dania Cut-Off Canal (DCC) portion of the project area associated with a separate project at West Lake Park (Miller Legg 2009). In 2009, 11.98 acres of seagrass were documented in the project area (DCA 2009). In 2009, NMFS and FWC completed an additional verification survey in the DCC. Table 3 provides the acreage of seagrass within each assessment area for each survey in addition to the cumulative acreage for the assessment area over multiple survey years.

Figure 1 : Seagrass assessment areas (modified from figure 4 in DCA 2006). Note area 1 is the Outer Entrance Channel (OEC); area 3 is the Inner Entrance Channel (IEC); area 5 is within the Atlantic Intracoastal Waterway (AIWW) or South Access Channel (SAC); area 6 is the Dania Cut-off Canal (DCC)



Seagrass Assessment Area 1:

This area is located within the Outer Entrance Channel and supports 1.04 acres of *H. decipiens* (DCA 2001). This area has not been re-surveyed since 2001. Therefore, the 2001 acreage is used as the cumulative acreage of this area.

Seagrass Assessment Area 2:

This is the northernmost seagrass area within the proposed Port expansion area and is north of the IEC and main turning basin (MTB) and along the eastern side of the Atlantic Intracoastal Waterway (AIWW). In 1999, this area contained 1.54 acres of mixed *H. decipiens*, *H. johnsonii*, and *Halodule wrightii* (DCA 2001). In 2006, the area contained 0.63 acres of *H. decipiens* (DCA 2006). The 2008 interagency verification survey of this area did not reveal any notable changes in seagrass distribution, however a mixed *H. decipiens* and *H. johnsonii* bed along the east slope of the AIWW was observed. In 2009, the area contained 0.13 acres of *H. johnsonii*, a decrease in acreage and a notable shift from a mixed seagrass community to a monospecific bed. The cumulative coverage is 2.07 acres (Table 3).

Table 3: Cumulative seagrass area by assessment site.

Seagrass Assessment Area	2001 Acres	2006 Acres	2009 Acres	Cumulative Acres
1	1.04	Not surveyed	Not surveyed	1.04
2	1.54	0.63	0.13	2.07
3	0.68	0.58	0.09	0.75
4	1.26	3.89	3.87	5.51
5	0.84	0.55	0.05	1.15
6	0.24	0.12	0.74	1.01
7	4.11	2.67	7.11	7.92
Total	9.70	8.44	11.98	19.45

Seagrass Assessment Area 3:

This area is located within the IEC and the MTB. In 2001, *H. decipiens* was documented along the northern side of the IEC (DCA 2001) and in 2001 and 2006 *H. decipiens* was documented along the southern side of the IEC (DCA 2001; DCA 2006). In 2008, additional *H. decipiens* was observed along the entire northern side of the IEC and along the south side of the IEC. Although the seagrass bed along the southern side of the IEC extended to the east, additional points were not collected (FDEP 2008). In 2009, *H. decipiens* was documented along the northern and southern sides of the IEC (DCA 2009). In 2001, the seagrass acreage in this area was 0.68 acres and in 2006 the seagrass acreage was 0.58 acres. In 2009 the seagrass acreage in this area was 0.09 acres. The cumulative acreage is 0.75 acres (Table 3).

Seagrass Assessment Area 4:

This area is located south of the IEC. In 2001 this area contained 1.26 acres of monospecific *H. johnsonii* (DCA 2001) and in 2006 this area contained 3.89 acres of *H. johnsonii* and *H. decipiens* (DCA 2006). This area was not verified in 2008. In 2009, the area contained 3.87 acres of mixed *H. decipiens* and *H. johnsonii* (DCA 2009). The cumulative acreage is 5.51 acres (Table 3).

Seagrass Assessment Area 5:

This area is located along the southern access channel (SAC). In 2001, the area contained 0.84 acres of *H. johnsonii*, *H. decipiens*, and *Halodule wrightii* (DCA 2001). In 2006, this area contained 0.55 acres of *H. decipiens* (DCA 2006). In 2009, the area contained 0.05 acres of *H. johnsonii*, *H. decipiens*, and *Halodule wrightii*. The 2006 report documents a complete species transition (from *H. wrightii* to *Halophila decipiens*) within one bed along the SAC (see Figure 2). In preparation for the interagency

verification survey in 2008, the area was subdivided into three assessment areas, identified as areas A, B, and C (see Figure 1). The 2008 verification survey did not include Area C. However, the 2008 survey documented a notable increase in seagrass locations along Areas A and B. In 2009, this bed transitioned again to a mixed *H. wrightii*, *Halophila decipiens*, and *H. johnsonii* bed (DCA 2009). The cumulative seagrass acreage is 1.15 acres (Table 3).

Seagrass Assessment Area 6:

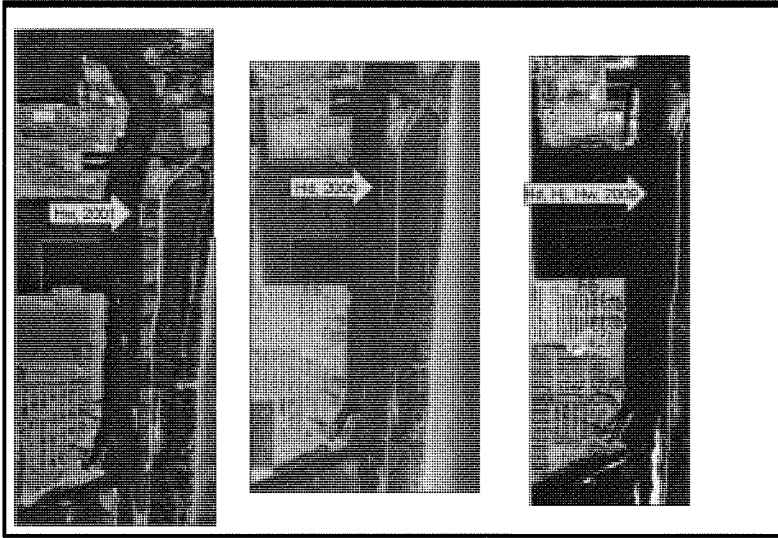
This area is not within the current footprint of the proposed project. In 2001, the area contained 0.24 acres of *H. decipiens*, *H. johnsonii*, and *Halodule wrightii* along the southern side of the DCC. In 2006 the area contained 0.12 acres of monospecific *H. decipiens* along the south side of the DCC. The 2008 verification survey documented a notable increase in seagrass locations along the north and south sides of the DCC. Of particular importance is the documentation of a westward expansion of the *Halophila* species and the expansion of seagrass habitat to the north side of the DCC, in addition to one observation of *Halodule wrightii*. In 2009, *H. johnsonii* and *H. decipiens* were documented along the south side of the channel and *H. johnsonii* along the north side of the channel. In 2009, 0.74 acres of seagrass were documented in this area. The cumulative acreage in this area is 1.01 acres (Table 3).

In 2009, the survey geographic scope did not include transects in the entire western seagrass expansion area (DCA 2009). On July 31, 2009, NMFS and FWC attempted to conduct a seagrass survey west of the Port Everglades project area associated with the review of a separate project proposed by the Florida Inland Navigation District. However, biologists were unable to complete the survey because the bottom was covered in cyanobacteria. NMFS swam along the Port Everglades project survey area (on the south side of the DCC) and observed similar conditions. Cyanobacteria blooms are common in this area and appear to correlate with periods of warm water, freshwater inputs, and increased nutrient inputs from upstream of the DCC (Ryan St. George, personal communication, Broward County Department of Environmental Protection and Growth Management, 2009).

Seagrass Assessment Area 7:

Similar to assessment area 6, this area is not within the current footprint of the proposed project. This area is located along the AIWW south of the DCC. This was the only area where seagrass was documented along the western side of the AIWW. In 2001 the area contained 4.11 acres of mixed *H. johnsonii*, *H. decipiens*, and *Halodule wrightii*, however *Halodule wrightii* was only observed along the east side of the AIWW. In 2006, the area contained 2.67 acres of *H. johnsonii* and *H. decipiens*. Based on the 2008 verification survey, it did not appear that conditions have changed much in this area, except for the channel-ward migration of a *H. johnsonii* bed along the east side of AIWW. In 2009, the area contained 7.11 acres of *H. johnsonii*, *H. decipiens*, and *Halodule wrightii*. Similar to 2001, the *Halodule wrightii* was only observed along the east side of the AIWW. Another notable change is that the west side of the AIWW only contained *H. decipiens* and in all previous years, *H. johnsonii* was also observed along the west side of the AIWW. The cumulative seagrass acreage is 7.92 acres (Table 3).

Figure 2: 2001 to 2009 species transition along SAC From left to right, DCA 2001 (Figures 8-9), and DCA 2006 (Figure 4), and DCA 2009 (Figure 5). Hw = *Halodule wrightii*; Hd = *Halophila decipiens*; Hj = *H. johnsonii*



2.3 Cumulative seagrass area assessment from 2001 to 2009

A GIS was used to examine the changes in seagrass coverage between 2001, 2006, and 2009. NMFS determined that the 2001 report documented 9.70 acres¹ of seagrass; the 2006 report documented 8.44 acres of seagrass; and the 2009 report documented 11.98 acres of seagrass. The latter two reports did not survey the OEC. Based on this analysis, the cumulative seagrass coverage in the Port Everglades area is 19.45 acres (Table 3).

3. Mangroves

3.1 Review of literature, related information, and views of recognized experts on the habitat or species that may be affected

Mangrove habitats are ecologically important coastal ecosystems (Lugo and Snedaker 1974). Mangrove wetlands in the Port Everglades project area provide a buffer against storm surges, reduce shoreline erosion and turbidity, absorb and transform nutrients, and are inhabited by a variety of organisms, including various life stages of federally managed fishes. Mangrove habitats provide shelter for larval, juvenile and adult fish and invertebrates, in addition to contributing dissolved and particulate organic

¹ We note that the acreage listed in the 2001 report does not include the OEC seagrass bed and the acreage provided for two polygons exceeds the square feet, resulting in a net difference of 0.047 acres.

detritus to estuarine food webs. Because of this linkage, both as habitat and as food resources, mangroves are important exporters of material to coastal systems as well as to terrestrial systems. Mangroves help shape local geomorphic processes and are important in the heterogeneity of landforms which provide shelter, foraging grounds and nursery areas for terrestrial organisms. The root system binds sediments thereby reducing sedimentation to nearby habitats and contributing to sediment stabilization. Mangrove communities support mobile components, most of which, from a fisheries standpoint, interact with the community during flood tides (Gilmore and Snedaker 1993). Transient representatives typically are represented by larval and juvenile stages of both invertebrates and fish commonly found using the fringe and overwash island mangrove forests, and frequently the adult stage is found in adjacent seagrass meadows or in reef structures.

Mangrove habitats provide nursery habitat, feeding and growth, and refuge for both recreationally and commercially important fishery organisms and their food resources when flooded. It has long been recognized that mangrove habitats in the southeastern U. S. are important to fishery resources (Odum 1988; Gilmore and Snedaker 1993). Mangroves are important for the growth and development of many marine fishes and there is a high dependence of juveniles on mangroves as nursery areas (Bacalde 1990; Rooker and Dennis 1991; Nagelkerken et al. 2000; Mumby et al. 2004).

Worldwide, mangrove ecosystems have declined by approximately 35 percent (Valiela et al. 2001). In Florida, where most U.S. mangroves are located, current mangrove coverage represents a significant reduction from coverage that existed 100 years ago (Gilmore and Snedaker 1993). Specifically, in southeast Florida (Monroe to Martin counties) mangrove acreage declined 11% from 1987 to 2000 (Ueland 2005). Nearshore mangrove habitats along the southern Florida coast also contribute substantially to regional reef fish resources, which also supports a tourist industry and recreational and commercial fisheries valued in billions of dollars (Bohnsack and Ault 1996). Mangrove habitats directly benefit the fishery resources of estuaries and coral reefs within and adjacent to Port Everglades and the Atlantic Ocean by providing nursery habitat. The cumulative loss of these habitats continues to reduce fisheries production within Florida waters.

3.1.1 Ecological function of mangroves and mangroves as EFH

The SAFMC designated mangroves as EFH-HAPC for species managed under the snapper-grouper FMP. Federally managed species documented in the Port Everglades expansion area and associated with mangrove habitat include bluestriped and French grunts; and gray and mutton snappers. Other snapper-grouper species known to utilize mangrove habitat include goliath grouper. Additionally, species managed under the highly migratory species FMP, such as nurse (*Ginglymostoma cirratum*) and lemon (*Negaprion brevirostris*) sharks exhibit an affinity for mangrove habitats. See Table 1 for a list of species associated with mangrove habitat and documented in the project area.

A few studies have quantified fishes within mangroves of southeast Florida. In a study located south of Port Everglades, Thayer et al. (1997) found 36 species exclusively in mangroves, 24 species in adjacent seagrass, 27 species in both habitats, thereby yielding a total of 63 species for mangroves in study sites that ranged in area from 21.7 to 58.2 m² (233.6 to 626.5 ft²). In a study within the Indian River Lagoon, located north of Port Everglades, Gilmore (1995) sampled estuarine mangroves over a period of more than 20 years, and recorded 88 species of fish. Spiny lobsters and pink shrimp are the most important commercial and recreational invertebrates commonly found among the prop roots of red mangroves (*Rhizophora mangle*). However, important links in the trophic structure, i.e., the amphipods, isopods, polychaetes, etc., are also prominent invertebrate components of the mangrove prop-root habitat. Snook (*Centropomus undecimalis*), goliath grouper, tripletail (*Lobotes surinamensis*), leatherjack (*Oligoplites saurus*), gray snapper, dog snapper, sailor's choice (*Haemulon parra*), bluestriped grunt, sheepshead (*Archosargus probatocephalus*), black drum (*Pogonias cromis*) and red drum also are common to this habitat, using it as refuge and as a ready source of food (SAFMC 2009). Recent studies have documented

that juvenile goliath grouper exhibit high site fidelity for mangroves and that mangrove habitats clearly fulfill an important nursery function for this species (Koenig et al. 2007; Frias-Torres 2006).

In particular, studies from southeast Florida highlight the importance of mangrove habitat for gray snapper (Luo et al. 2009) which have been documented in fish surveys conducted for Port Everglades expansion planning (DCA 2001; DCA 2006). For all life stages, mangroves are daytime resting areas for fish, thereby providing protection from predation (Luo et al. 2009). Mangroves are generally vacated at night as individuals forage in adjacent seagrass beds (Rooker and Dennis 1991; Nagelkerken et al. 2000). After foraging, gray snappers return to and shelter in resting schools in complex habitats such as mangrove prop roots (Rooker and Dennis 1991). Luo et al. (2009) also observed high densities of large (>25 cm), mature fishes, suggesting that mangrove habitats also serve as staging areas for adult congregation prior to seasonal spawning migrations to offshore reefs (Sheridan and Hays 2003).

Mangrove tidal creeks and ditches, similar to the habitat located in assessment area 2 (Figures 3 and 4), are not well-studied (Gilmore and Snedaker 1993), but based on the limited data are also utilized extensively by fishery organisms (Valentine-Rose et al. 2007; Krebs et al. 2007). Large aquatic predators appear to enter this mangrove community through the tidal tributary habitat. In particular, tarpon (*Megalops atlanticus*) is found in mangrove creek habitat. Because this habitat type (at least the creek edges) is flooded most of the time, this can serve as habitat for both resident and transient species. Predaceous fishes common to this mangrove habitat are juvenile bull sharks (*Carcharhinus leucas*), Atlantic stingray (*Dasyatis sabina*), ladyfish (*Elops saurus*), snook, goliath grouper, gray snapper and red drum. Turtles, crocodiles, and alligators also forage in these habitats (SAFMC 2009).

The mangrove basin habitat, similar to the habitat located within the westernmost edge of the Turning Notch (Figure 3, area 1), generally supports a less complete community and may be subject to higher environmental stresses due to seasonal changes in water and thus availability for fishery resources. The more abundant fishes found in this habitat type are cyprinodontiform species such as eastern mosquitofish (*Gambusia holbrooki*) and sailfin molly (*Poecilia latipinna*). These species do provide food resources for surrounding habitats during periods of flooding when there is exchange with the adjoining estuary or riverine system (SAFMC 2009).

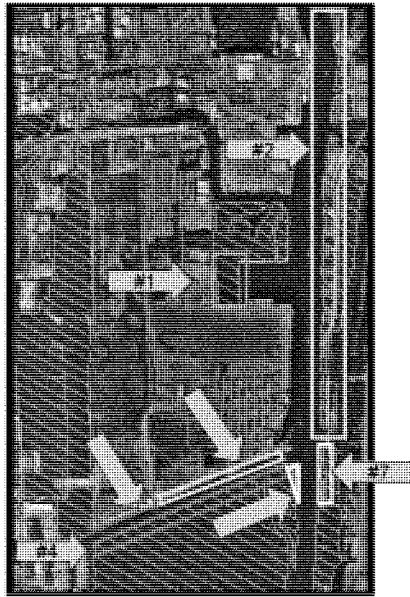
The prevailing paradigm regarding food webs of mangrove-dominated estuarine ecosystems is that they are based on particulate mangrove detritus, but research indicates that the dissolved organic form may be equally important (SAFMC 2009). Each habitat type may export organic matter that generates chemical cues regulating the presence or absence and abundance of estuarine organisms and thus, the predictable spatial and temporal patterns of marine life. For example, Huijbers et al. (2008) showed how post-larval French grunts prefer mangrove waters over coral reef waters. Determining the types and numbers of organisms that exploit these habitats, the functional aspects of habitat use, and how mangrove organic matter is transferred to higher trophic levels is critical, and are requisites for modeling linkages between variations in mangrove productivity and variations in faunal abundances. Mangroves may influence nutrient dynamics and associated coastal productivity by either removing or contributing nutrients to these systems, and data on their function in maintaining water quality of estuarine ecosystems are limited (SAFMC 2009).

3.2 Review of available surveys

NMFS characterized seven mangrove assessment areas that were defined based on similarities in water depth, water quality and clarity, and landscape position (Figure 3). A summary of each assessment area is provided below and is based on information provided in DCA 2001 and one interagency field inspection on May 6, 2008. Field notes from an interagency Estuarine Wetlands Rapid Assessment Procedure conducted in 2001 are also summarized in relevant sections. DCA (2001) characterized five

mangrove areas in the Port Everglades area, generally referred to in Figure 3 as assessment areas 1, 2, 3, 4, and 7. In 2008, NMFS observed mangroves along the northern side of the DCC (identified in Figure 3 as assessment areas 5 and 6).

Figure 3: Mangrove Assessment Areas (modified from DCA 2001). Hatching indicates mangrove habitat and numbered arrows point to assessment areas identified by colored polygon.



No dredging is currently proposed by the Jacksonville District in assessment areas 1, 3, 4, 5, 6, and 7; however the Port may request separate authorizations to dredge these areas. Therefore the assessment areas are included; this approach is consistent with the Council on Environmental Quality's recommendations for describing the affected environment (CEQ 1997). In addition, this information has relevant context because the federally managed fish move among these habitats and adjacent habitats.

Mangrove Assessment Area 1 (also referred to as the Turning Notch)

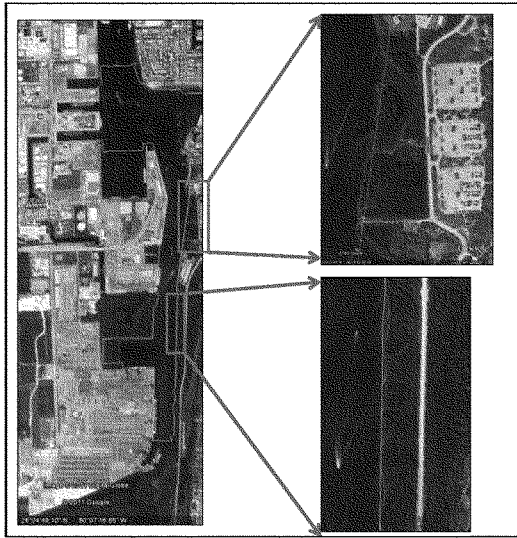
This 8.7-acre area is known as the Turning Notch mangrove assessment area. Fish and Wildlife Service field notes from the Estuarine Wetland Rapid Assessment Procedure (FWS 2001) noted mature and "pure" red black (*Avicennia germinans*), and white (*Laguncularia racemosa*) mangroves in this area. This mangrove area is mitigation for previous wetland impacts associated with the Turning Notch Project (DCA 2001). During the interagency site visit in May 2008, it was noted this area contains a mature mangrove community and the riprap revetment between the mangroves and open water appears to provide sufficient spacing to allow for detrital exchange and fishery resource access.

Mangrove Assessment Area 2

This area is the only mangrove habitat area contained within the current expansion area. This area contains narrow fringes of mangroves, well-developed mangrove wetlands, a mixed mangrove tidal creek, and oxbow features. The area is located within John U. Lloyd State Park and south of the U.S. Coast

Guard station along the east side of the AIWW (Figure 3). The northern portion of this assessment area was visited on May 6, 2008, during an interagency field inspection that characterized this area as beach sand with a narrow fringe of mangrove (approximately one tree deep). The southern portion of this mangrove area contains a well-developed mangrove wetland with tidal creeks and oxbows (Figure 4). Some of the mangrove habitat in this assessment area is mitigation for previous wetland impacts associated with the Turning Notch Project in the mid-1990s (DCA 2001). Approximately 23 acres of mangroves were planted along the eastern edge of the AIWW at John U. Lloyd State Park for mitigation associated with the Turning Notch Project, however they were not placed under a conservation easement, as they were on state owned land (DCA 2001).

Figure 4: Mangrove and Tidal Creek Habitat Within and Adjacent to Port Everglades Expansion Area. The yellow line indicates limit of proposed dredging.



Mangrove Assessment Area 3 (also referred to as the Salina Assessment Area)

This is the easternmost polygon along the south side of the DCC. This area was separated from area 4 because it appears to be functioning more as a salina (or salt flat), than as a mangrove community. NMFS and other agencies assessed this area on May 6, 2008, and characterized this area as a triangular shaped spoil area. It appears to be at a higher elevation than mangroves to the south. The area is surrounded by riprap 1 to 2 m (3 to 6 ft) wide that becomes patchy towards the south along the DCC. Red and black mangroves are present along the shoreline and there are little to no invasive, non-native plant species in this area.

Mangrove Assessment Area 4

This area is located along the southern side of the DCC and has riprap along the shoreline. This area is characterized as actively eroding (Broward County West Lake Park, Conceptual Master Plan C 2001). This was verified during the field inspection in May 2008. Specifically the frequent large vessel traffic and associated large wakes are thought to contribute to the erosion. This area is characterized as supporting a mature red mangrove community (FWS 2001). This was confirmed by agencies during a

field visit in May 2008. In addition, biologists noted that the red mangroves just beyond the eroded zone seem relatively stable and are tidally influenced.

Mangrove Assessment Area 5

The only available information for this area is from an interagency field inspection in May 2008. This area is located along northwestward side of DCC. A fence exists between assessment areas 5 and 6. This area is characterized as red, black, and white mangroves and is tidally influenced. Fringes are 3 to 5 m (9 ft to 15 ft) wide in some areas; 1 to 2 m (3 to 6 ft) wide in other areas. The shoreline generally contains riprap and the boulders vary in size. This area has some infestation of exotic invasive species, including Australian pine (*Casuarina equisetifolia*) and Brazilian pepper (*Schinus terebinthifolius*).

Mangrove Assessment Area 6

This area is along northeast side of the DCC and supports black and white mangroves; a few red mangroves are also present – generally along the eastern site of this area. The landward portions of this area are tidally influenced. The shoreline contains riprap and the boulders vary in width and size. This area has some infestation by Australian pine and Brazilian pepper. The area between the bulkhead to the east and a riprap wall is devoid of mangroves. There is also a “fill area” that is devoid of vegetated shoreline resources.

Mangrove Assessment Area 7

DCA (2001) depicts this area as a “fringing mangrove.” No other habitat characterization is available for this area, however the mangroves appear to be tidally influenced.

4. Soft bottom habitats as EFH

Soft bottom habitat is the area with unconsolidated sediment that lacks vascular plants (i.e., no seagrass is present, but macroalgae may be present). Within the interior portions of Port Everglades, the unconsolidated sediments are usually sand, silty sand, or mud with sandy material occurring more commonly in shallow waters and near the inlet and muddy sediments occurring in deepwater waters and towards the Dania Cutoff Canal. Although soft bottom habitat lacks visible structural features, many microscopic plants occur at the sediment surface and burrowing animals commonly occur below the surface (Peterson and Peterson 1979; Alongi 1990); the dominant taxa of macroinfauna are usually polychaetes, crustaceans, mollusks, and echinoderms. One of the more interesting features of soft bottom communities is that the species within this habitat can significantly structure the habitat through processes, such as bioturbation, enhancing water flow through sediments, and tube building, that affect community as a whole. Similarly, soft bottom habitat provides important ecological services to coastal ecosystems (Peterson and Lubchenco 1997). For example, soft bottom areas serve as a storage reservoir of chemicals and microbes. Intense biogeochemical processing and recycling establish a filter to trap and reprocess watershed-derived natural and human-induced nutrients and toxic substances.

One of the more important services provided by soft bottom habitat is foraging habitat for fishery species and their prey. For example, adult white grunts, which are a federally managed fishery species as well as an important food source for species managed within the snapper-grouper complex, are generalized carnivores that feed mainly on benthic invertebrates (Bowman et al. 2000; Potts and Manooch 2001). The high forage value of soft bottom habitat results from the high concentrations of organic matter transported to and produced on soft bottom and the numerically abundant, diverse invertebrate fauna associated with this habitat. While the forage value of soft bottom habitat can vary greatly with position in the landscape, proximity to physical disturbance (such as dredging and wave scour) and chemical disturbances (such as stormwater runoff and low concentrations of dissolved oxygen) can be overriding factors (Pearson and Rosenberg 1978; Diaz and Rosenberg 1995).

Soft bottom habitat also can provide refuge to smaller organisms, such as juvenile fish, because predators are unable to maneuver effectively in shallow waters (Ross and Epperly 1985). Consequently, juvenile fish typically first recruit to the shallowest portions of an estuary or lagoon. Flounder, rays (e.g., *Urolophus hannah* or *Dasyatis americana*), and small cryptic species, such as pink shrimp and blue crabs, can bury in the sediment, camouflaging themselves from predators. Smaller predators in shallow water and larger predators in deeper water also bury themselves in soft bottom habitats relying upon ambush tactics for feeding (Walsh et al. 1999). Consequently, many fish, crabs, and shrimp in subtidal, soft bottom habitats forage nocturnally (Summerson and Peterson 1984).

The high availability of food coupled with the refuge for predators make soft bottom habitats, especially those in shallow waters and those close to mangroves, seagrass, live/hardbottom, or inlets, important nursery areas for many species of juvenile fish. Much of the soft bottom habitat within Port Everglades is near one of these habitats (Figures 1 and 4). Only a few studies have been done of the soft bottom habitat within the interior portion of the port. DCA (2001) summarizes those studies: Rudolph (1986) and Messing and Dodge (1997) identified 370 species of invertebrates within the shallow water benthic community, including polychaetes, oligochaetes, mollusks, sipunculids, peracarid crustaceans, platyhelminthes, and nemertina. While these studies did not sample the deeper areas (i.e., the federal navigation channel or turning basins) it is likely the deeper areas have lower abundances and diversity than the shallower areas. The offshore soft bottom communities located within the study area include polychaete and other worms. In an infaunal study conducted offshore of Hollywood Beach, Dodge et al. (1991) found dominant taxa were polychaetes (52 percent), nematodes (14 percent), and crustaceans (9 percent). Offshore soft bottom habitats within the study area, in particular between the Middle and Outer Reefs, may provide a corridor for reef species to travel between reef lines and also be an important foraging area for some fish species (Jones et al. 1991).

The SAFMC designated soft bottoms as EFH for species managed under the snapper-grouper, shrimp, and spiny lobster FMPs. Federally managed species documented in the Port Everglades expansion area and associated with soft bottom habitat include white grunt, pink shrimp, and spiny lobster. Additionally, species managed by NMFS under the highly migratory species FMP, such as Atlantic sharpnose, bonnethead (*Sphyrna tiburo*), and finetooth (*Carcharhinus isodon*) sharks have an affinity for soft bottom habitats. See Table 1 for a list of species associated with soft bottom habitat and documented in or near the project area.

5. Port Everglades Inlet as EFH

Tidal inlets are HAPCs because of the unique role they play as migratory corridors connecting ocean and estuarine waters that serve as spawning and nursery areas for shrimp, red drum, mackerels, and other species (Hettler and Chester 1990; Lindeman et al. 2000; Faunce and Serafy 2007; Serafy et al. 2007). It should be noted that habitats, such as seagrass beds, mangroves, hardbottom, coral, and coral reefs, also are HAPCs, and this close proximity emphasizes this important linkage role for this particular inlet.

Movement of larval and juvenile fish and shrimp through inlets can vary greatly between inlets and over time with some species migrating nocturnally, within portions of the tidal stream, phases of the lunar cycle or interaction of these factors (Forward et al. 1999). The major point being that migration through inlets rarely is a passive process and, instead, reflect behaviors of the migrants. While modeling studies conducted for this project and summarized in this Draft EIS conclude that changes in the physical characteristics of Port Everglades Inlet as a result of dredging will be minor, these studies do not examine the response of fish and other organisms to those changes, and such examinations would be difficult to do. Most larval and juvenile fish that utilize the inlet to access their inshore nurseries respond to a variety

of environmental factors once they reach the inlet (Boehlert and Mundy 1988). Dredging of inlets, including their ebb and flood tide shoals, may result in unanticipated changes to the cues used by migrants to the estuary. Species that orient to cues associated with the sea bottom may be affected by a deepened channel. Channel dredging also may change flow of long-shore currents. These currents not only affect the transport of sediments along the beach but also influence the recruitment of early life history stages of fish and invertebrates into the estuary. In short, complex modeling and empirical studies would be needed to examine how fish would respond to the modified inlet.

The SAFMC designated coastal inlets as EFH for species managed under the snapper-grouper and shrimp FMPs. Additionally, the Mid-Atlantic Fishery Management Council designated coastal inlets as EFH in the bluefish (*Pomatomus saltatrix*) FMP.

6. Hardbottoms, coral, and coral reefs

6.1 Review of literature, related information, and views of recognized experts on the habitat or species that may be affected

The coral reef system off southeast Florida is a continuation of the Florida Reef Tract and extends approximately 170 km (150 mi) from the border of Biscayne National Park to the south to the St. Lucie Inlet to the north (Collier et al. 2008; Banks et al. 2007; Walker et al. 2008a). The southeast Florida reef system runs parallel to the coast for approximately 500 km (310 mi) from the Dry Tortugas in the south to Martin County in the north. The biological communities living on these high-latitude coral reefs consist of typical Caribbean fauna (Goldberg 1973; Moyer et al. 2003). Offshore Fort Lauderdale, Florida (Broward County) and closest to shore in water depths less than 4 m (12 ft), nearshore hardbottoms are part of a ridge complex and separated in a cross-shore direction by expanses of sand, landward of the coral reefs. Offshore Fort Lauderdale there are generally three lines of coral reef; Inner Reef crests in 3 to 5 m (9 to 15 ft), Middle Reef crests in 7 to 9 m (21 to 27 ft), and Outer Reef crests in 16 to 23 m (48 to 69 ft) water depths (Banks et al. 2007; Walker et al. 2008a). Nearshore of the Inner Reef is a series of nearshore ridges and sand (Moyer et al. 2003; Banks et al. 2007; Walker et al. 2008a).

The coral reef-associated communities in the southeast Florida region are tropical to subtropical in species composition with a fauna and flora similar to the Florida Keys and wider Caribbean. Some faunal differences occur along the Florida Reef Tract in response to water temperature ranges, substrate availability, and other variables (SAFMC 2009), which may affect the abundance of species. A major contributor to coral reef ecosystems is often coral itself, since the corals provide habitat and food for most of the other members of the ecosystem (SAFMC 2009).

The status of coral, coral reef, and live/hardbottom community habitats in southeast Florida have mostly been recorded as part of monitoring efforts (Gilliam et al. 2010; Gilliam 2010) originating as impact and mitigation studies from human activities to specific sites (dredge insults, ship groundings, pipeline and cable deployments, and beach renourishment). Scleractinian coral density is generally 2 to 3 colonies/m² and coverage generally 2 to 3%. Much of scleractinian coral cover in this region is less than 1% but several nearshore areas have coverage greater than 10%. The largest known coral colonies in Broward County are large *Montastrea faveolata* colonies ranging from 2 to 4 m in diameter and older than 300 years. These corals are documented on the shallow colonized pavement and nearshore ridges. Coral coverage on these habitats may reach up to 40% or higher in this habitat type (Walker et al. 2008b). Over 30 scleractinian coral species have been identified in southeast Florida with common species including *Montastrea cavernosa*, *Siderastrea siderea*, *Porites astreoides*, and *Stephanocoenia intersepta* (Gilliam et al. 2009). The aforementioned species have also been documented in the Port Everglades expansion area (Tables 1 and 4). Octocorals are generally more abundant than scleractinian corals in this

region. Density can approach 20 colonies/m² with coverage of 20% (Gilliam et al. 2010). Much less data exist on the species richness due to the difficulty of field identification, but common species include several *Eunicea* species, *Eunicea flexuosa*, *Pseudopterogorgia americana*, and *Muricea muricata*, all (genera) of which have been documented in the Port Everglades expansion area (Tables 1 and 4). Additionally, southeast Florida (especially offshore Broward County) has a number of unique and extensive staghorn coral, *Acropora cervicornis*, patches. These patches have measured coverages greater than 30% (Gilliam et al. 2010). Under the Endangered Species Act, the Jacksonville District will consult with NMFS on potential effects to threatened elkhorn (*A. palmata*) and staghorn coral from the proposed action, however it is important to note that elkhorn and staghorn coral, like other coral species and the associated hardbottom habitat, are also designated as EFH-HAPC.

The SAFMC designates coral, coral reef, and hardbottom habitats as EFH-HAPC for species managed under the snapper-grouper, spiny lobster, and coral, coral reef, and live/hardbottom FMPs. Additionally, sponge habitats are designated EFH-HAPC for the spiny lobster FMP. All demersal fish species under SAFMC management that associate with coral habitats are contained within the FMP for snapper-grouper species and include some of the more commercially and recreationally valuable fish of the region. All of these species show an association with coral or hardbottom habitat during their life history. In groupers, the demersal life history of almost all *Epinephelus* species, several *Mycteroperca* species, and all *Centropristis* species, takes place in association with coral habitat (SAFMC 2009). Coral, coral reef, and hardbottom habitats benefit fishery resources by providing food or shelter (SAFMC 1983).

Federally managed species with affinity to coral, coral reef, and hardbottom habitat include several species of snappers from the genus *Lutjanus* (including the juvenile gray snapper), yellowtail snapper, gray triggerfish, various species of grunts from the genus *Haemulon*, bar jack (*Caranx ruber*), graysby (*Epinephelus cruentatus*), red grouper, and coney (*Cephalopholis fulva*). All of the aforementioned species were identified in fish surveys completed for Port Everglades expansion planning (see DCA 2001; DCA 2006). Other federally managed species that utilize coral, coral reef, and hardbottom habitat in waters offshore Broward County include scamp (*Myceteroperca phenax*), gag, bank seabass (*Centropristis ocyurus*) and almaco jack (*Seriola rivoliana*). Ferro et al. (2005) documented these species in marine waters offshore Broward County in addition to 204 other species of fish. Additionally, species managed by NMFS under the highly migratory species FMP, such as lemon and nurse sharks have an affinity for coral reef habitats. See Table 1 for a list of species associated with coral, coral reef or live/hardbottom habitat and documented in the project area.

Table 4: Corals documented in Port Everglades Field Studies. Type of scleractinian coral also noted.

Scleractinian				Octocorals
massive	brooder	branching	other	genera
<i>Colpophyllia natans</i>	<i>Agaricia agaricites</i>	<i>Acropora cervicornis</i> ¹	<i>Leptoseris cucullata</i>	<i>Briareum</i>
<i>Dichocoenia stokesii</i>	<i>Agaricia lamarcki</i>	<i>Porites porites</i>	<i>Phyllangia americana</i>	<i>Ellisella</i>
<i>Diploria clivosa</i> ²	<i>Porites astreoides</i>			<i>Erythropodium</i>
<i>Diploria labyrinthiformis</i>	<i>Siderastrea radians</i>			<i>Eunicea</i>
<i>Diploria strigosa</i>				<i>Iciligorgia</i>
<i>Eusmilia fastigiata</i>				<i>Muricea</i>
<i>Madracis decactis</i> ³				<i>Muriceopsis</i>
<i>Madracis pharensis</i> ^{2,3}				<i>Plexaura</i>
<i>Manicina areolata</i>				<i>Plexaurella</i>
<i>Meandrina meandrites</i>				<i>Pseudoplexaura</i>
<i>Montastraea annularis</i>				<i>Pseudopterogorgia</i>
<i>Montastraea cavernosa</i>				<i>Pterogorgia</i>
<i>Mussa angulosa</i>				
<i>Mycetophyllia aliciae</i>				
<i>Mycetophyllia ferox</i>				
<i>Mycetophyllia lamarckiana</i>				
<i>Scolymia</i> spp.				
<i>Siderastrea siderea</i>				
<i>Solenastrea bournoni</i>				
<i>Solenastrea hyades</i>				
<i>Stephanocoenia intersepta</i>				

All species documented in DCA 2006, except:

¹ from DCA 2001

² from FDEP 2008

³ Branch morphology as well

6.2 Review of Available Coral Reef Surveys

Five survey reports are available that map and characterize the coral reef and hardbottom habitats within the Port Everglades project area (Table 5). In 2000 and 2001, a towed underwater video approach was used to record hardbottom and coral reef habitats along the Port Everglades project area. Additional video and field data were collected to assess the accuracy of the maps. This effort is described in DCA (2001). Additionally, in February and March 2006, contractors for the Jacksonville District assessed coral reef habitats along the Middle and Outer Reefs within the Port Everglades project area. The findings from this effort are provided in DCA (2006). Additionally, in 2006, representatives from FDEP conducted a separate field inspection of the Outer Reef and portions of the Middle Reef channel wall. In 2007, representatives of FDEP visited portions of the Inner Reef channel wall. Results are reported in FDEP (2007). Finally, as part of a separate project Gilliam and Walker (2008) surveyed the rubble shoal and portions of the channel wall.

Table 5: Coral reef and fish surveys conducted in the Port Everglades area between 2001 and 2008

Study reference	Date	Spatial Scope of Survey
DCA 2001	1999 to 2001	Port Expansion and nearby areas
Ferro et al. 2005	1998 to 2002	Offshore Broward County
DCA 2006	2006	Middle and Outer Reef
FDEP 2007	2006 and 2007	Channel wall, Outer Reef
Gilliam and Walker 2008	2008	Channel wall and rubble shoal

Seven distinct hardbottom and coral reef habitat types are present within the Port Everglades project area. These include the Outer Reef, Middle Reef, Inner Reef, channel wall, nearshore hardbottom, rubble shoal, and submerged breakwater (see Figure 5). Each of these habitat types are described below based on available survey information. The nearshore hardbottom, rubble shoal, and submerged breakwater are grouped together based on how they are described in the available information. Based on the 5 available survey reports, 29 species of scleractinian corals and 12 genera of octocorals have been documented in the Port Everglades expansion area (Table 4). Species listed are representative of the Port Everglades project area, however notably absent from DCA (2006) are octocorals of the genus *Gorgonia* and the barrel sponge *Xestospongia muta*, which are a dominant fauna component of the coral reefs off southeast Florida, including the Middle Reef. Also notably absent in the surveys conducted by DCA (2001 and 2006) are scleractinian corals larger than 50 cm in diameter within the Middle Reef and Outer Reef. Representative photos of a subset of species from field efforts are provided in Figure 6.

Outer Reef

Seventeen scleractinian coral species and 12 octocoral genera have been documented in the Outer Reef areas within and adjacent to planned Port expansion (DCA 2006). Overall scleractinian colony density ranged from 1.4 to 2.2 colonies/m² and octocoral density ranged from 0.1 to 1.7 colonies/m². At the time of the survey conducted by DCA in 2006, they estimated coral densities and determined that 60,882 scleractinian corals and 47,206 octocorals were located within the direct impact area of the Outer Reef. Barrel sponges were observed in highest densities at Outer Reef sites (0.2 colonies/m²). Corals of the Outer Reef were qualitatively described as healthier (compared to the Middle Reef) and less than 3% of the corals showed evidence of poor colony condition, such as paling, bleaching, or partial mortality (DCA 2006).

DCA (2006) grouped corals into 4 size classes I = 0 to 3 cm; II = 4 to 10 cm; III = 11 to 25 cm; IV = 26 to 50 cm (Table 6). At the time of the survey conducted in 2006, DCA estimated that most of the scleractinian corals were in size class II, however they reported corals in all other size classes (Table 6). They did not observe corals greater than 50 cm along the survey transects. However, during a FDEP field inspection on October 18, 2006, biologists observed corals greater than 50 cm in diameter along the Outer Reef within the Outer Entrance Channel seaward extension area (FDEP 2007). Direct impact (dredging) area estimates for the Outer Reef range from 6.9 ac (DCA 2006) to 13.5 ac (Walker et al. 2008b). The amount of Outer Reef within the 150 m indirect impact zone is approximately 28.3 ac (Walker et al. 2008b) (Table 7).

Table 6: Distribution of scleractinian colony size by species, reef, and zone, as encountered in visual belt transects off Port Everglades in March 2006. Sizes were organized in four size classes: Class I = 0 to 3 cm; Class II = 4 to 10 cm; Class III = 11 to 25 cm; Class IV = 26 to 50 cm [R=Reef; Z=Zone; PI=Previously Impacted; C=Control]. From DCA 2006.

	R2-Z1				R2-Z2				R3-Z1				R3-Z2				R3-Z3				R3-PI-Z1				R3-PI-Z2				R3-PI-Z3				R3-C-Z1				R3-C-Z2				R3-C-Z3						
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV							
<i>Agaricia agaricites</i>	0	1	0	0	0	0	0	0	1	2	1	0	0	0	1	0	1	5	2	0	1	0	0	0	0	1	0	0	0	0	2	0	0	0	1	1	0	0	0	4	1	1	3	0	0		
<i>Agaricia fragilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Agaricia humilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Agaricia lamarcki</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Colpophyllia natans</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Dichocoenia stokesii</i>	0	1	0	0	0	0	0	3	1	0	0	5	3	0	0	0	2	0	0	1	1	0	0	1	5	0	0	5	1	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Diplaria labyrinthiformis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Diplaria strigosa</i>	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Eusmilia fastigiata</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Favia fragum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Leptoseris cucullata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Madracis decactis</i>	0	0	1	0	4	0	0	2	2	1	0	0	4	5	0	2	5	4	0	2	4	2	0	3	6	2	0	3	2	2	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Manicina areolata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Meandrina meandrites</i>	0	1	2	0	0	1	1	0	2	3	2	0	2	4	0	0	5	2	0	0	2	0	0	1	2	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Montastraea annularis</i>	2	3	0	0	3	4	0	1	1	0	0	0	0	0	0	0	1	4	0	3	1	0	0	0	1	3	1	1	2	5	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Montastraea cavernosa</i>	0	4	2	1	1	6	4	0	12	26	16	0	8	13	2	0	11	12	5	0	11	8	2	0	4	12	8	0	8	8	8	1	6	23	8	2	1	6	8	2	6	12	9	1	0		
<i>Mycetophyllia aliciae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Mycetophyllia ferox</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Porites astroideus</i>	0	3	0	0	7	1	0	9	61	13	0	2	18	0	0	1	28	18	2	6	47	8	0	1	13	2	0	2	28	3	0	3	48	5	1	1	15	4	0	6	19	7	0	0			
<i>Porites porites</i>	0	0	0	0	0	0	0	0	4	1	0	0	1	0	0	1	1	2	0	5	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Scolymia</i> spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Siderastrea sideraea</i>	11	8	2	0	8	10	1	0	44	30	1	0	29	23	5	0	24	38	4	0	44	60	2	0	21	16	1	0	28	25	4	0	8	26	4	0	15	19	3	0	18	21	0	0			
<i>Siderastrea radians</i>	3	3	0	0	2	3	0	0	13	15	1	0	7	10	1	0	4	8	1	0	10	5	0	0	10	5	0	0	5	12	0	0	3	7	0	0	2	3	0	0	3	4	1	0	0		
<i>Solenastrea bournoni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Strophacoenia intersepta</i>	3	7	0	0	9	15	2	0	34	24	0	0	29	36	3	0	18	38	6	1	30	21	0	0	19	28	1	0	12	34	1	0	10	18	1	1	12	12	2	0	19	32	1	0			

Figure 5. Coral Reef Habitat Types within the Port Everglades Expansion Area (from Walker et al. 2008b)

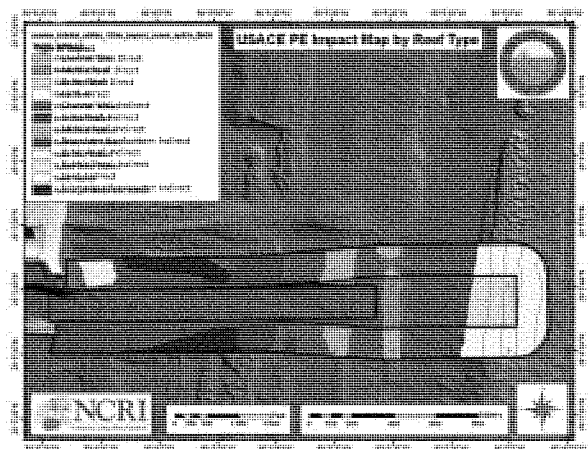


Table 7: Coral Reef Area by Habitat Type (modified from Walker et al. 2008b)

Habitats within dredge area	Type	Modifiers	Area (ft²)	Acres (ac)	Type ac
Coral Reef and Colonized Hardbottom	Outer Reef	Aggregated Patch Reef	301	0.01	13.54
		Spur and Groove	154971	3.56	
		Linear Reef-Outer	180259	4.14	
		Colonized Pavement-Deep	254450	5.84	
	Middle Reef	Linear Reef-Middle	296089	6.80	6.80
Inlet Channel Floor	Inlet Channel Floor	Inlet Channel Floor	2341644	28.59	53.76
Soft Bottom	Sand	Sand	1245485	28.59	28.59

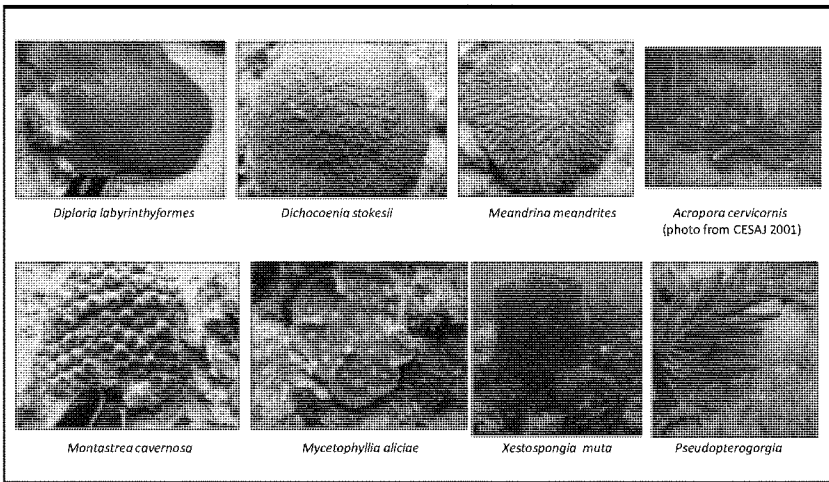
Habitats within 150 m of dredge area

Coral Reef and Colonized Hardbottom	Outer Reef	Ridge-Deep	178647	4.10	28.26
		Aggregated Patch Reef	257808	5.92	
		Spur and Groove	265158	6.09	
		Linear Reef-Outer	245716	5.64	
		Colonized Pavement-Deep	283893	6.52	
	Middle Reef	Linear Reef-Middle	296089	15.98	15.89
	Inner Reef	Linear Reef-Inner	589069	13.52	13.52
	Nearshore Hardbottom	Colonized Pavement-Shallow	639856	14.69	22.67
		Ridge-Shallow	347739	7.98	
Rubble Shoal	Rubble Shoal	Rubble Shoal	208071	4.78	4.78
Submerged Breakwater	Submerged Breakwater	Submerged Breakwater	748786	17.91	17.91
Inlet Channel Wall	Inlet Channel Wall	Inlet Channel Wall	661113	15.18	15.18
Soft Bottom	Sand	Sand	2413861	55.41	55.41

Middle Reef

Thirteen scleractinian coral species and 9 genera of octocorals have been documented along Middle Reef areas within planned Port expansion (DCA 2006). The overall scleractinian colony density was 0.5 colonies/m² and octocoral density ranged from 0.3 to 0.4 colonies/m². At the time of the survey conducted by DCA in 2006, they estimated coral densities and determined 25,546 scleractinian corals and 24,100 octocorals were located within the direct impact area of the Middle Reef. This area of Middle Reef was qualitatively described as having higher sediment cover, however less than 12% of the corals showed evidence of poor colony condition, such as paling, bleaching, or partial mortality. No barrel sponges were observed (DCA 2006). Direct impact (dredging) area estimates for the Middle Reef range from 11.9 ac (DCA 2006) to 6.8 ac (Walker et al. 2008b). The amount of Middle Reef within the 150 m indirect impact zone is approximately 15.9 ac (Walker et al. 2008b) (Table 7).

Figure 6: Representative photos from Port Everglades Field Studies. (Photo credit: Vladimir Kosmyrin, PhD. FDEP 2007, except where otherwise noted)



Channel Wall

Representatives of the FDEP and Broward County visited several sites along the channel wall located along the Middle Reef and Outer Reef on October 18, 2006. Per the FDEP field report, the Middle Reef channel wall is characterized as an artificially created outcrop composed by *Montastraea annularis* framework, which is evidence of middle reef origin. FDEP (2007) states this area is well-flushed with little to no evidence of sedimentation stress. Substrate of wall contains a high diversity of scleractinian coral fauna including *Agaricia agaricities*, *Montastraea cavernosa*, *M. annularis*, *M. faveolata*, *Meandrina meandrites*, *Diploria labyrinthiformis*, *D. strigosa*, *D. clivosa*, *Porites astreoides*, *P. porites*, *Stephanocoenia intersepta*, *Eusmilia fastigiata*, *Dichocoenia stokesii*, *Madracis* spp., *Mycetophyllia*

ferox, *Siderastrea siderea*, and the hydrocoral *Millepora alcicornis*. Coral colonies up to 40 cm in diameter were observed. The wall is also dominated by several species of sponges and encrusting calcareous red algae (FDEP 2007). Notably, the species assemblage is similar to the species list in DCA (2006), however FDEP also observed *Diploria clivosa*, which was not recorded in the DCA (2006) (Table 4).

FDEP (2007) refers to portions of the channel wall that transitions from inside the channel to outside the channel as “channel shoulder”. The channel shoulder is characterized as relatively low relief and with fewer species of scleractinian corals, which appear to be of smaller size than on the wall. Scattered octocorals were observed, although octocorals were not observed along the channel wall. Higher levels of sedimentation were observed in this area, which is thought to influence the fauna on the shoulder, especially in lower parts of relief (FDEP 2007).

The western portions of the channel wall from the Inner Reef (to the east) have been mapped and characterized separately. FDEP visited the north wall (further west part of the entrance channel in the area of the Inner Reef) in September 2007. The shoulder was observed to be very similar in character to what is described in the Middle Reef and Outer Reef channel wall section, with scattered colonies of *Dichocoenia stokesii*, *Solenastrea bournoni*, and octocorals. Along the wall overhangs, encrusting colonies of *Madracis* cf. *pharensis* were observed and estimated to be 2 m in diameter. *Madracis pharensis* was not documented in DCA (2006). In addition, Gilliam and Walker (2008) characterized, mapped, and assessed benthic habitats on a portion of the channel wall, located near the Port Entrance (Figure 7). They estimated 1,373 scleractinian corals on the channel wall and shoulder in this area (0.41 acres), with 649 larger than 10 cm in diameter, including one 90 cm diameter *Madracis decatis*. The direct impacts to the channel wall are unclear. The amount of channel wall habitat located within the 150 m indirect impact area is 15.18 ac (Walker et al. 2008b) (Table 7).

Inner Reef

While portions of the Inner Reef were surveyed in 2000 and 2001 by DCA, information in the corresponding survey report does not distinguish between reef areas. However the report notes that the area between the Inner Reef and Middle Reef is characterized by small isolated hermatypic coral heads and interspersed coral rubble, with areas of open sand (DCA 2001). Walker et al. (2008b) described the Inner Reef in Broward County as colonized by coral species with mostly flat growth forms (*Diploria clivosa*, *Meandrina meandrites*), octocorals, and algae. No direct impacts to the Inner Reef are currently planned through port expansion activities, however 13.5 acres of Inner Reef is located within 150 m of the planned expansion (Walker et al. 2008b) (Table 7).

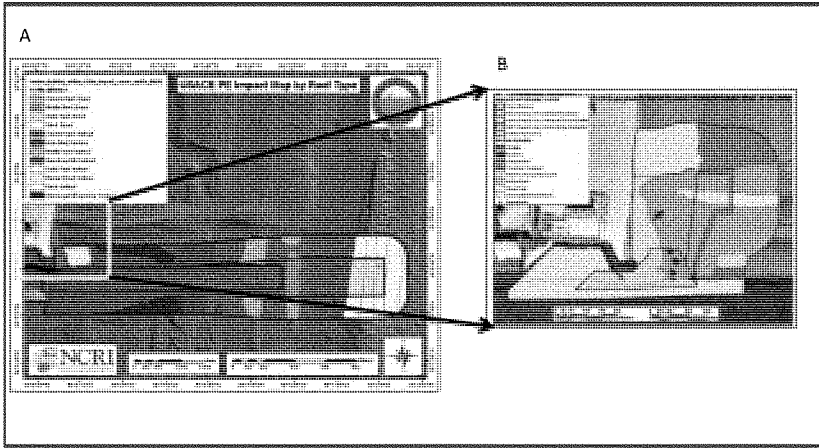
Rubble Shoal, Submerged Breakwater, and Nearshore Hardbottom

Gilliam and Walker (2008) characterized, mapped, and assessed benthic habitats on a portion of the area referred to as the “rubble shoal”. There is overlap with the Port Everglades OEC expansion (Figure 7), in particular in areas characterized as sand/rubble (orange), colonized pavement south (green), rubble with colonized pavement (aqua), unconsolidated sediment (beige), and channel wall (brown). The rubble with colonized pavement area is within the Port Everglades injury area, and Gilliam and Walker (2008) estimated 7,698 scleractinian corals within this area (1.06 acres surveyed) with 1,094 corals larger than 10 cm diameter. The largest coral documented was 35 cm (*Solenastrea bournoni*). The colonized pavement south area (0.73 acres surveyed), which is also within this injury area, was estimated to have 3,597 scleractinian corals with 594 corals greater than 10 cm diameter. The largest documented coral was also 35 cm (*S. bournoni*).

In 2001, DCA collected video and field data from nearshore hardbottom habitats located near Port Everglades. DCA characterized the hardbottom areas as exposed rock with a fine covering of sand. The biological communities were characterized as dominated by algae and sponges with interspersed

gorgonians and scleractinian corals. Photos depicted several species of corals located along this nearshore hardbottom, including *Acropora cervicornis* (Figure 6). Approximately 22.7 ac of nearshore hardbottom is located within the 150 m indirect impact area is 4.78 ac and the Submerged Breakwater habitat is 17.19 ac (Walker et al. 2008b) (Table 7).

Figure 7: Overlap of Gilliam and Walker (2008) study area, referred to as “B” with Port Expansion, referred to as “A”



6.3 Description of Cumulative Coral Age within the Expansion Area

In determining coral age, corals can first be grouped based on life history functions such as growth rate, reproduction (fecundity, mode of larval dispersal, recruitment success), morphology, the ability to develop coral reef framework, and other factors. For this estimate, scleractinian corals were grouped into one of three major categories including massive, brooders, and branching. This categorization does not work well for some corals, for example the cup coral (*Phyllangia americana*) which was observed in the project area (DCA 2006). However this other category of corals represent less than 0.1% of the total corals documented in the project area, and they can be assessed separately.

Most growth rates (linear extension) for *Montastraea*, *Porites*, and *Diploria* are less than 1 cm/yr (SAFMC 2009). Hubbard and Scaturro (1985) report average extension rates of 0.12 to 0.45 cm/yr for several species [documented in the Port Everglades Expansion area] including *Stephanocoenia intersepta*, *Agaricia agaricites*, *Diploria labyrinthiformis*, *Montastraea cavernosa*, *Porites astreoides*, and *Siderastrea sidera*. Consideration of how old the scleractinian corals are in the Port Everglades expansion area can provide context for describing the affected environment. Coral age within a project area by species and size class, in addition to several other factors, can be fed into a resource equivalency analysis (e.g., Habitat Equivalency Analysis or HEA) to scale a compensatory mitigation requirement. However, this approach does not consider the loss of coral reef framework (see habitat area estimates in

Table 7), which would also need to be a component of any effort to scale the compensatory mitigation requirement associated with Port Everglades expansion.

All coral species documented in DCA (2006) were assigned as branching, brooding, or massive. Quantitative data from DCA (2006) was only available for scleractinian corals from the Middle and Outer Reef areas and this evaluation is limited to these assessment areas. DCA (2006) groups corals into 4 size classes (Table 6). Since actual measured sizes of individual corals are not provided in the report, the mean coral size within each size class was used. For example for size class II, 7 cm is used as the mean coral size. For size class I, 2 cm is used as the mean, since the report states that organisms less than 1 cm were not identified (DCA 2006).

Determining Coral Age by Coral Type and Size Class

The sum of all corals within each size class for each group of coral was estimated by multiplying the percentage of each type of coral per size class by the total number of scleractinian corals within the project impact areas. Using coral colony density estimates provided in DCA (2006) (86,248 scleractinian within the project impact areas), which were derived from Table 6, the estimated colonies measuring 7 cm in diameter (size class II) are approximately 31,542 massive corals. Therefore, approximately 36.5% of the corals in the project impact area are massive corals that average 7 cm in diameter (size class II). Known growth rates from published literature for each category of coral (summarized in Tables 8 and 9) were then multiplied by the average size of each size class to obtain the average age of each coral in each size class. For massive corals, 0.560 cm/year is used. Therefore, a size class II massive coral is approximately 12.5 years old. Finally, this age was multiplied by the estimated number of colonies in the impact area to get the total lost age of corals in each size class. For example, for massive corals in size class II, this amounts to 394,275 years.

Massive Corals

The massive category includes (but is not limited to) the *Montastrea* complex, the *Diploria* spp., *Solenastrea bournoni*, and *Siderastrea siderea* (see Table 4). These corals are generally broadcast spawners and the main framework builders on Atlantic/Caribbean reefs. In southeast Florida, most species spawn over a few nights clustered around the full moon in later summer. Larval recruitment is rare (Kojis and Quinn 2001) and slow (Clark and Edwards 1999). In areas like southeast Florida with lower coral cover density, a dependency on synchronous spawning may constitute a major life history bottleneck for broadcast spawners (SAFMC 2009). Approximately 72% of the corals documented in DCA (2006) are classified as massive corals. Based on the coral colony density estimates provided, 62,159 corals would be massive corals. Based on a review of the literature, the average growth rate for massive corals is estimated to be 5.60 mm/yr (Table 8). Therefore the cumulative age of massive corals in the Port Everglades expansion area is approximately 757,041 years (Table 10).

Table 8: Literature review of massive coral growth rates conducted by NOAA Restoration Center (Tom Moore and Sean Griffin, NOAA Restoration Center, personal communication, 2011).

Source	Reference	Range (mm/yr)		Average
Edmunds 2007	<i>Diploria</i> spp.	5.3	7	6.15
Vermeij 2006	<i>Diploria</i> spp.	6	6	6
Hubbard & Scaturo 1985	<i>D. labyrinthiformis</i>	3.3	4.6	3.95
Highsmith et al. 1983	<i>M. annularis</i>	6.3	6.3	6.3
Hubbard & Scaturo 1985	<i>M. annularis</i>	2.9	10.2	6.55
Highsmith et. Al., 1983	<i>M. cavernosa</i>	4.3	4.3	4.3
Hubbard & Scaturo 1985	<i>M. cavernosa</i>	2.9	4.5	3.7
Hubbard & Scaturo 1985	<i>Siderastrea siderea</i>	1.5	3	2.25
Edmunds 2007	<i>S. siderea</i>	2.2	5.2	3.7
Bright et al. 1984	<i>M. annularis</i>	5	5	5
Carricart-Ganivet & Merino 2001	<i>M. annularis</i>	6.8	10.03	8.415
Carricart-Ganivet et al. 2000	<i>M. annularis</i>	6	10.54	8.27
Dodge 1981	<i>M. annularis</i>	7.9	10.5	9.2
Foster 1980	<i>M. annularis</i>	5.28	5.28	5.28
Guzman et al. 2001	<i>M. annularis</i>	6.3	10.2	8.25
Hudson 1981	<i>M. annularis</i>	5	11.3	8.15
Leder et al. 1991	<i>M. annularis</i>	5.3	5.3	5.3
Foster 1980	<i>S. siderea</i>	3.9	3.9	3.9
Guzman et al. 2001	<i>S. siderea</i>	3.8	5.7	4.75
Guzman et al. 1994	<i>S. siderea</i>	4.2	4.5	4.35
Ruesink 1997	<i>S. siderea</i>	5.5	5.5	5.5
Stern et al. 1977	<i>S. siderea</i>	4.1	5.4	4.75
Soong & Lang 1992	<i>S. siderea</i>	5	5	5
		4.729565	6.48913	5.609348

Brooding Corals

The brooder category includes (but is not limited to) the *Agaricia* complex, *Favia fragum*, *Porites astreoides*, and *Siderastrea radians* (Table 4). Recruitment, especially in injured areas, is generally dominated by the brooding species (Miller et al. 2009). Brooding species often release larvae on a lunar cycle over several months or year round (SAFMC 2009). Brooders tend to have a high reproductive output due to the ability to self-fertilize and settle shortly after release. Brooders do not generally attain large colony size and therefore have limited contribution to coral reef framework building (Smantz 1989). Brooders also have a high tolerance to transplantation stress (Gleason et al. 2001).

Approximately 26% of the corals documented in DCA (2006) are classified as brooders. Based on the coral colony density estimates provided in DCA (2006) (86,428 scleractinian corals on the Middle Reef and Outer Reefs within the direct project footprint), 22,340 corals would be brooders. Based on a review of the literature, the average growth rate for brooders is estimated to be 4.88 mm/yr (Table 9). Therefore the cumulative age of brooding corals in the Port Everglades expansion area is approximately 359,565 years (Table 10).

Table 9: Literature review of brooding coral growth rates conducted by NOAA Restoration Center (from Tom Moore and Sean Griffin, NOAA Restoration Center, personal communication, 2011)

Source	Reference	Range (mm/yr)		Average
Edmunds 2007	<i>Siderastrea radians</i>	1.7	4.2	2.95
Bastidas & Garcia 1999	<i>Porites asterooides</i>	2.1	3.5	2.8
Bak & Engel 1979	<i>Agaricia</i> spp.	8	8	8
Gladfelter et al. 1978	<i>P. astreoides</i>	3	3.5	3.25
Gleason et al. 2001	<i>P. astreoides</i>	2.6	3.5	3.05
Guzman et al. 2001	<i>P. astreoides</i>	3.9	6.2	5.05
Guzman et al. 1994	<i>P. astreoides</i>	4.3	4.6	4.45
Highsmith et al. 1983	<i>P. astreoides</i>	2.9	6.9	4.9
Huston 1985	<i>P. astreoides</i>	2.2	4.5	3.35
Rogers et al. 1984	<i>Agaricia</i> spp.	14.4	14.4	14.4
Hughes & Jackson 1985	<i>Agaricia</i> spp.	5.8	5.8	5.8
Vermeij 2006	<i>Agaricia</i> spp.	5	5	5
Vermeij 2006	<i>P. astreoides</i>	3	3	3
Carlton 2001	<i>Agaricia</i> spp.	5	5	5
Edmunds 2007	<i>P. astreoides</i>	3.7	6.1	4.9
Edmunds 2007	<i>Agaricia</i> spp.	2.2	5.2	3.7
Edmunds 2007	<i>Favia fragum</i>	2.1	4.7	3.4
		4.229412	5.535294	4.882353

Branching Corals

The branching category is limited to *Porites porites*, as other branching corals – e.g., *Acropora cervicornis* and *Dendrogyra cylindrus*, were not documented in the expansion area by DCA. Approximately 2% of the scleractinian corals documented in DCA (2006) are branching corals. Based on the coral colony density estimates provided, 1,928 corals in the Port Everglades expansion area would be branching corals. Based on a review of the literature, the average growth rate for *P. porites* is estimated to be 14.1 mm/yr (Hubbard and Scaturro 1985), however in the case that other branching corals are documented in the study area (e.g., *Acropora cervicornis*), an adjustment here would need to be made. Therefore the cumulative age of branching corals in the Port Everglades expansion area is approximately 9,603 years (Table 10).

Other Corals

The other coral category is a catchall for cup corals and other corals such as *Leptoseris cucullata*². Not much is known about growth rates for these species, however these species represent less than 0.1% of the corals in the project area at the time of the DCA survey in 2006. Coral age estimates for this category would have to be determined separately.

Scleractinian Coral Age Estimates within the Expansion Area

Based on examination of coral age within the expansion area using data from DCA (2006) as a way to describe the affected environment, approximate cumulative age of corals in the expansion area is 1,126,209 years (Table 10).

² Also referred to as *Hellioseris cucullata*

Table 10: Summary of coral age estimates by coral type in the Pt Everglades expansion area

Type of coral	Avg growth rate	Estimated #	Coral Age
Massive	5.6 mm/yr	62,159	757,041
Brooding	4.9 mm/yr	22,340	359,565
Branching	14.1 mm/yr	1,928	9,603
Total			1,126,209

6.4 Scleractinian Impact Scaling Using Size/Species-Frequency Distribution Resource Equivalency Analysis within the Middle and Outer Reef

In light of their designation as EFH-HAPC's and Executive Order 13089, federal agencies apply greater scrutiny to projects affecting corals, coral reefs, and hardbottoms to ensure practicable measures to avoid and minimize adverse effects to these habitats are fully explored, and in the case that unavoidable impacts are planned, compensatory mitigation is based on the best available approaches and scientific information. There are several approaches which can be used to describe the affected environment and consider the total services that would be lost within the proposed Port Everglades expansion impact areas. One of NOAA's preferred approaches uses a Size/Species Frequency Distribution Resource Equivalency Analysis. As described in Viehman et al. (2009), this modified type of HEA, uses a resource-to-resource method that references the number organisms lost and the number gained through mitigation. In the coral reef environment this approach typically looks at the size-frequency distributions at the species or functional group level to reflect the life history strategies of different corals and allows representation of the (typically non-linear) relationship between services and colony size, thus providing insights into ecological function. Using this approach the metric for scaling becomes a coral colony year (CCY) – which is not equal to the coral age; rather CCY is a proxy for services provided and/or, in the case of any injury, lost during a one year period of time for a particular size and type of coral. While the initial CCY value is only directly comparable to others within the same size/species group equivalency, between sizes and groups can be gained by utilizing a combination of a linear size and service weighting. The key inputs into this analysis are the size/species distribution and the recovery time. The analysis also considers discounting and other important HEA inputs. Importantly, this analysis can help determine if the appropriate coral species and size classes are scalable with respect to the amount and type of compensatory mitigation that is planned.

7. Port Everglades Habitat Linkages

The Port Everglades area is similar to other areas at latitudes that support coral reefs, in that the natural seascape is vegetated primarily by seagrass beds and mangrove wetlands. Within this seascape, many exploited coral reef fishes occupy inshore regions as juveniles before migrating offshore to reproduce thereby undergoing an ontogenetic pattern of habitat utilization. In tropical ecosystems of the Atlantic/Caribbean, coral reefs, mangroves, unvegetated bottom, and seagrass are all physically, chemically and biologically connected. For example, coral reefs dissipate wave energy and promote physical conditions promoting growth of the seagrass and mangroves, both of which filter sediments and protect reefs. As described in the section above, coastal inlets are migratory corridors for fishery resources that utilize oceanic and estuarine habitats. Although not well studied, the biogeography of the Port Everglades area provides for a unique landscape and ecological linkages between coral reef, mangrove, and seagrass habitats in terms of flux of energy and physical occupation of habitats.

Mangrove and seagrass beds are essential habitats for fishes, including species commonly found on reefs. Life history stages that utilize these habitats include the critical early stages (egg, larval, settling, postlarval, and developing juveniles). Mangrove and seagrass habitats intercept large numbers of larvae and provide abundant food resources and protection from predators (Parrish 1989). These biotopes are also located such a distance from offshore that they are less frequented by predators (Parrish 1989). Furthermore, the turbid waters in these areas may decrease the foraging efficiency of predators (Blaber and Blaber 1980).

Coral reef fishes often use shallower habitats as juveniles (Lindeman et al 2000) and various combinations of these habitats may be used during adult diurnal feeding migrations or seasonal shifts in cross-shelf distributions (SAFMC 2009). Nagelkerken et al. (2000) document that Lutjanidae and Haemulidae settle in seagrass beds rather than on reefs. Other species represented in seagrass beds and mangrove estuaries include juvenile mutton, gray, dog, lane (*Lutjanus synagris*), and yellowtail snappers; and goliath, red, and gag groupers; and hogfish (SAFMC 2009). In addition, early juvenile Nassau grouper (*Epinephelus striatus*) have also been found to use macroalgal habitats along mangrove-lined channels (Eggleston 1995). Habitats within Port Everglades may provide EFH for newly settled stages of mutton snapper, which are known to occur in seagrass habitats (Gilmore, unpubl. data) and generally use mangrove prop roots or adjacent shallow rock and coral reef formations as larger juveniles (Gilmore, unpubl. data). Similarly, Mumby et al. (2004) found that the community structure of coral reefs was influenced by the presence of mangroves in the vicinity, and the total adult biomass of several species was higher.

In addition to occupying habitats, the habitat mosaic in the Port Everglades area also provides important energy exchange. For example, white grunts (*Haemulon plumier*), which are fished commercially and recreationally throughout their range (Potts and Manooch 2001), are important in energy exchange between reef and seagrass communities (Darcy 1983). As mentioned in the soft bottom habitats section, adult white grunts are generalized carnivores which feed mainly on benthic invertebrates (Potts and Manooch 2001). These include echinoderms, polychaetes, majid crabs, alpheid shrimp, isopods, other shrimp, crabs, and small fish (Randall 1967; De Silva and Murphy 2001; Darcy 1983). Because of their abundance, they are probably important prey for many larger species of groupers and snappers (Darcy 1983).

Collections in both seagrass beds and mangroves suggest that there is an integral link between these habitats with tripletail, snook, gray snapper, red drum, and goliath grouper, for example, occurring over seagrass beds or other adjacent bottoms as adults or large juveniles, but using the mangrove prop-roots as habitat during juvenile stages. Spotted scatroun, striped and white mullets (*M. curema*) and great barracuda (*Sphyrna barracuda*) juveniles are also common inhabitants (SAFMC 2009). There are also recognizable and predictable interactions where different life stages of fish move between reefs and seagrass beds on a diurnal basis. The best known examples in Florida are species of grunts which utilize reefs by day and seagrass beds by night.

Two species known to be present within coral reef habitats within the Port Everglades expansion area, gray snapper and bluestriped grunt, use vegetated habitats during their ontogeny (Faunce and Serafy 2007). In this study, both species exhibited a three-stage ontogenetic strategy, including settlement and grow-out within seagrass beds, expansion to mangrove habitats, and increasing utilization of inland mangroves during the dry season and with increasing body size. They also observed that for fishes inhabiting mangroves, the distance from an oceanic inlet and water depth were stronger predictors of reef fish utilization than factors like latitude, temperature, or habitat width. These findings highlight that the nursery function of mangrove shorelines is likely limited to the area of immediately accessible habitat, and that more expansive mangrove wetlands may contain a substantial number of larger adult individuals. It has also been suggested that the presence of mangroves and seagrass beds serve as extra "waiting

room” habitats for juvenile coral reef fishes, and that adopting such a life-history strategy may buffer against poor recruitment years (Parrish 1989).

The Port Everglades expansion area landscape provides for an important and complex set of ecological linkages between coral reef, mangrove, seagrass, soft bottom, and coastal inlet habitats in terms of flux of energy and physical occupation of habitats. Complex modeling studies would be needed to examine how fish would respond to the synergistic effects of the losses of multiple habitat types that support various life stages of fishery resources within the Port Everglades expansion area.

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**EIS
SUB-APPENDIX I**

**STATE HISTORIC PRESERVATION OFFICE (SHPO)
DETERMINATION**

**FINAL
FEASIBILITY REPORT
AND ENVIRONMENTAL IMPACT STATEMENT
PORT EVERGLADES HARBOR NAVIGATION STUDY
BROWARD COUNTY, FLORIDA**



FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Mr. Eric Summa
Department of the Army
Jacksonville District Corps of Engineers
Jacksonville, Florida 32232-0019

February 4, 2013

Re: DHR Project File No.: 2013-00187 (2011-03638)
Received by DHR: January 10, 2013
1A-32 Permit No.: 1213.016
Draft Report: *Archaeological Identification of Two Targets in the Port Everglades Channel Expansion, Broward County, Florida*

Dear Mr. Summa:

Our office received and reviewed the above referenced draft survey report in accordance with Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992, and *36 C.F.R., Part 800: Protection of Historic Properties*, and Chapter 267, *Florida Statutes*, for assessment of possible adverse impact to cultural resources (any prehistoric or historic district, site, building, structure, or object) listed, or eligible for listing, in the National Register of Historic Places (NRHP).

In November 2011, Panamerican Consultants, Inc. (PCI) conducted a diver investigation to determine the sources of two clusters of anomalies within the proposed Port Everglades Channel and Ocean Dredged Material Disposal Site (ODMDS) since they could be impacted by the proposed undertaking. The survey was completed on behalf of the US Army Corps of Engineers (Corps). PCI determined that the cultures were modern and did not constitute significant historic properties.

The Corps has determined no historic properties affected by the proposed undertaking and recommends no further investigation of the anomaly clusters.

Based on the information provided, our office concurs with these determinations and finds the submitted draft report complete and sufficient in accordance with Chapter 1A-46, *Florida Administrative Code*.

DIVISION OF HISTORICAL RESOURCES

R. A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399-0250
Telephone: 850.245.6300 • www.flheritage.com
Commemorating 500 years of Florida history www.fl500.com



Mr. Summa
February 4, 2013
Page 2

For any questions concerning our comments, please contact Rudy Westerman, Historic Preservationist, by electronic mail at Rudy.Westerman@DOS.MyFlorida.com, or by phone at 850.245.6333. We appreciate your continued interest in protecting Florida's historic properties.

Sincerely,

Timothy A. Parsons, DSHPO for

Robert F. Bendus, Director
Division of Historical Resources
and State Historic Preservation Officer

DIVISIONS OF FLORIDA DEPARTMENT OF STATE
 Office of the Secretary
 Office of International Relations
 Division of Elections
 Division of Corporations
 Division of Cultural Affairs
 Division of Historical Resources
 Division of Library and Information Services
 Division of Licensing
 Division of Administrative Services



FLORIDA DEPARTMENT OF STATE
 Katherine Harris
 Secretary of State
 DIVISION OF HISTORICAL RESOURCES

7039
 MEMBER OF THE FLORIDA CABINET
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 Trustees of the Internal Improvement Trust Fund
 Administration Commission
 Florida Land and Water Adjudicatory Commission
 Siting Board
 Division of Bond Finance
 Department of Revenue
 Department of Law Enforcement
 Department of Highway Safety and Motor Vehicles
 Department of Veterans' Affairs

Mr. James C. Duck
 Jacksonville District US Army Corps of Engineers
 P.O. Box 4970
 Jacksonville, Florida 32232-0019

April 25, 2002

Re: DHR No. 2002-03860 / Date Received by DHR: April 19, 2002
Historic Assessment and Remote Sensing Survey at Port Everglades, Broward County,
Florida (Mid-Atlantic Technology and Environmental Research, Inc. 2002) -
Draft Report

Dear Mr. Duck:

Our office has received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992, and 36 C.F.R., Part 800: *Protection of Historic Properties*. The State Historic Preservation Officer is to advise and assist federal agencies when identifying historic properties listed or eligible for listing in the *National Register of Historic Places*, assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

Results of the survey indicate that four targets not associated with visible debris or structures (PortE-1 – PortE-4) were identified. None of these targets produced signatures characteristic of submerged cultural resources. Based on the information provided, this office concurs with this determination and finds the submitted report complete. To be considered sufficient according to Chapter 1A-46, *Florida Administrative Code*, the final report must contain the following:

- Pertinent environmental and paleoenvironmental data
- Procedures to deal with unexpected discoveries

If you have any questions concerning our comments, please contact Mary Beth Fitts, Historic Sites Specialist, at mbfitts@mail.dos.state.fl.us or (850) 245-6333. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

Janet Snyder Matthews, Ph.D., Director, and
 State Historic Preservation Officer

Xc: Mr. Wes Hall, Mid-Atlantic Technology and Environmental Research, Inc.

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

<input type="checkbox"/> Director's Office (850) 245-6300 • FAX: 245-6435	<input type="checkbox"/> Archaeological Research (850) 245-6444 • FAX: 245-6436	<input checked="" type="checkbox"/> Historic Preservation (850) 245-6333 • FAX: 245-6437	<input type="checkbox"/> Historical Museums (850) 245-6400 • FAX: 245-6433
<input type="checkbox"/> Palm Beach Regional Office (561) 279-1475 • FAX: 279-1476	<input type="checkbox"/> St. Augustine Regional Office (904) 825-5045 • FAX: 825-5044	<input type="checkbox"/> Tampa Regional Office (813) 272-3843 • FAX: 272-2340	



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
 P.O. BOX 4970
 JACKSONVILLE, FLORIDA 32232-0019

07 JAN 2013

Planning and Policy Division
 Environmental Branch

Mr. Robert Bendus
 Division of Historical Resources
 State Historic Preservation Officer
 500 South Bronough Street
 Tallahassee, Florida 32399-0250

Dear Mr. Bendus:

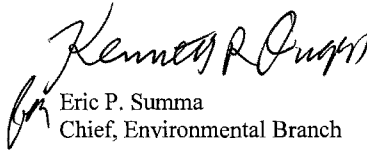
The U.S. Army Corps of Engineers (Corps), Jacksonville District is proposing to deepen and widen the Outer Entrance Channel (OEC) of Port Everglades in Ft. Lauderdale, Florida, to a 59 foot depth by 800 foot width and extend the channel 2,200 feet seaward from the current outer entrance channel (Figure 1). On January August 25, 2011, the Division of Historic Resources concurred with the Corps' determination that this project had the potential to adversely affect unrecorded submerged historic properties and a submerged remote sensing cultural resources survey was needed (DHR Project File No. 2011-03638).

Panamerican Consultants, Inc (PCI) was contracted to conduct the submerged cultural remote sensing survey. In their report, "*Cultural Resources Remote Sensing Survey of the Port Everglades Channel and Ocean Dredged Material Disposal Site (ODMDS) Broward County, Florida*," they identified two clusters of magnetic and sidescan targets potentially indicative of historic resources within the Port Everglades OEC expansion project area. They were also contracted to perform the archeological diver identification of these two target clusters which resulted in the enclosed draft report, "*Archeological Identification of Two Targets in the Port Everglades Channel Expansion, Broward County, Florida*."

PCI investigated both clusters and determined them to be modern in nature and not significant historic properties. Based on the results of this investigation, the Corps has determined no historic properties affected by the Port Everglades OEC expansion.

I request your comments on the enclosed draft report and concurrence with the Corps' determination. If there are any questions, please contact Ms. Wendy Weaver at 904-232-2137 or e-mail at wendy.weaver@usace.army.mil.

Sincerely,



Eric P. Summa
Chief, Environmental Branch

Weaver/CESAJ-PD-EP
Hughes/CESAJ-PD-EP
Acosta/CESAJ-PD-EP
Summa/CESAJ-PD-E

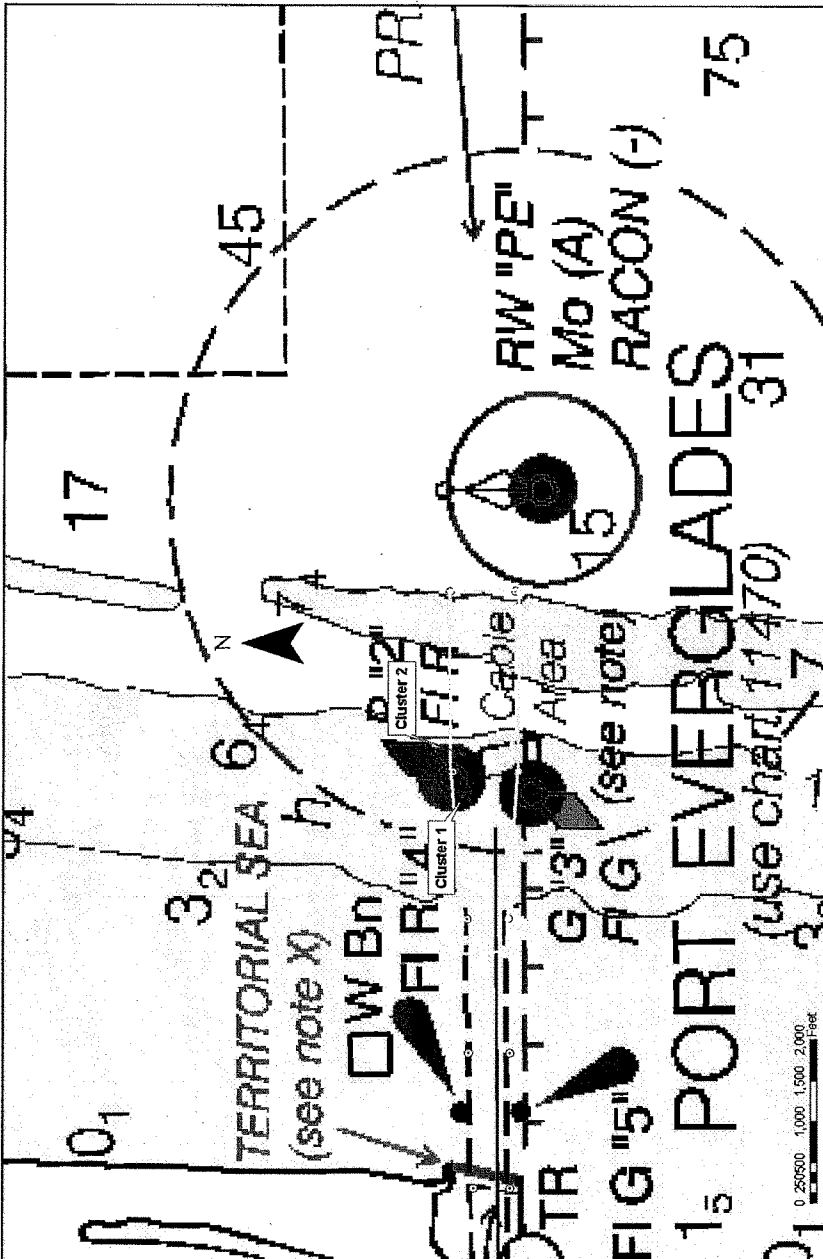


Figure 1. Location of the Port Everglades Outer Entrance Channel (OEC) Expansion (in yellow) and Two Target Clusters.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
 P.O. BOX 4970
 JACKSONVILLE, FLORIDA 32232-0019

07 JAN 2013

Planning and Policy Division
 Environmental Branch

Mr. Fred Dayhoff, Tribal Representative
 NAGPRA, Section 106
 Miccosukee Tribe of Indians of Florida
 Post Office Box 440021
 Tamiami Station
 Miami, Florida 33144

Dear Mr. Dayhoff:

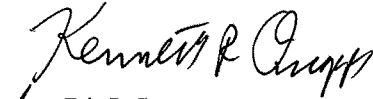
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I request your comments on the enclosed executive summary and the Corps' determination. If there are any questions, please contact Ms. Wendy Weaver at 904-232-2137 or e-mail at wendy.weaver@usace.army.mil.

Sincerely,



Eric P. Summa
Chief, Environmental Branch

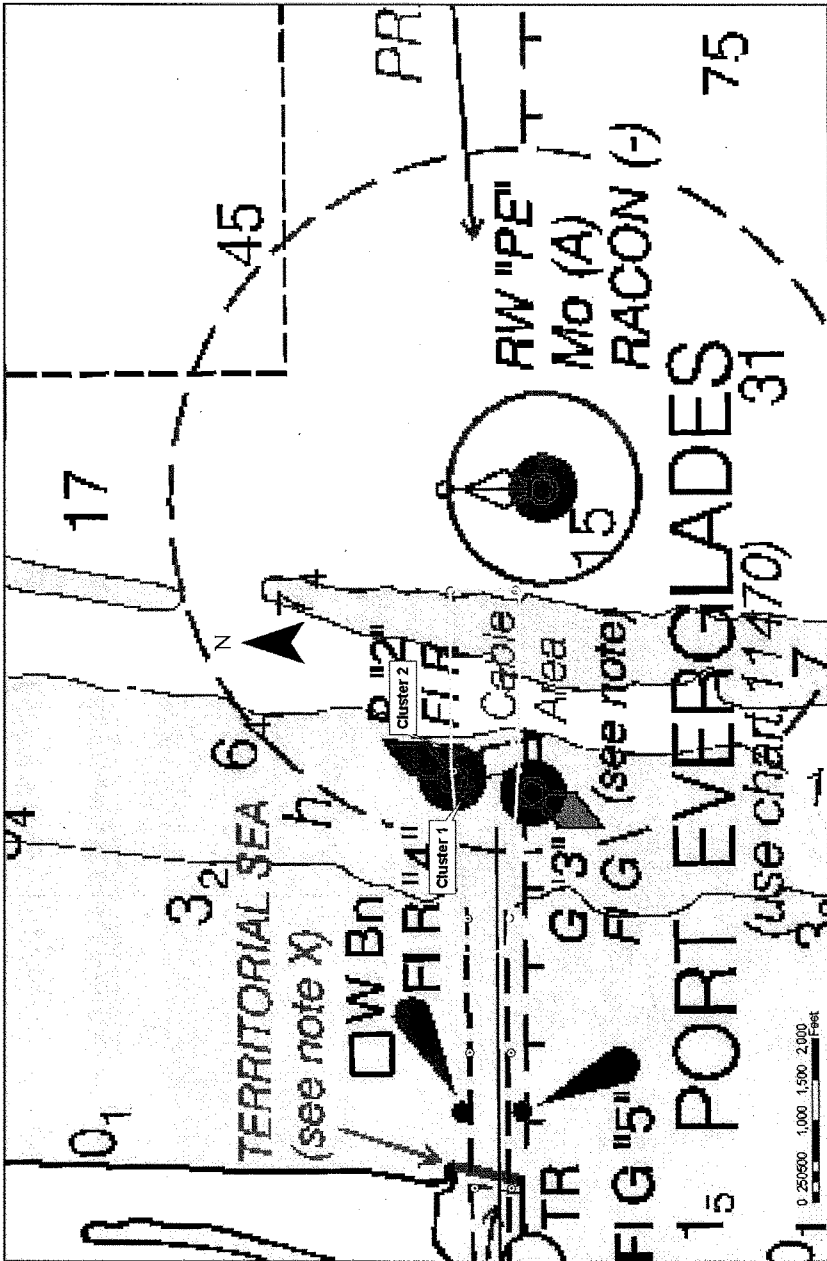


Figure 1. Location of the Port Everglades Outer Entrance Channel (OEC) Expansion (in yellow) and Two Target Clusters.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
 P.O. BOX 4870
 JACKSONVILLE, FLORIDA 32232-0019

107 JAN 2013

Planning and Policy Division
 Environmental Branch

Mr. Paul Backhouse
 Seminole Tribe of Florida
 Tribal Historic Preservation Office
 30290 Josie Billie Highway
 PMP 1004
 Clewiston, FL 33440

Dear Mr. Backhouse:



The U.S. Army Corps of Engineers (Corps), Jacksonville District is proposing to deepen and widen the Outer Entrance Channel (OEC) of Port Everglades in Ft. Lauderdale, Florida, to a 59 foot depth by 800 foot width and extend the channel 2,200 feet seaward from the current outer entrance channel (Figure 1). On January August 25, 2011, the Division of Historic Resources concurred with the Corps' determination that this project had the potential to adversely affect unrecorded submerged historic properties and a submerged remote sensing cultural resources survey was needed (DHR Project File No. 2011-03638).

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Sincerely,


 Eric P. Summa
Chief, Environmental Branch

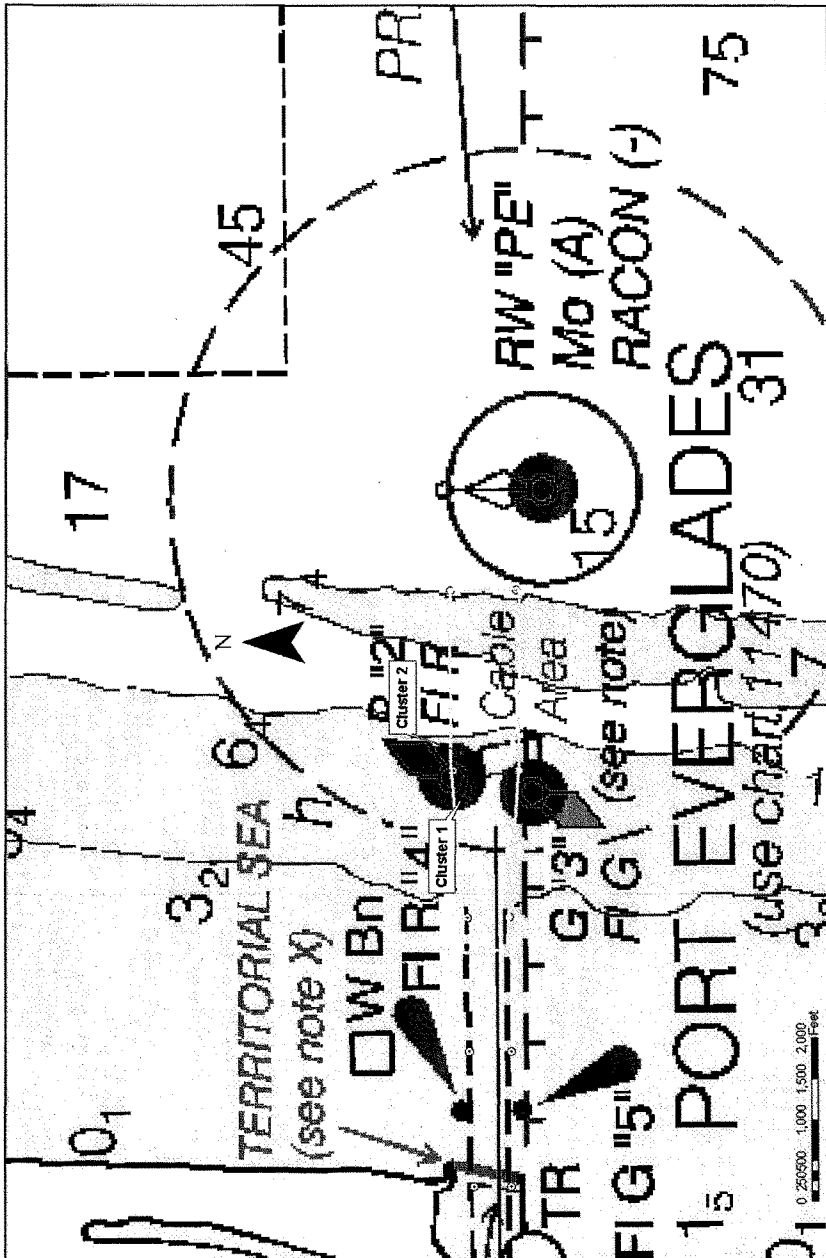


Figure 1. Location of the Port Everglades Outer Entrance Channel (OEC) Expansion (in yellow) and Two Target Clusters.

**EIS
SUB-APPENDIX J
PHASE I ASSESSMENT**

**FINAL
FEASIBILITY REPORT
AND ENVIRONMENTAL IMPACT STATEMENT
PORT EVERGLADES HARBOR NAVIGATION STUDY
BROWARD COUNTY, FLORIDA**

TABLE OF CONTENTS

TITLE	PAGE NO.
1.1 SUMMARY	1
1.2 INTRODUCTION	1
1.2.1 Purpose.....	
1.2.2 Special Terms and Conditions	
1.2.3 Limitations and Exceptions of Assessment.....	2
1.2.4 Limiting Conditions and Methodology Used	2
1.3 SITE DESCRIPTION	
1.3.1 Vegetation	2
1.3.2 Soils	2
1.3.3 Location and Legal Description	2
1.3.4 Descriptions of Structures, Roads, Other improvements, on the Site (including heating/cooling system, sewage disposal, source of potable water)	3
1.3.5 Information (if any) Reported by Use Regarding Environmental Liens or Specialized Knowledge and Experience	3
1.3.6 Current Uses of the Property	3
1.3.7 Past Uses of the Property (to the Extent identified)	3
1.3.8 Current and Past Uses of Adjoining Properties(to the extent identified)	4
1.3.9 Site Rendering, Map, or Site Plan .	4
1.4 RECORDS REVIEW	
1.4.1 Standard Environmental Records Sources, Federal and State.....	4
1.4.2 Physical Setting Sources(s).....	5
1.4.3 Historical Use Information	5
1.4.4 Additional Record Sources.....	5

TABLE OF CONTENTS
(Cont'd)

1.5 INFORMATION FROM SITE RECONNAISSANCE AND INTERVIEWS

1.5.1 Hazardous Substances in Connection with Identified Uses (including storage, handling, disposal...,	6
1.5.2 Hazardous Substance Containers and Unidentified Substance Containers (including storage, handling, disposal).....	6
1.5.3 Storage Tanks (including contents and assessment of leakage or potential for leakage).....	6
1.5.4 Indications of PCBs (including how confined and assessment of leakage or potential for leakage)...	6
1.5.5 Indications of Solid waste Disposal.....	6
1.5.6 Physical Setting Analysis, if migrating Hazardous Substances are an issue.....	7
1.5.7 Any Other Conditions of Concern.....	7

1.6 FINDINGS AND CONCLUSIONS	7
------------------------------------	---

Preliminary Assessment Screening (PAS) Summation

PAS Statement of Findings

1.7 APPENDICES:

Site Location Map.....	A1
Aerial Photograph of Site	A2
Aerial Photograph of Site	A3
Port Everglades Hazardous and Toxic Waste Database Review.....	A4
Groundwater Data.....	A5

1.1 SUMMARY

A preliminary site assessment was conducted of the site of the proposed Port Everglades expansion and deepening. As the areas considered for project deepening no longer include any upland disposal sites located adjacent to, or nearby the Port Everglades, the task was simplified. The hazardous and toxic waste evaluation revealed that the deepening event is in the vicinity of industrial facilities, ad hoc warehouse or storage areas, and petroleum storage facilities, but none of these areas are to be directly impacted. The report also provides documentation of numerous small spills which are not unusual for a busy port area. Likely through dilutions, actual cleanup remedial actions, and tidal currents pushing out the entrance all the residual effects have been weathered and eliminated. The material proposed for dredging will be evaluated for the suitability for ocean disposal in the Ocean Dredged Material Disposal Site and that will be the final test of the contamination of the material. The testing may include sediment chemistry as well as bioassays. It is very unlikely that any significant contamination lingers. This report updates previous versions which included upland disposals areas which are no longer considered for economic reasons and/or because they were in fact contaminated.

1.2 INTRODUCTION

1.2.1 Purpose The goal of this site investigation is to identify recognized environmental conditions. ER 1165-2-162 requires a complete evaluation of the potential for contamination as part of the Civil Works study process. The investigation indicates the presence or likely presence of any hazardous substances or petroleum products. The investigation attempts to reveal conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products on the adjacent properties, or into the ground, groundwater, or surface water of the project area.

1.2.2 Special Terms and Conditions The recognized environmental conditions that were considered throughout this investigation included hazardous substances or petroleum products in compliance with laws. The term, environmental contamination is not intended to include de minimus conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

1.2.3 Limitations and Exceptions of Assessment This Phase I Environmental Site Assessment normally is composed of the following five components: 1) Records Review, 2) Aerial Photography Study, Mr. Mc Adams, Jacksonville District, performed the aerial photo investigation in February of 2011. 3) Site Reconnaissance (not done) Access to the port area is easy. Access to each individual facility is controlled, 4) Interviews (not done), 5) Report. The database records review, aerial photography study, site reconnaissance, and interviews, are intended to be used in concert with each other. The project site is located at the Port Everglades and is managed by Port Everglades Port Authority, Ft. Lauderdale. No upland areas are currently planned for disposal of dredged material.

reconnaissance as the areas are all open water.

1.3 SITE DESCRIPTION

1.3.1 Vegetation The site aerial photo reconnaissance and review revealed submerged aquatic vegetation and fringe mangroves. No distressed vegetation is visible.

1.3.2 Soils The project area has subsurface sandy soils typical of Broward County.

1.3.3 Location and Legal Description. Port Everglades Draft Tentatively Selected Plan [Plan 2E(cs)] Description

At this phase of planning, a draft Tentatively Selected Plan (TSP) for Port Everglades currently consists of the following navigation improvements pending review and approval by USACE South Atlantic Division and Headquarters for public release. As shown in the attached figure the draft TSP [Plan 2E cs (container ship)] of improvement includes: deepen and widen the Outer Entrance Channel (OEC) from an existing 45-foot project depth over a 500-foot channel width to 57 feet by 800 feet and extend 2,200 feet seaward; deepen the Inner Entrance Channel (IEC) from 42 feet to 50 feet; deepen ship simulator-optimized portion of the Main Turning Basin (MTB) from 42 feet to 50 feet; widen the rectangular shoal region to the southeast of the MTB (Widener) by about 300 feet and deepen to 50 feet; widen the South Access Channel (SAC) in the proximity of berths 23 to 26, referred to as the knuckle, by about 250 feet and relocate the USCG facility easterly on USCG property; shift the existing 400-foot wide SAC about 65 feet to the east from approximately berth 26 to the south end of berth 29 to provide a transition back to the existing Federal channel limits; deepen the Southport Access Channel (SAC) from about berth 23 to the south end of berth 32 from 42 feet to 50 feet; deepen the Turning Notch (TN), including Sponsor expanded portion from 42 feet to 50 feet with an additional 100-foot widening parallel to the channel on the eastern edge of the SAC over a length of about 1,845 feet and widen the western edge of the SAC for access to the TN from the existing Federal channel edge near the south end of berth 29 to a width of about 130 feet at the north edge of the TN.

The Port's 20-year Master/Vision Plan agreement with the Florida Department of Environmental Protection (FDEP) includes expansion of the Turning Notch to increase berth capacity. This 400 foot expansion includes the release of approximately 8.68 acres west of the Turning Notch from the existing 48.27-acre conservation easement, and deepening the entire notch to 42 feet MLLW. The notch expansion is considered a future without project condition, and is the sole responsibility of the sponsor, the Port Authority. The dredging sites are located on Everglades Port Authority property or State Sovereign Submerged Lands or Federal Channel Sovereignty lands for the existing channels as shown in plate A1.

The Port's 20-year Master/Vision Plan agreement with the Florida Department of Environmental Protection (FDEP) includes expansion of the Turning Notch to increase berth capacity. *This 400 foot expansion includes the release of approximately 8.68 acres west of the Turning Notch from the existing 48.27-acre conservation easement, and deepening the entire notch to 42 feet MLLW. The notch expansion is considered a future without project condition, and is the sole responsibility of the sponsor, the Port Authority.*

1.3.4 Descriptions of Structures, Roads, Other Improvements on the Site (including Heating Cooling system, sewage disposal, source of potable water) The areas to be dredged are located within Port Everglades. The property boundary includes adjacent industrial operations, port facilities and natural vegetation. The aerial photograph shows the proposed disposal sites and other port structures. See plates A2 and A3.

1.3.5 Information (if any) Reported by Auditor Regarding Environmental Liens or Specialized Knowledge or Experience. No work was done on this as the Port Area is managed by the Port Authority.

1.3.6 Current Uses of the Property. The entire basin is a fully functional Port area with Cruise ships, oil cargo vessels, and other minor ship traffic. The South Florida ports are frequently the first ports of call for global container services transiting the Panamax Canal. It is expected that the expansion of the Canal about 2015 will lead to an influx of modern Post-Panamax container vessels calling the East Coast U.S. (ECUS) shifting from the current maximum Panamax with about 5,000 TEU capacity. This cargo will not be handled through other ports because of the extensive land distances (Savannah and Jacksonville) or the regional ports are not called directly by worldwide global services (Tampa/Canaveral/Mobile, etc.) Expected modest growth in Port Everglades container traffic, the return of some global services lost during the recent recession, and a partial shift in the global east-west Panamax fleet to Post- Panamax will affect the number and size of benefiting container vessels projected to call the Port.

1.3.7 Past Uses of the Property (to the extent identified). The past uses of the port are the same as the current use. Since this is not an upland site this is N/A. See Historical uses Location Map Figure A2

1.3.8 Current and Past Uses of Adjoining Properties (to the extent identified) By all indications observed throughout the site investigation, the adjoining properties relate to port operations. The dredging sites are surrounded by parking lots, roads, a metal recycler, etc. Historical uses Location Map Figure A2

1.3.9 Site Rendering, Map, or Site Plan See Figures A1, A2 and A3.

1.4 RECORDS REVIEW

1.4.1 Standard Environmental Records Sources, Federal, State, and/or Local. Several database searches were performed and the results were plotted to the proposed area project map. Appendix A4 shows these potentially contaminated sources. The following databases were included in this review; National and State Priority Listed Sites, Federal and State Conservation Environmental Restoration Comprehensive Liability Act (CERCLA) listed sites

1.4.2 Physical Setting Source(s) The Project details and Location Map figure A1 indicates that the dredging sites are located within the developed seaport operation area.

1.4.3 Historical Use Information Is provided on the included layout map Historical uses Location Map Figure A2

:

1.4.4 Additional Record Sources None

1.5 INFORMATION FROM SITE AERIAL RECONNAISSANCE AND INTERVIEWS.

1.5.1 Hazardous Substances in Connection with Identified Uses (including storage, handling, disposal) Port Everglades Harbor is a major terminal for petroleum products. It also handles large volumes of aggregate rock, gypsum, concrete components like sand and gravel, lumber, textiles and vegetables (Source Waterborne Commerce of the United States). It is also a large cruise ship port serving the Bahamas. The following sources were consulted for information on spills of hazardous materials in Port Everglades Harbor: the CERCLIS Database Superfund Information Systems US EPA Public Access Database, the USCG National Response Center Database. The USCG will periodically be contacted to assess whether their database has additional information. Storage of hazardous and toxic materials (HTW) is primarily confined to petroleum product including #2 fuel oil, diesel fuel, gasoline and lubricants. All of the HTW confinement areas are sufficient to contain any spills. Port Everglades Harbor is hydraulically linked to the Atlantic through the Port Everglades Entrance Channel.

1.5.2 Hazardous Substance Containers and Unidentified Substance Containers (including storage, handling, disposal) This item is N/A.

1.5.3 Storage Tanks (including contents and assessment of leakage or potential for leakage) There is a huge assembly of numerous aboveground storage tanks (AST) within the Port area. Each AST in the area is managed according to modern standards for ASTs. Spills are supposed to be reported.

1.5.4 Indications of PCBs (including how contained and assessment of leakage or potential for leakage) This item is N/A.

1.5.5 Indications of Solid Waste Disposal This item is N/A.

1.5.6 Physical Setting Analysis, if migrating Hazardous Substances are an issue. Migration of hazardous substances from pollution sources off-site was considered. Four "non NPL CERCLIS sites were found in the vicinity none of which appear to be close enough to have ever impacted the basin

1.5.7 Any Other Conditions of Concern None

1.6 FINDINGS AND CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527; of the Port Everglades new deepening dredging areas and disposal sites, Broward County, Florida. These sites have been assessed and found to be no more contaminated than most Port Areas in constant use. Spill database results over the years have indicated periodic small petroleum spills in the basin but no large spills. Additionally bioassays and chemical data generated to determine the feasibility for disposal of the material in the Ocean Dredged Material Disposal site have

PRELIMINARY ASSESSMENT SCREENING (PAS)**STATEMENT OF FINDINGS**

REAL PROPERTY TRANSACTION: A preliminary site assessment was conducted on located at Port Everglades for the potential use of the site for maintenance dredged material disposal.

SUMMARY:

COMPREHENSIVE RECORD SEARCH: A comprehensive record search January and February of 2011 consisted of a study of aerial photographs, and reviewing Federal and State hazardous and toxic waste databases. The aerial photography showed port loading and unloading operations.

SITE INVESTIGATION: We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527, of the Port Everglades deepening site, Broward County Florida. The area is predominantly adjacent to unloading facilities, petroleum product storage areas, and an industrial area.

In conclusion, the proposed deepening shows no obvious seepage groundwater effects, or surface water effects from contamination issues

Signed:

Date:

Prepared by: James J. Mc Adams Supv Environmental Engineer, US Army Corps of Engineers

Signed:

Date:

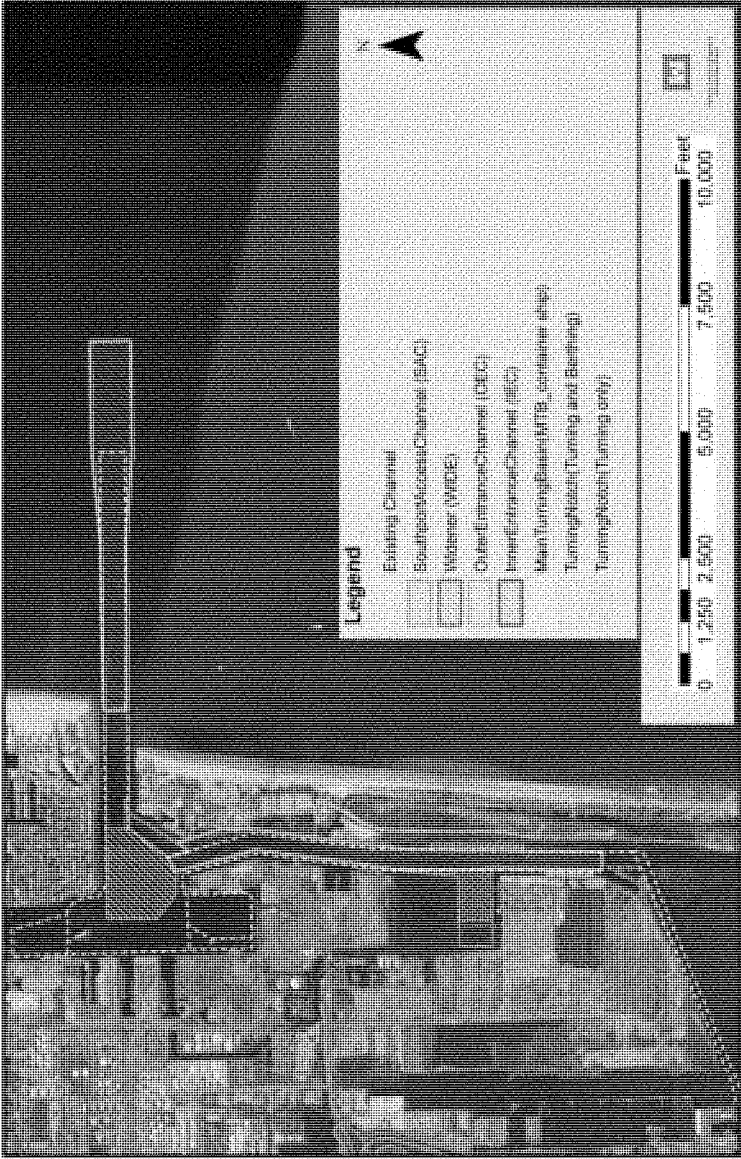
Reviewed by: J. J. McAdams, P. E. Chief, Water Quality and Compliance Branch Env. Quality Section, US Army Corps of Engineers

Signed:

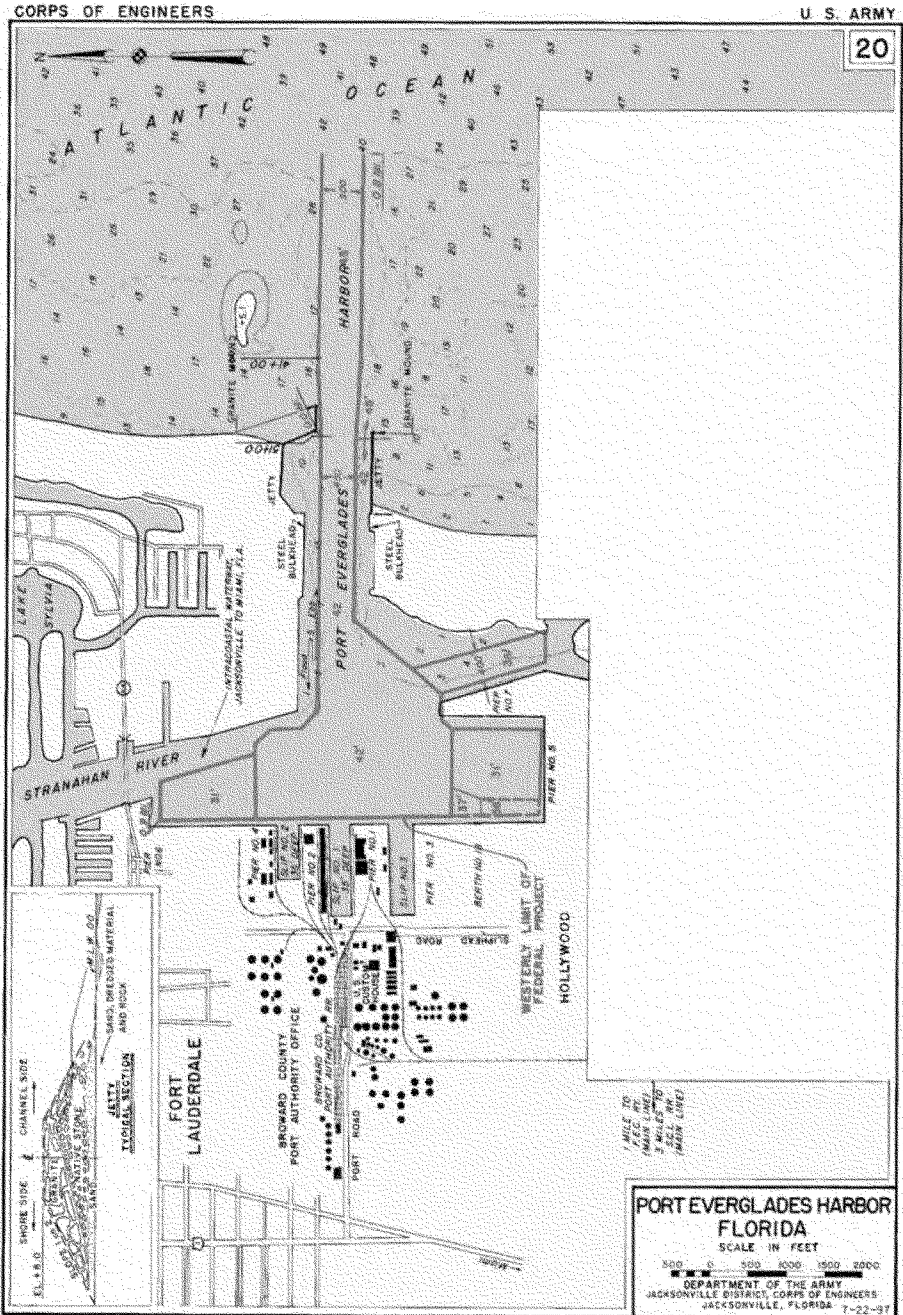
Date: Approved by: Eric Summa Chief Environmental branch, US Army Corps of Engineers

I.7 APPENDICES

Figures



Project details and Location Map..... Figure



Historical uses Location Map.....Figure A2



USGS Quadrangle..... Figure A3



Non NPL CERCLIS. Site Location Map.....Figure A4

NPL Sites Database Results within nearby zip codes.

Site Name: DAVCO PRINTED CIRCUITS

Street: 3000 SOUTH ANDREWS AVE.

City / State / ZIP: FT. LAUDERDALE, FL 33316

NPL Status: Not on the NPL

Non-NPL Status: NFRAP-Site does not qualify for the NPL based on existing information

EPA ID: FLD133040931

EPA Region: 04

County: BROWARD

Site Name: ASSOCIATED AIR SERVICES

Street: 701 SW 48TH ST

City / State / ZIP: FORT LAUDERDALE, FL 33315

NPL Status: Not on the NPL

Non-NPL Status: NFRAP-Site does not qualify for the NPL based on existing information

EPA ID: FLD046024121

EPA Region: 04

County: BROWARD

Site Name: LINDSLEY LUMBER

Street: 1940 GRIFFIN ROAD

City / State / ZIP: DANIA, FL 33004

NPL Status: Not on the NPL

Non-NPL Status: Other Cleanup Activity: Private Party-Lead Cleanup

ERS Exclusion: An Eligible Response Site (ERS) Exclusion decision has been made at this site.

EPA ID: FLD984171546

EPA Region: 04

County: BROWARD

Site LIQUID CARBONIC CORP

Street: 2910 STERLING RD

City / DANIA, FL 33004

State /

ZIP:

NPL Not on the NPL

Status:

Non-NPL Other Cleanup Activity: State-Lead Cleanup

Status:

ERS
Exclusion: An Eligible Response Site (ERS) Exclusion decision has been made at this site.

EPA ID: FLD045464377

EPA 04

Region:

County: BROWARD

USCG Reportable Spills 2007 to present

958306

INCIDENT28-OCT-2010 13:00WHILE FUELING A GENERATOR ON A VESSEL THERE WAS AN OVERFLOW OF THE FUEL TANK, DIESEL RELEASED ON TO THE DECK OF THE VESSEL AND INTO THE WATER.VESSELOPERATOR ERROR28-OCT-2010 12:20HYBUR TRADER 2019 ELLER FLPORT EVERGLADESBROWARDBROWARD COUNTY SHERIFF'S OFFICEWATEROIL: DIESEL

0943460

INCIDENT10-JUN-2010 10:03CALLER IS REPORTING AN UNKNOWN SHEEN FROM AN UNKNOWN SOURCE.UNKNOWN SHEENUNKNOWN06-JUN-2010 14:45UNKNOWN SHEEN INCIDENT 12 NM OFF COAST OF PORT EVERGLADES FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

935372

INCIDENT28-MAR-2010 17:43A HYDRAULIC LINE RUPTURED, RESULTING IN A DISCHARGE OF HYDRAULIC OIL.VESSELEQUIPMENT FAILURE28-MAR-2010 17:10PORT EVERGLADES - BERTH 7 FLPORT EVERGLADESBROWARDAHL SHIPPING COMPANYWATERHYDRAULIC OIL

924870

INCIDENT30-NOV-2009 13:06AN UNKNOWN SHEEN WAS DISCOVERED IN THE SE CORNER OF PIER 18 IN THE TURNING BASIN.UNKNOWN SHEENUNKNOWN30-NOV-2009 13:00UNKNOWN SHEEN INCIDENT FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

923610

INCIDENT15-NOV-2009 08:22CALLER REPORTED THAT YESTERDAY MORNING, THE CRUISE SHIP "OASIS OF THE SEAS" DRAINED DE-CHLORINATED WATER (LESS THAN 70 PPM) FROM A SWIMMING POOL IN ORDER TO FIX A FAULTY VALVE. THIS IS NON-COMPLAINE WITH AN NPDES PERMIT. VESSELEQUIPMENT FAILURE14-NOV-2009 10:00TERMINAL 18 FLPORT EVERGLADESBROWARDROYAL CARIBBEAN CRUISES LIMITEDWATERDE-CHLORINATED WATER (SWIMMING POOL WATER)

INCIDENT22-JUN-2009 20:43CALLER IS REPORTING A DISCHARGE OF HYDRAULIC OIL FROM THE WENCH MOTOR (LIKE AN O-RING) ONBOARD THE VESSEL DUE TO AN EQUIPMENT FAILURE. TIME OF INCIDENT: 2015 EDT.VESSELEQUIPMENT FAILURE22-JUN-2009 20:15BERTH 13, AT THE PORT EVERGLADES (PETROLEUM DOCK / HARBOR) FLPORT EVERGLADESBROWARDOSG AMERICAWATERHYDRAULIC OIL

908817

INCIDENT17-JUN-2009 08:30CALLER IS REPORTING AN UNKNOWN SHEEN AROUND THE BOW OF THEIR VESSEL (CARNIVAL SUN) FROM AN UNKNOWN SOURCE.UNKNOWN SHEENUNKNOWN17-JUN-2009 08:30PIER 1 FLPORT EVERGLADESBROWARDDISCOVERY CRUISES LINESWATERUNKNOWN OIL

908689

INCIDENT16-JUN-2009 07:15CALLER STATED A PIPE BROKE INSIDE OF THE CAR DECK ON THE M/V CARNIVAL SUN. CALLER STATED WHEN THEY CLOSED THE VALVE ON THE DECK, MATERIAL RELEASED INTO THE WATER.VESSELEQUIPMENT FAILURE16-JUN-2009 01:00PIER #1 FLPORT EVERGLADESBROWARDDISCOVERY CRUISE LINESWATERHYDRAULIC OIL

907789

INCIDENT06-JUN-2009 15:59CALLER IS REPORTING A DISCHARGE OF 3 LITERS OF HYDRAULIC FLUID INTO THE WATER DUE TO RAMP FAILURE.VESSELEQUIPMENT FAILURE06-JUN-2009 15:45 PORT EVERGLADES BERTH #33 FLPORT EVERGLADESBROWARDCROWLEY M/V CROWLEY SHIPPERWATERHYDRAULIC OIL

902026

INCIDENT07-APR-2009 10:54CALLER IS REPORTING AN UNKNOWN SHEEN THAT APPEARS TO BE COMING FROM THE NORTH. THERE IS A SHIP IN THE VICINITY BUT IT IS NOT THE SOURCE OF THE SHEEN.UNKNOWN SHEENUNKNOWN07-APR-2009 10:20UNKNOWN SHEEN INCIDENT BERTH 5 FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

898486

INCIDENT25-FEB-2009 18:15THE CALLER IS REPORTING AN UNKNOWN SHEEN FROM AN UNKNOWN SOURCEUNKNOWN SHEENUNKNOWN25-FEB-2009 18:00UNKNOWN SHEEN INCIDENT BERTH 2 FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

889089

INCIDENT04-NOV-2008 10:16THE CALLER STATED THAT THE HYDRAULIC HOSE

FAILURE04-NOV-2008 09:45 2200 ELLER DRIVE BERTH 28 FLFORT
EVERGLADESBROWARDSEABULK TOWING INTERNATIONAL INC.WATERHYDRAULIC OIL

887788

INCIDENT21-OCT-2008 13:38CALLER IS REPORTING VIA THIRD PARTY THAT AN UNNAMED COMPANY WORKING AT A CONSTRUCTION SITE HAS SPILLED ABOUT 1 TON OF GASOLINE FROM AN UNKNOWN SOURCE ONTO THE GROUND AND INTO PORT EVERGLADE WATERS. COMPANY IS CURRENTLY DIGGING HOLES INTO THE GROUND TO COVER UP THE SPILL.FIXEDUNKNOWN21-OCT-2008 13:30S.E. 26TH STREET AND S.E. 14TH AVENUE FLPORT EVERGLADESBROWARD WATERGASOLINE: AUTOMOTIVE (UNLEADED)

873784

INCIDENT11-JUN-2008 11:09ON THE VESSEL THE CAJA DUCHESS, A HYDRAULIC LINE BURST ON DECK AND SPRAYED HYDRAULIC OIL OUTWARD FROM STARBOARD SIDE OF VESSEL INTO THE WATER AND ONTO THE DOCK. THEY ARE IN THE PROCESS OF CLEANING IT UP.VESSELEQUIPMENT FAILURE11-JUN-2008 10:55BERTH 29 FLPORT EVERGLADESBROWARD WATERHYDRAULIC OIL

866075

INCIDENT26-MAR-2008 11:27CALLER IS REPORTING A DISCHARGE OF OIL FROM THE PORT STABILIZER DUE TO EQUIPMENT FAILURE. THIS WAS DISCOVERED WHILE DIVERS WERE DOWN PERFORMING A SURVEY.VESSELEQUIPMENT FAILURE26-MAR-2008 11:15 BERTH 6 FLPORT EVERGLADESBROWARDAERION MARINEWATERHYDRAULIC OIL

855333

INCIDENT23-NOV-2007 15:43CALLER IS REPORTING A DISCHARGE OF OILY WATER FROM A SQUARE AIR VENT ON THE VESSEL DUE TO A BURP CAUSED BY UNKNOWN REASONS.VESSELOTHER23-NOV-2007 14:30BERTH 5 FLPORT EVERGLADESBROWARDANGLO EASTERNWATEROILY WATER

855322

INCIDENT23-NOV-2007 13:37CALLER IS REPORTING A DISCHARGE OF LUBRICATING OIL FROM AN AIR COMPRESSOR ON A VESSEL DUE TO UNKNOWN CAUSES.VESSELUNKNOWN23-NOV-2007 13:05ATLANTIC OCEAN FLPORT EVERGLADESBROWARDDOCK WISE SHIPPING M/V SUPER SERVANT IIIWATEROIL, MISC:

INCIDENT18-SEP-2007 08:52CALLER IS REPORTING A DISCHARGE OF UNKNOWN OIL FROM TUG BOAT FIRE PUMP DUE TO UNKNOWN CAUSES. VESSELUNKNOWN18-SEP-2007 08:48PIER 24 FLPORT EVERGLADESBROWARDSEABULK TOWINGWATERUNKNOWN OIL

843369

INCIDENT25-JUL-2007 21:53CALLER IS REPORTING A DISCHARGE OF NO.6 FUEL OIL FROM A FUEL OIL HEATER UNDER A BOILER DUE TO A VALVE FAILURE. THE CAUSE OF THE VALVE FAILURE IS NOT EXACTLY KNOWN AT THIS TIME. THE DISCHARGE WENT ONTO THE FLOOR, DRAINS AND AN A INTAKE CANAL. THE CALLER THOUGHT THEY SECURED THE RELEASE BUT DUE TO FINDING A SHEEN IN THEIR INTAKE CANAL THEY THINK THERE MAY STILL BE A LEAK SOMEWHERE. CONTRACTORS HAVE BEEN HIRED.FIXEDEQUIPMENT FAILURE25-JUL-2007 21:45POWER PLANT PORT EVERGLADES POWER PLANT 8100 EISENHOWER BLVD FLPORT EVERGLADESBROWARDFLORIDA POWER AND LIGHTWATEROIL: DIESEL

839832

INCIDENT25-JUN-2007 07:44CALLER CALLER STATED THERE AN OIL SHEEN NEAR THEIR CONTAINER VESSEL FROM UNKNOWN SOURCES. CALLER STATED THEY NOTICED THIS SHEEN JUST BEFORE THEY WERE ABOUT TO BUNKER.UNKNOWN SHEENUNKNOWN25-JUN-2007 07:30UNKNOWN SHEEN INCIDENT PORT EVERGLADES PIER 19 FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

832426

INCIDENT16-APR-2007 18:30THE CALLER STATES THAT THE THRUSTERS ON THE VESSEL ARE LEAKING. THE CALLER STATED THAT THE LEAK WAS DISCOVERED ON THURSDAY OF LAST WEEK. THE CALLER IS UNSURE OF THE CAUSE OF THE LEAK. VESSELUNKNOWN08-APR-2007 14:00PIER 19 FLPORT EVERGLADESBROWARDCARNIVAL LIBERTYWATEROIL, MISC: LUBRICATING

825564

INCIDENT05-FEB-2007 14:02CALLER IS CALLING ON BEHALF OF THE BROWARD COUNTY FIRE DEPARTMENT. FIRE DEPARTMENT DISCOVERED AN UNKNOWN SHEEN FROM AN FROM AN UNKNOWN SOURCE.UNKNOWN SHEENUNKNOWN05-FEB-2007 13:52UNKNOWN SHEEN INCIDENT BERTH 2 & 4A FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

822042

14:30 PIER 21 FLPORT EVERGLADESBROWARD CARNIVAL CRUISE LINE (CARNIVAL
LEGEND) WATER PAINT

818377 INCIDENT 16-NOV-2006 12:16 CALLER IS REPORTING AN UNKNOWN
SHEEN. UNKNOWN SHEEN UNKNOWN 16-NOV-2006 12:16 PORT EVERGLADES, PIER 21 ON THE
WESTSIDE OF 2700 EAST SUNRISE BLVD. FLPORT VERGLADESBROWARD WATER UNKNOWN
OIL.

809368

INCIDENT 27-AUG-2006 17:16 THE CALLER IS REPORTING A UNKNOWN SHEEN
SIGHTING IN THE ICW. UNKNOWN SHEEN UNKNOWN 27-AUG-2006 16:24 BERTH 13 FLPORT
EVERGLADESBROWARD WATER PETROLEUM

805245

INCIDENT 23-JUL-2006 19:32 REPORTING A POTENTIAL RELEASE OF MATERIALS INTO
ATLANTIC OCEAN FROM TWO 70 KILO BOTTLES THAT FELL OFF A CRANE AT THE PORT
DUE TO OPERATOR ERROR. FIXED OPERATOR ERROR 23-JUL-2006 18:20 PORT EVERGLADES
BERTH # 5 FLPORT EVERGLADESBROWARD WATER OXYGEN

805245

INCIDENT 23-JUL-2006 19:32 REPORTING A POTENTIAL RELEASE OF MATERIALS INTO
ATLANTIC OCEAN FROM TWO 70 KILO BOTTLES THAT FELL OFF A CRANE AT THE PORT
DUE TO OPERATOR ERROR. FIXED OPERATOR ERROR 23-JUL-2006 18:20 PORT EVERGLADES
BERTH # 5 FLPORT EVERGLADESBROWARD WATER ACETYLENE

804057

INCIDENT 13-JUL-2006 18:21 CALLER REPORTING A LUBE OIL SPILL DUE TO
UNKNOWN CAUSES AND SOURCES. VESSEL UNKNOWN 13-JUL-2006 17:00 PORT EVERGLADES
FLPORT EVERGLADESBROWARD PRECIOUS SHIPPING WATER OIL, MISC: LUBRICATING

804010

INCIDENT 13-JUL-2006 14:54 REPORTING A RELEASE OF MATERIALS INTO THE
ATLANTIC OCEAN FROM A VESSEL DUE TO UNKNOWN
CAUSES. VESSEL UNKNOWN 13-JUL-2006 14:45 BERTH # 5 FTS SOUTH PORT CONTAINER YARD
FLPORT EVERGLADESBROWARD PRECIOUS SHIPPING AGENCY WATER STEEL

798235

INCIDENT 23-MAY-2006 19:18 THE CALLER STATES THAT SOMEONE SAW FUEL
SPILLING INTO THE ICW FROM HIS VESSEL. THE CAUSE IS UNKNOWN AND THE CALLER
SAYS HE DOES NOT THINK THE FUEL IS COMING FROM HIS

REPORTING A SHEEN FROM AN UNKNOWN ORIGIN. UNKNOWN
 SHEEN UNKNOWN 17-APR-2006 12:15 BERTH 5 FLPORT
 EVERGLADES BROWARD WATER UNKNOWN OIL

790611

INCIDENT 12-MAR-2006 08:33 REPORTING A RELEASE OF MATERIALS FROM A
 COOLING WATER PUMP BLOWING BLACK SMOKE OUT DURING LOADING CARGO FROM
 THE EXHAUST LEAVING A FILM IN PORT EVERGLADES HARBOR FROM A
 VESSEL. VESSEL UNKNOWN 12-MAR-2006 07:05 BERTH 13 BETWEEN THE SIDE OF SHIP AND
 THE PIER FLPORT EVERGLADES BROWARD DODFJOLL AS A WATER SOOT

785368

INCIDENT 16-JAN-2006 18:14 THE MATERIAL RELEASED FROM A 10 INCH
 LOW-PRESSURE PIPELINE DUE TO "NITROGEN TESTING". PIPELINE OTHER 16-JAN-2006 18:05
 S.E. 28TH ST. FLPORT EVERGLADES BROWARD EVERGLADES PIPELINE COWATER MIXTURE
 OF NITROGEN AND TURBINE FUEL

958306

INCIDENT 28-OCT-2010 13:00 WHILE FUELING A GENERATOR ON A VESSEL THERE
 WAS AN OVERFLOW OF THE FUEL TANK, DIESEL RELEASED ON TO THE DECK OF THE
 VESSEL AND INTO THE WATER. VESSEL OPERATOR ERROR 28-OCT-2010 12:20 HYBUR TRADER
 2019 ELLER FLPORT EVERGLADES BROWARD BROWARD COUNTY SHERIFF'S
 OFFICE WATER OIL: DIESEL

943460

INCIDENT 10-JUN-2010 10:03 CALLER IS REPORTING AN UNKNOWN SHEEN FROM AN
 UNKNOWN SOURCE. UNKNOWN SHEEN UNKNOWN 06-JUN-2010 14:45 UNKNOWN SHEEN
 INCIDENT 12 NM OFF COAST OF PORT EVERGLADES FLPORT
 EVERGLADES BROWARD WATER UNKNOWN OIL

935372

INCIDENT 28-MAR-2010 17:43 A HYDRAULIC LINE RUPTURED, RESULTING IN A
 DISCHARGE OF HYDRAULIC OIL. VESSEL EQUIPMENT FAILURE 28-MAR-2010 17:10 PORT
 EVERGLADES - BERTH 7 FLPORT EVERGLADES BROWARD AHL SHIPPING
 COMPANY WATER HYDRAULIC OIL

INCIDENT30-NOV-2009 13:06AN UNKNOWN SHEEN WAS DISCOVERED IN THE SE CORNER OF PIER 18 IN THE TURNING BASIN.UNKNOWN SHEENUNKNOWN30-NOV-2009 13:00UNKNOWN SHEEN INCIDENT FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

923610

INCIDENT15-NOV-2009 08:22CALLER REPORTED THAT YESTERDAY MORNING, THE CRUISE SHIP "OASIS OF THE SEAS" DRAINED DE-CHLORINATED WATER (LESS THAN 70 PPM) FROM A SWIMMING POOL IN ORDER TO FIX A FAULTY VALVE. THIS IS NON-COMPLAINE WITH AN NPDES PERMIT. VESSELEQUIPMENT FAILURE14-NOV-2009 10:00TERMINAL 18 FLPORT EVERGLADESBROWARDROYAL CARIBBEAN CRUISES LIMITEDWATERDE-CHLORINATED WATER (SWIMMING POOL WATER)

909408

INCIDENT22-JUN-2009 20:43CALLER IS REPORTING A DISCHARGE OF HYDRAULIC OIL FROM THE WENCH MOTOR (LIKE AN O-RING) ONBOARD THE VESSEL DUE TO AN EQUIPMENT FAILURE. TIME OF INCIDENT: 2015 EDT.VESSELEQUIPMENT FAILURE22-JUN-2009 20:15BERTH 13, AT THE PORT EVERGLADES (PETROLEUM DOCK / HARBOR) FLPORT EVERGLADESBROWARDOSG AMERICAWATERHYDRAULIC OIL

908817

INCIDENT17-JUN-2009 08:30CALLER IS REPORTING AN UNKNOWN SHEEN AROUND THE BOW OF THEIR VESSEL (CARNIVAL SUN) FROM AN UNKNOWN SOURCE.UNKNOWN SHEENUNKNOWN17-JUN-2009 08:30PIER 1 FLPORT EVERGLADESBROWARDDISCOVERY CRUISES LINESWATERUNKNOWN OIL

908689

INCIDENT16-JUN-2009 07:15CALLER STATED A PIPE BROKE INSIDE OF THE CAR DECK ON THE M/V CARNIVAL SUN. CALLER STATED WHEN THEY CLOSED THE VALVE ON THE DECK, MATERIAL RELEASED INTO THE WATER.VESSELEQUIPMENT FAILURE16-JUN-2009 01:00PIER #1 FLPORT EVERGLADESBROWARDDISCOVERY CRUISE LINESWATERHYDRAULIC OIL907789INCIDENT06-JUN-2009 15:59CALLER IS REPORTING A DISCHARGE OF 3 LITERS OF HYDRAULIC FLUID INTO THE WATER DUE TO RAMP FAILURE.VESSELEQUIPMENT FAILURE06-JUN-2009 15:45 PORT EVERGLADES BERTH #33 FLPORT EVERGLADESBROWARDCROWLEY M/V CROWLEY SHIPPERWATERHYDRAULIC OIL

INCIDENT07-APR-2009 10:54CALLER IS REPORTING AN UNKNOWN SHEEN THAT APPEARS TO BE COMING FROM THE NORTH. THERE IS A SHIP IN THE VICINITY BUT IT IS NOT THE SOURCE OF THE SHEEN.UNKNOWN SHEENUNKNOWN07-APR-2009 10:20UNKNOWN SHEEN INCIDENT BERTH 5 FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

898486

INCIDENT25-FEB-2009 18:15THE CALLER IS REPORTING AN UNKNOWN SHEEN FROM AN UNKNOWN SOURCEUNKNOWN SHEENUNKNOWN25-FEB-2009 18:00UNKNOWN SHEEN INCIDENT BERTH 2 FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

889089

INCIDENT04-NOV-2008 10:16THE CALLER STATED THAT THE HYDRAULIC HOSE FAILED DURING REPAIRS AND MAY HAVE BEEN UNDER TEST PRESSURE. BOOMS AND ABSORBANTS HAVE BEEN DEPLOYED FOR CLEANUP.VESSELEQUIPMENT FAILURE04-NOV-2008 09:45 2200 ELLER DRIVE BERTH 28 FLFORT EVERGLADESBROWARDSEABULK TOWING INTERNATIONAL INC.WATERHYDRAULIC OIL

887788

INCIDENT21-OCT-2008 13:38CALLER IS REPORTING VIA THIRD PARTY THAT AN UNNAMED COMPANY WORKING AT A CONSTRUCTION SITE HAS SPILLED ABOUT 1 TON OF GASOLINE FROM AN UNKNOWN SOURCE ONTO THE GROUND AND INTO PORT EVERGLADE WATERS. COMPANY IS CURRENTLY DIGGING HOLES INTO THE GROUND TO COVER UP THE SPILL.FIXEDUNKNOWN21-OCT-2008 13:30S.E. 26TH STREET AND S.E. 14TH AVENUE FLPORT EVERGLADESBROWARD WATERGASOLINE: AUTOMOTIVE (UNLEADED)

873784

INCIDENT11-JUN-2008 11:09ON THE VESSEL THE CAJA DUCHESS, A HYDRAULIC LINE BURST ON DECK AND SPRAYED HYDRAULIC OIL OUTWARD FROM STARBOARD SIDE OF VESSEL INTO THE WATER AND ONTO THE DOCK. THEY ARE IN THE PROCESS OF CLEANING IT UP.VESSELEQUIPMENT FAILURE11-JUN-2008 10:55BERTH 29 FLPORT EVERGLADESBROWARD WATERHYDRAULIC OIL

866075

INCIDENT26-MAR-2008 11:27CALLER IS REPORTING A DISCHARGE OF OIL FROM THE PORT STABILIZER DUE TO EQUIPMENT FAILURE. THIS WAS DISCOVERED WHILE DIVERS WERE DOWN PERFORMING A SURVEY.VESSELEQUIPMENT FAILURE26-MAR-2008 11:15 BERTH 6 FLPORT EVERGLADESBROWARDAERION MARINENWATERHYDRAULIC OIL

855333

INCIDENT23-NOV-2007 15:43CALLER IS REPORTING A DISCHARGE OF OILY WATER

REASONS.VESSELOther23-NOV-2007 14:30BERTH 5 FLPORT
EVERGLADESBROWARDANGLO EASTERNWATEROILY WATER

855322

INCIDENT23-NOV-2007 13:37CALLER IS REPORTING A DISCHARGE OF LUBRICATING
OIL FROM AN AIR COMPRESSOR ON A VESSEL DUE TO UNKNOWN
CAUSES.VESSELUNKNOWN23-NOV-2007 13:05ATLANTIC OCEAN FLPORT
EVERGLADESBROWARDDOCK WISE SHIPPING M/V SUPER SERVANT IIIWATEROIL, MISC:
LUBRICATING

849134

INCIDENT18-SEP-2007 08:52CALLER IS REPORTING A DISCHARGE OF UNKNOWN OIL
FROM TUG BOAT FIRE PUMP DUE TO UNKNOWN CAUSES.VESSELUNKNOWN18-SEP-2007
08:48PIER 24 FLPORT EVERGLADESBROWARDSEABULK TOWINGWATERUNKNOWN OIL

843369

INCIDENT25-JUL-2007 21:53CALLER IS REPORTING A DISCHARGE OF NO.6 FUEL OIL
FROM A FUEL OIL HEATER UNDER A BOILER DUE TO A VALVE FAILURE. THE CAUSE OF
THE VALVE FAILURE IS NOT EXACTLY KNOWN AT THIS TIME. THE DISCHARGE WENT
ONTO THE FLOOR, DRAINS AND AN A INTAKE CANAL. THE CALLER THOUGHT THEY
SECURED THE RELEASE BUT DUE TO FINDING A SHEEN IN THEIR INTAKE CANAL THEY
THINK THERE MAY STILL BE A LEAK SOMEWHERE. CONTRACTORS HAVE BEEN
HIRED.FIXEDEQUIPMENT FAILURE25-JUL-2007 21:45POWER PLANT PORT EVERGLADES
POWER PLANT 8100 EISENHOWER BLVD FLPORT EVERGLADESBROWARDFLORIDA POWER
AND LIGHTWATEROIL: DIESEL

839832

INCIDENT25-JUN-2007 07:44CALLER CALLER STATED THERE AN OIL SHEEN NEAR
THEIR CONTAINER VESSEL FROM UNKNOWN SOURCES. CALLER STATED THEY NOTICED
THIS SHEEN JUST BEFORE THEY WERE ABOUT TO BUNKER.UNKNOWN
SHEENUNKNOWN25-JUN-2007 07:30UNKNOWN SHEEN INCIDENT PORT EVERGLADES PIER
19 FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

832426

INCIDENT16-APR-2007 18:30THE CALLER STATES THAT THE THRUSTERS ON THE
VESSEL ARE LEAKING. THE CALLER STATED THAT THE LEAK WAS DISCOVERED ON
THURSDAY OF LAST WEEK. THE CALLER IS UNSURE OF THE CAUSE OF THE
LEAK.VESSELUNKNOWN08-APR-2007 14:00PIER 19 FLPORT
EVERGLADESBROWARDDOCK WISE SHIPPING M/V SUPER SERVANT IIIWATEROIL, MISC:
LUBRICATING

INCIDENT05-FEB-2007 14:02CALLER IS CALLING ON BEHALF OF THE BROWARD COUNTY FIRE DEPARTMENT. FIRE DEPARTMENT DISCOVERED AN UNKNOWN SHEEN FROM AN FROM AN UNKNOWN SOURCE.UNKNOWN SHEENUNKNOWN05-FEB-2007 13:52UNKNOWN SHEEN INCIDENT BERTH 2 & 4A FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

822042

INCIDENT26-DEC-2006 15:35CALLER STATED THAT DURING PAINTING OPERATIONS A FEW DROPS OF PAINT FELL INTO THE WATER.VESSELOPERATOR ERROR26-DEC-2006 14:30 PIER 21 FLPORT EVERGLADESBROWARD CARNIVAL CRUISE LINE (CARNIVAL LEGEND)WATERPAINT818377INCIDENT16-NOV-2006 12:16CALLER IS REPORTING AN UNKNOWN SHEEN.UNKNOWN SHEENUNKNOWN16-NOV-2006 12:16PORT EVERGLADES, PIER 21 ON THE WESTSIDE OF 2700 EAST SUNRISE BLVD. FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

809368

INCIDENT27-AUG-2006 17:16THE CALLER IS REPORTING A UNKNOWN SHEEN SIGHTING IN THE ICW.UNKNOWN SHEENUNKNOWN27-AUG-2006 16:24BERTH 13 FLPORT EVERGLADESBROWARD WATERPETROLEUM

805245

INCIDENT23-JUL-2006 19:32REPORTING A POTENIAL RELEASE OF MATERIALS INTO ATLANTIC OCEAN FROM TWO 70 KILO BOTTLES THAT FELL OFF A CRANE AT THE PORT DUE TO OPERATOR ERROR.FIXEDOPERATOR ERROR23-JUL-2006 18:20PORT EVERGLADES BERTH # 5 FLPORT EVERGLADESBROWARD WATERACETLYNE

805245

INCIDENT23-JUL-2006 19:32REPORTING A POTENIAL RELEASE OF MATERIALS INTO ATLANTIC OCEAN FROM TWO 70 KILO BOTTLES THAT FELL OFF A CRANE AT THE PORT DUE TO OPERATOR ERROR.FIXEDOPERATOR ERROR23-JUL-2006 18:20PORT EVERGLADES BERTH # 5 FLPORT EVERGLADESBROWARD WATEROXYGEN

804057

INCIDENT13-JUL-2006 18:21CALLER REPORTING A LUBE OIL SPILL DUE TO UNKNOWN CAUSES AND SOURCES.VESSELUNKNOWN13-JUL-2006 17:00PORT EVERGLADES

INCIDENT13-JUL-2006 14:54REPORTING A RELEASE OF MATERIALS INTO THE ATLANTIC OCEAN FROM A VESSEL DUE TO UNKNOWN CAUSES.VESSELUNKNOWN13-JUL-2006 14:45BERTH # 5 FTS SOUTH PORT CONTAINER YARD FLPORT EVERGLADESBROWARDPRECIOUS SHIPPING AGENCYWATERSTEEL

798235

INCIDENT23-MAY-2006 19:18THE CALLER STATES THAT SOMEONE SAW FUEL SPILLING INTO THE ICW FROM HIS VESSEL. THE CAUSE IS UNKNOWN AND THE CALLER SAYS HE DOES NOT THINK THE FUEL IS COMING FROM HIS VESSEL.VESSELUNKNOWN23-MAY-2006 18:30ICW, MM 32 FLPORT EVERGLADESBROWARD WATEROIL: DIESEL

794207

INCIDENT17-APR-2006 12:32CALLER IS REPORTING A SHEEN FROM AN UNKNOWN ORIGIN.UNKNOWN SHEENUNKNOWN17-APR-2006 12:15BERTH 5 FLPORT EVERGLADESBROWARD WATERUNKNOWN OIL

790611

INCIDENT12-MAR-2006 08:33REPORTING A RELEASE OF MATERIALS FROM A COOLING WATER PUMP BLOWING BLACK SMOKE OUT DURING LOADING CARGO FROM THE EXHAUST LEAVING A FILM IN PORT EVERGLADES HARBOR FROM A VESSEL.VESSELUNKNOWN12-MAR-2006 07:05BERTH 13 BETWEEN THE SIDE OF SHIP AND THE PIER FLPORT EVERGLADESBROWARDODFJOLL ASAWATERSOOT

785368

INCIDENT16-JAN-2006 18:14THE MATERIAL RELEASED FROM A 10 INCH LOW-PRESSURE PIPELINE DUE TO "NITROGEN TESTING".PIPELINEOTHER16-JAN-2006 18:05 S.E. 28TH ST. FLPORT EVERGLADESBROWARDEVERGLADES PIPELINE COWATERMIXTURE OF NITROGEN AND TURBINE FUEL

**EIS
SUB-APPENDIX K
LIST OF RECIPIENTS**

**FINAL
FEASIBILITY REPORT
AND ENVIRONMENTAL IMPACT STATEMENT
PORT EVERGLADES HARBOR NAVIGATION STUDY
BROWARD COUNTY, FLORIDA**

	Jumilla	Lundstrom-Roth		Consulate of Sweden	P.O. Box 13304		Fort Lauderdale	FL	33336	
	Chris	Therby		Continental International	69-77 Paul Street		London	England	EC2A 4UG	
	George	Johnson		Continental Center of Florida Inc	P.O. Box 89-8007		Atlanta	GA	30358	
	Bela A.	Cocchi	Vice President	Coral Ridge Association, Inc.	2514 NE 30th St.		Fort Lauderdale	FL	33306	
	Alan E.	Vondermeier		Coral Ridge Association, Inc.	P.O. Box 24627		Fort Lauderdale	FL	33307	
	Baron	O'Connor		Coral Ridge Country Club Estates	4605 NE 13rd St.		Fort Lauderdale	FL	33306	
	Rumsey	Breneman	President	Coral Ridge Yacht Association	1101 NE 11th St.		Fort Lauderdale	FL	33304	
	Laffey	Reid		Coral Ridge Newsletter	2802 Mistle River Drive		Fort Lauderdale	FL	33306	
	Tom	Reddell		Coral Ridge South Towers Condominium	1311 NE 14th St.		Fort Lauderdale	FL	33308	
	Charlene	White		Coral Ridge Towers Condominium	1311 NE 14th St.		Fort Lauderdale	FL	33308	
	Robert	Tobert		Coral Ridge Towers East Condominium	1300 NE 34th St.		Fort Lauderdale	FL	33308	
	Mary	Blanken		Coral Ridge Towers North Condominium	1300 NE 36th St., #1601		Fort Lauderdale	FL	33308	
	Randy	Reynolds		Coral Shores Civic Association	6037 NE 21st Court		Fort Lauderdale	FL	33306	
	Jack	Reiner	President	Coral Shores Civic Association	2813 NE 21st Ave.		Fort Lauderdale	FL	33306	
	Diana	Lyndol		Coral Towers	4800 Bayview Drive		Fort Lauderdale	FL	33308	
	Janet	Merchant		Corvallis Condominium Association	800 International Drive		Fort Lauderdale	FL	33304	
				Cross Creek Line	2001 South Park Road	Suite 200	Hollywood	FL	33021	
	Gemma	Duncan Ellis	President	Council of Fort Lauderdale Civic Association	P.O. Box 1492		Fort Lauderdale	FL	33302	
	Nancy	Sutley	Chair	Council on Environmental Quality	727 Jackson Place NW		Washington	DC	20006	
	Clayton	Chapman		Country Club Towers Association	7505 NE 40th Ln		Fort Lauderdale	FL	33308	
	Jan	Tracy	D.C.L.	Country Crest Club HOA	2035 Harrington St., #200		Hollywood	FL	33020	
	Heather	Quinn	President	Croissant Park Civic Association	817 SW 28th St.	Suite 215	Fort Lauderdale	FL	33315	
	Rhonda	Reimer		Croissant Park Civic Association	P.O. Box 13137		Fort Lauderdale	FL	33315	
	John	Duggles		Crowley Limer Services	P.O. Box 2150		Jacksonville	FL	32203	
	John	Reardon		Crowley Limer Services	5487 Regency Square Blvd		Jacksonville	FL	32226	
	James	Remos		Crowley Limer Services	9550 NW 17th Street		Miami	FL	33132	
	William	Pisnella		Crowley Limer Services, Inc.	P.O. Box 355004		Fort Lauderdale	FL	33336	
	Clayton	Chapman		Crowley Maritime Corp	155 Grand Avenue		Oakland	CA	94612	
	Sharon	Dodd		Culture Circle	2 Love Farm Road	Suite B-300	Nashville	TN	37214	
				Cry of the Water	P.O. Box 8143		Coral Springs	FL	33075	
	Nelson	Sotomayor		CSPV	8300 NW 52nd Terrace	Suite 300	Miami	FL	33146	
				CSSCI	14651 Town Center Drive	Suite 200	CA	91355		
	Mel A.	Hiler	President	Cypress Chase C	3001 NW 45 Avenue #438		Fort Lauderdale	FL	33313	
	David Lyons	Lyons		Daily Business Review	One S.E. Third Ave., Suite 900		Miami	FL	33133	
	Sophie	Dezel		Dania Beach Civic Assoc.	362 SE 8 Street		Dania Beach	FL	33024	
	Patricia	Hagbe		Dania Beach Improvement Committee	484 SE 15 STREET		Dania Beach	FL	33024	
	John	Hilling		Dania Beach United HOA	4549 SW 37 AVENUE		Dania Beach	FL	33004	
	Yvonne	Young		DANIA COALITION OF CONCERNED CITIZENS, INC./HOA	1058 SF 6 AVENUE		Dania Beach	FL	33004	
	M.P.	Melone		DANISH HESITANT CIVIC ASSOCIATION	P.O. BOX 5001		Dania Beach	FL	33004	
	George	Jason		DANISH HOMEOWNERS ASSOCIATION	4549 SW 37 AVENUE		Dania Beach	FL	33004	
			Florida Program Director	Defenders of Wildlife	233 Third Street North	Suite 201	St. Petersburg	FL	33701	
			Office of Environmental Policy and Compliance	Delnet Linc	270 Harrington St., Inc.	P.O. Box 13028	Fort Lauderdale	FL	33316	
	Loretta	Sutton		Department of the Interior	Main Interior Building, Room 2342	1849 C Street NW	Washington	DC	20040	
	Sheryl	Dickay		Dickay Consulting Services, Inc.	1120 NW 601 Street Suite B		Fort Lauderdale	FL	33311	
	Janette	Brooks	President	Dillard Park HOA	23401 NW 15th Ct.		Fort Lauderdale	FL	33311	
	Julio	Bienarte		Dion Oil Co.	411 S. Flagler Ave.		Honolulu	FL	33020	
	Pat	Hale	Executive Secy	Dixie-Crown Cruise Line	1778 NW 30th Ave.		Miami	FL	33126	
				DLS Petroleum, Inc./b/a Antelope Petroleum	6750 NE 21st Rd., #10N		Fort Lauderdale	FL	33308	
	Dennis	Kelly		DLS Petroleum, Inc./b/a Antelope Petroleum	Post Office Box 350079		Fort Lauderdale	FL	33335	
	Phillip	Quinn		Dole	P.O. Box 18509		Gulfport	MS	39502	
	John	Tummeil		Dole Fresh Fruit Company	P.O. Box 185171		Fort Lauderdale	FL	33316	
	Gary	Kello	President	Dole Ocean Cargo Express	5445 Regency Square Blvd. #125		Jacksonville	FL	32226	
	Donna	Gurni		Dolphin Inn HOA	1319 NE 25th St.		Fort Lauderdale	FL	33306	
	Laronda	Ware	President	Donald T. Quinn	1802 Star Drive	Ste 404	Fort Lauderdale	FL	33316	
	Ronald	Canemore	President	Dorsey Rutherford HOA	617 NW 10th Ave.		Fort Lauderdale	FL	33311	
	Penella	Gene	President	Downtown Fort Lauderdale Civic Association	P.O. Box 2010		Fort Lauderdale	FL	33303	
	Richard	Turcotte		Dr. Martin Luther King, Jr. Blvd of Illness	P.O. Box 123004		Hollywood	FL	33022	
	Brenda	Arlens		Driftwood Civic Association	9020 N. 69th Avenue		Hollywood	FL	33024	
	John	Edwards		Dr. Kertla	P.O. Box 13862		Fort Lauderdale	FL	33304	
	Pat	Saunders	State Chairman	Ducks Unlimited	4343 Telford Drive		Jacksonville Beach	FL	32250-1805	
	Walter	Horton	President	Dunthorn Homeowners Association	713 NW 19th Ave.		Fort Lauderdale	FL	33311	
	John	Millett		Duty Free Provisions, LLC	453 Highway 33		English Town	NJ	07726	
	Arthur	Edin		Eagle Transport	P.O. Box 21747		Fort Lauderdale	FL	33325	
	William	Reid		East Frio, Towns Coast Assn.	1170 N. Federal Highway		Fort Lauderdale	FL	33304	
	Jack	Bell	President	Eastman Freight Forwarders, Inc.	100 W. Middle Road		Riviera Beach	FL	33419	
	Richard	Ferrari		Edgewater Line	6165 Blue Legion Drive	Suite 250	Miami	FL	33126	
	Patricia	Quilline		Edgewater Arms Condominium Association	4601 South Crown Drive		Fort Lauderdale	FL	33308	
	Cliff	Iacino	President	Edgewater Civic Association	P.O. Box 2153		Fort Lauderdale	FL	33335	
				Elmiger Apartments	1621 W. Broward Blvd.		Fort Lauderdale	FL	33311	
				Elmiger Apartments	1601 E. Broward Blvd.	P.O. Box 13139	Fort Lauderdale	FL	33316	
	Bob	Shel		Emerald Hills Homeowners Association	4951 Seawater Drive		Hollywood	FL	33021	
	John	Croini		Emerald Oaks	1443 Water Oak Drive		Hollywood	FL	33021	
	Maria	Francis		Emerald Oaks	1443 Water Oak Drive		Hollywood	FL	33021	
	Theresa	Warrington		Enterprise Leasing Company	305 S.W. 12th Ave., #200		Fort Lauderdale	FL	33309	
	Victor	Almoudar		Enterprise Leasing Company (Alternate location)	3025 S. Federal Highway		Fort Lauderdale	FL	33316	
			Director of the	Environmental Defense Fund	4600 Westside Blvd., Suite 510		Raleigh	NC	27616	
	Mr. Doug	Nemeth		Environmental Planning (V.P.) NAVFAC SE	Box 301 Building 503	NA5	Jacksonville	FL	32212	
			Director of Federal Activities	Environmental Protection Agency	Acad Row Building	1200	Washington	DC	20004	
	Mr. Ron	Medina		EPA - South Florida Office	480 N. Congress Ave.	Ste 120	West Palm Beach	FL	33401	
	Patricia	Tracy		ESTATES OF FORT LAUDERDALE	2801 SW 15th St.		Fort Lauderdale	FL	33316	
	J. Harper	Tracy		Evans Oil Co.	1170 S. Marshwood Dr.		Naples	FL	34100	
	Ray	Tracy		Everglades Club Condominium Association	2405 NE 31st Ave.		Fort Lauderdale	FL	33305	
	Heide, J	Reine		Everglades Pine Line Company, LP	5002 Bayshore Road		Emmaus	PA	18048	
	Bob	Cluiter		Everglades Pipeline Company, LP	P.O. Box 13073		Fort Lauderdale	FL	33316	
	Mark	Jolly		Everglades Recycling	3440 NW 135th St.		Opa Locka	FL	33064	
	Don	Coronado		Evergreen	2-Elgin Corporate Center II		2801 SW 12th Ave	Alhambra	FL	32817
	Capitola	Ysao		Evergreen	1 Evergreen Plaza		Paterson's Plaza	NJ	7302	
	Johnny	Chiang		Evergreen American Corp	4770 Bayview Blvd., 9th Floor		Miami	FL	33137	
				F.T.S.	P.O. Box 22676		Fort Lauderdale	FL	33315	
	Will	Watson		Fairway Publications	8421 NW 51st Ter., Suite 207		Miami	FL	33166	
	Frank	Rovinsky		Farrow Shipping Corporation	120 N.E. Ninth Street		Miami	FL	33132	
	Turcotte	Vincent		FCO Pulk DM	3400 W. Commercial Blvd		Fort Lauderdale	FL	33309	
	Mr. Douglas	Murphy	Regional Administrator	Federal Aviation Administration	P.O. Box 20936		Atlanta	GA	30325	
	Ms. Virginia	Lane		Federal Aviation Administration - Orlando	9950 Mainline National Drive	Chadler Int'l Ridge, Ste. 400	Orlando	FL	32812-5033	
			Regional Director	Federal Highway Administration	227 N. Broadway St.		Tallahassee	FL	32303-1329	
				FEMA Insurance & Mitigation Division	3903 Chambers-Tucker Rd		Atlanta	GA	30341	
	Dennis	Martin		Fillets Green & Co., Inc.	269 E. Socratic Drive		Pass Christian	MS	39571	
	Shirley	Smith, II		Fitzgerald Property Management	1800 E. 1st Drive, Suite 212		Fort Lauderdale	FL	33316	
	Scott	Reich		Frazier Development Company	6131 Eisenhower Pk Blvd., Suite 330		Jacksonville	FL	32206	
	Esposito			Flagler Heights Civic Association	P.O. Box 70533		Fort Lauderdale	FL	33307	
	Rob	Larsen	President	Flagler Village Civic Association	525 NE 1st Ave.		Fort Lauderdale	FL	33301	
	Ms. Sally B.	Mann	Director	FLEPP - Office of Interagency Environmental Programs	2900 Commonwealth Blvd.	Mail Station 47	Tallahassee	FL	32399-3000	
				FLEPP - South Florida District	P.O. Box 15425		West Palm Beach	FL	33415-5425	
	Ms. Lauren	Clearinghouse Officer		FLEPP - State Clearinghouse	3900 Commonwealth Blvd.	Mail Station 47	Tallahassee	FL	32399-3000	
	David	Mica		Florida Air	215 S. Monroe St #800		Tallahassee	FL	32301	
				Florida Audubon Society	1101 Audubon Way		Tallahassee	FL	32301-5451	
				Florida Defenders of the Environment	4424 NW 13 St.	Suite C-8	Gainesville	FL	32609-1885	
			Chief, Bureau of Wetland Resources	Florida Department of Environmental Protection	2600 Blair Stone Road	Mail Station 3500	Tallahassee	FL	32399-2400	
	Mr. Herschel	Vivard	Secretary	Florida Department of Environmental Protection	3900 Commonwealth Blvd.	Mail Station 10	Tallahassee	FL	32399-3000	
	Ms. Lauren	Waters	Coral Reef Program	Florida Department of Environmental Protection	Bocayne Bay Environmental Center	11277 NE 79th Street Causeway	Miami	FL	33138	
	Mr. Martin	Seeling	Administrator	Florida Department of Environmental Protection Beaches, Inlets & Ports Program	3900 Commonwealth Blvd	Mail Station 300	Tallahassee	FL	32399-3000	
			Director	Florida Department of Environmental Protection Div of State Lands	3900 Commonwealth Blvd	Mail Station 140	Tallahassee	FL	32399-3000	
				Florida Department of Environmental Protection Survey and Mapping Div of State Lands	3900 Commonwealth Blvd	Mail Station 105	Tallahassee	FL	32399-3000	
			Highway Commissioner	Florida Department of Transportation	3400 West Commercial Blvd.		Fort Lauderdale	FL	33309	
	Scott	Sanders	Director	Florida Fish & Wildlife Conservation Commission Impaired Species Management	620 South Meridian Street	Mail Station 6A	Tallahassee	FL	32399-1200	

Nick	Willey	Executive Director	Florida Fish & Wildlife Conservation Commission	620 South Meridian Street		Tallahassee	FL	31399
Honorable	Joseph	Gibbons	Florida House of Representatives, District 100	3150 SW 57nd Ave	Suite 203	Pembroke Pines	FL	33023-5413
Honorable	John	Morales Jr.	Florida House of Representatives, District 93	1112 East Oakwood Park Blvd	2nd	Fort Lauderdale	FL	33309-3403
Honorable	Paul	Thurston Jr.	Florida House of Representatives, District 94	231 Northwest 17th Ave		Fort Lauderdale	FL	33311-6923
Honorable	Brena	Schwartz	Florida House of Representatives, District 99	2607 Hollywood Blvd.	1st Floor	Hollywood	FL	33020-4807
Mr.	David	Doach	Florida International Navigation District	1314 Macduff Rd		Jupiter	FL	33477
	Jose Alberto	Rea	Florida International Terminals, Inc.	P.O. Box 46520		Fort Lauderdale	FL	33324
	Jack	McCaution	Florida Ocean Sciences Institute (F.O.S.I.)	2225 S.W. 4th Ave.		Fort Lauderdale	FL	33312
	Penny	Mark	Florida Oceanographic Society	390 NE Ocean Blvd.	Stuart		FL	34996
	Terry	Keller	Florida Port Council	1031444 Jefferson Street		Tallahassee	FL	32301
			Florida Power & Light Company	P.O. Box 13318		Fort Lauderdale	FL	33316
Ms.	Hortette	Braun	Florida Power and Light	P.O. Box 14000		North Palm Beach	FL	33408-0420
	Jim	Anderson	Florida Road and Tan Line	1881 Art Museum Drive		Jacksonville	FL	32207
			Florida Power & Bacon Pies	2564 Wellington Circle		Tallahassee	FL	32308
Honorable	Christopher	Smith	State Senator	2151 NW 6th St.		Fort Lauderdale	FL	33311
Honorable	Chancour	Sobel	State Senator	Florida State Senate, District 33		Hollywood	FL	33026
Honorable	Marie	Loris Saccit	State Senator	100 NW 4th Ave	First Floor	Fort Lauderdale	FL	33304
	Frank	Brustine	Florida Stevedoring Services, Inc.	125 N.E. 6th St.		Miami	FL	33132
			Florida Transportation Services, Inc.	P.O. Box 22685		Fort Lauderdale	FL	33326
			Florida Wildlife Federation	PO Box 470		Tallahassee	FL	32314-6870
			Forest Ridge (North Orchard)	3075 W. Commercial Blvd.		Tamiami	FL	33181
	Murray	Lowie	Fort Lauderdale Marina Marriott	1861 SE 17th St.		Fort Lauderdale	FL	33316
	Jack	Zink	Fontainehead Condominium	3900 N. Ocean Drive		Fort Lauderdale	FL	33308
	Al	Wigene	Four Seasons Condominium Association	333 Sunset Drive		Fort Lauderdale	FL	33303
	Sharon	Lynn	PA	P.O. Box 8248		Fort Lauderdale	FL	33340-8248
	Joanann	Rios	Frontier Linear Services	8600 NW 53rd Terrace	Suite 204	Miami	FL	33186
	Jose	Adopt	P. Lauderdale Convention & Visitor Bureau	1833 E. Ave. 20th		Fort Lauderdale	FL	33316
	John	Sosa	RT Worldwide Warehousing, Inc.	1255 Buckley Blvd	Suite 997	North Miami	FL	33181
	Steven	Sanche	S & S Marine, Inc.	760 NE 7th Ave.		Dania	FL	33451
	Chris	Parranque	P.O. Box 150827			Fort Lauderdale	FL	33316
	Harwood	Harwood	Gulfstream Condominium Association	4100 Gulf Ocean Drive		Fort Lauderdale	FL	33308
	Bobi	Botama	Gulf Mills Community Association	2405 Gulf Ocean Mile #A3085		Fort Lauderdale	FL	33308
	Dani	Castello	Global Transportation Group, LLC	8300 Wilshire, Suite 349		Houston	TX	77042
			GOA, Greater Los Angeles Business Alltoge	2420 Capitola Drive		Fort Lauderdale	FL	33308
	Uladis	Short	Gulf Coast Crane Service, Inc.	4450 N. 29 Avenue		Hollywood	FL	33020
	Madeline	Levin	Golden Heights Neighborhood Association	2600 NW 56th St.		Fort Lauderdale	FL	33311
Dr	John	Grealy Jr.	Grealy-McCarty Construction, Inc.	P.O. Box 13335		Fort Lauderdale	FL	33316
	Manuel	Menendez	Great White Fleet	3030 N.E. 2nd Ave.		Miami	FL	33137
	Craig	Chapman	Greater Dania Beach Chamber of Commerce	P.O. Box 2617		Dania Beach	FL	33004
	Chris	Pollock	Greater Lauderdale Chamber of Commerce	512 N.E. 1st Ave.		Fort Lauderdale	FL	33301
	Robert	Benitez	Greater Hollywood Chamber of Commerce	301 N. Federal Highway		Hollywood	FL	33020
	CARMELLA	INGLICE	GRIFFIN CIVIC ASSOCIATION	2001 SW 52 STREET		Fort Lauderdale	FL	33312
	Monitors	Monitors	GOV'S Atlantic Lumber Sales, Inc.	4001 S. Broward Drive		Fort Lauderdale	FL	33305
	Guvilla	Lundstrom North	Guvilla Lundstrom North	P.O. Box 11094		Fort Lauderdale	FL	33316
	Lewerence	Kratish	Helmkamp Rebuilding, Inc./d/b/a Helmkamp Stevedoring	300 S. Pine Island Road, Suite 222		Plantation	FL	33324
	Reiner	Alcazar	Herbig Land	1007 North America Inc.	Suite 310	Miami	FL	33132
	Peter	Daly	Herrington Ltd North America Inc.	469 South Street		Miami Beach	FL	33139
	Brendel	Wesley	Hewes Blvd	8420 NW 53rd Ter. W. Ave. #D5		Miami	FL	33186
Capt.	Emmett	Coughlin	Hogap Log Cabin Line	399 Hous. Lane		Piscataway	NJ	08854
	Trilla	Harbor Beach HOA	Harbor Beach Extension HOA	2644 Madison Dr.		Fort Lauderdale	FL	33316
	Robert A.	Ross	Harbor Beach HOA	2544 Lucida Dr.		Fort Lauderdale	FL	33316
	Dr. David	McKenny	Harbor Beach HOA	8035 Harbor Dr. #1101		Fort Lauderdale	FL	33316
			Harbor Village Condominium Association	15 S. Birch Rd.		Fort Lauderdale	FL	33316
	Dorothy	McGowan	Harbor House North, Inc.	(01) N. Birch Rd., Apt. 401		Fort Lauderdale	FL	33304
	Rugenia Duncan	Fils	Harbor Inter Association	P.O. Box 460543		Fort Lauderdale	FL	33346
	Carman	President	Harborview Civic Association, Inc.	3801 S. Miami Rd.		Fort Lauderdale	FL	33316
	Ellis	President	Harbor Inter Association	P.O. Box 460549		Fort Lauderdale	FL	33346
	Danahia	President	Harborview Civic Association, Inc.	P.O. Box 460023		Fort Lauderdale	FL	33346-0023
	Fred	Griffin	Heger Hills	3937 SW 57th Avenue		Fort Lauderdale	FL	33312
	Royce	Archer	Hendricks & Venice Lakes HOA	21 Ave. of Venice		Fort Lauderdale	FL	33311
	John	Unlucker	Herritage Properties	2300 Maristia Hwy		Canton	GA	30114
	Al	Fraser	Higginbotham Holdings, L.P.	121 Alabama Place		Orlando Gardens	FL	33184
	Ms. Miltred	Reinhold	Hillcrest President's Council - High Rise Building	6183 Hillcrest Drive		Hollywood	FL	33021
	James	Karras	Hillcrest President's Council - Low Rise Buildings	5280 Washington Ct.		Hollywood	FL	33021
	Becky	Uyey	Himmler Village Historic Association	2111 SW 2nd St., #D		Fort Lauderdale	FL	33312
			Holland America	One Silverwood Blvd	Suite 1200	Fort Lauderdale	FL	33316
	Bill	Sharp	Holland America	P.O. Box 13125		Fort Lauderdale	FL	33316
	Charles	Hallingsworth	Holland America Line	300 Elliott Avenue West		Seattle	WA	98119
	Paul	Marinez	Hollywood Beach Community Redevelopment Area	P.O. Box 1312		Fort Lauderdale	FL	33316
	Doug	Uweitz	Hollywood Beach Business Association	900 N. Boardwalk		Hollywood	FL	33019
	Paul	Wells	Hollywood Business Council	P.O. Box 230045		Hollywood	FL	33022-0045
	Judy	Reid	Hollywood Downtown Community Redevelopment Area	1301 N. Federal Highway		Hollywood	FL	33020-3445
	Robert	Steger	Hollywood Gardens Condominium Association	3301 Farnegut Street		Hollywood	FL	33021
	Steve	Welsch	Hollywood Lakes Civic Association, Inc.	2110 Lincoln St.		Hollywood	FL	33019
	Eric	Prinivilia	Hollywood Lakes Civic Association, Inc.	1110 Hollywood Street		Hollywood	FL	33019
	Sam L.	Mehall	Hollywood North Beach Association, Inc.	115 Delosia Street		Hollywood	FL	33019
	Debbie	Dunbar	Hollywood Rotary Club	2349 Taylor St.		Hollywood	FL	33020
	John	Butcher	Hollywood Seaside Park Civic Association	2307 NW 54th St.		Fort Lauderdale	FL	33311
	John	Frankman	Homeowners of Palm Aire Village (West)	1100 NW 65 St.		Fort Lauderdale	FL	33309
	John	Denha	HUAL Autozone	900 N. Broadway, Suite 213		Jaricho	NY	11753
	James	Thompson	Hual Offshore Corporation	2602 NE 116th Way	Suite 2	Mexico		33128
	John	Denha	Imperial Improvement Association	351 Pomeland Dr.		Fort Lauderdale	FL	33311
	Greg	Felix	Imperial Improvement Association	350 Pomeland Drive		Fort Lauderdale	FL	33311
			Imperial Estates Mfr.	3605 N.W. 7		Fort Lauderdale	FL	33319
			Imperial Marina Cruise Line	4184 NW 5th St., Suite 200		Plantation	FL	33317
	Betty	Shelley	Imperial Point Association	5971 NE 23rd Way		Fort Lauderdale	FL	33308
	Edwardo	Pichardo	Imperial Point Colonades Condominium Assoc.	2154 NE 61st Street		Fort Lauderdale	FL	33308
			International Management Inc./D/M CCE	P.O. Box 37731		Miami	FL	33152
	Jose Jesus	Belcon	International Longshoremen's Association	1010 Port Boulevard		Miami	FL	33132
	John Carlton	Valdes	International Maritime Ship's Agent	2945 NW 21 Terr.		Miami	FL	33135
	Anthony	Puig	International Warehouse Services, Inc.	P.O. Box 2025		Fort Lauderdale	FL	33326
	Randy	Teal	Interport Services	703 NW 62nd Ave., Suite 605		Miami	FL	33126
	Robert	Jacob	Interport Trading Services-Caleb Brett	3309 N.W. 93 Street	Suite 210	Miami	FL	33136
	Paul	Pollo	Interport Trading Services-Caleb Brett	1881 NW 84 St.		Fort Lauderdale	FL	33316
	Isabel	Waller	Interstate Maritime Transport	4101 Baurwood Rd., #130	Suite 104	Fort Lauderdale	FL	33315
	William	Walker	Investment Condo Association	5400 NW 44th St.		Dania	FL	33312
	Michael	Lamborn	Investment Property Associates, Inc.	940 East Cypress Creek Road		Tamiami	FL	33119
	John	Reynolds	J&S Marine Services, Inc.	118 North Royal St.	Suite 400	Miami	FL	33132
	Latherine	Makod M	Jawahar Watersford HOA	P.O. Box 420644		Pembroke Pines	FL	33062
	Sarah	Srin	J.P. Reynolds Company, Inc.	2801 E. 1st St., Suite 401		Fort Lauderdale	FL	33316
	Don	Johnson	J.P. Reynolds Company, Inc.	111 NW 2 Street		Fort Lauderdale	FL	33301
	Dan	Carlton	Jocum Paint, Inc.	P.O. Box 30345		Lighthouse Point	FL	33064
	Ray	Alonso	Jocum of International, Inc.	2624 N.W. 5th Ave., NW, Suite 1240		Wausau	WI	54986
	William	Hernandez	Kanaka Marina	3511 NW 163 St		Hialeah	FL	33334
	John	Knox	Kanaka Transport, Inc.	1691 SW 26th Ave		Dania	FL	33312
	Mr. Henry	Margaret H	King Ocean Service	6195 NW 54th St., Ste. 102		Miami	FL	33132
	Michael	Brink	King County	11003 NW 26th Street	Suite 201	Doral	FL	33122
	David	Brink	King County	2020 NE 54th St.		Fort Lauderdale	FL	33308
	Steven C	Basso	Lake Andale Condominium Assoc.	815 NE 12th Avenue		Fort Lauderdale	FL	33305
	Text	Murray	Lake Andale Condominium Assoc.	1821 NW 26th Terrace		Fort Lauderdale	FL	33311
	Lynette	Cooper	Lake Estates Improvement Assoc.	2790 NE 57 Court		Fort Lauderdale	FL	33308
	Kenneth	Greenhill	Lake Ridge Residents Association	1118 NE 16th Ave.		Fort Lauderdale	FL	33308
	R.	Eden	Lakes of Emerald Bay	1560 N. 31 Terrace		Hollywood	FL	33021
	Kevin	Hall	Landing Residential Association	5550 NE 29th Ave.		Fort Lauderdale	FL	33308
	Jim	Sanborn	Landing Residential Association	1200 W. McArthur Blvd		Pompano Beach	FL	33069
	Paul	Martino	Lan Ochs Homeowners Association	925 Royal Lane		Fort Lauderdale	FL	33332
	John	Sanborn	Las Palmas @ Davis HOA	8000 Sheridan Rd., #146		Pembroke Pines	FL	33024
	Elis	Sanborn	Lauderdale Beach HOA	2514 N. Atlantic Blvd.		Fort Lauderdale	FL	33316
	John	Sanborn	Lauderdale Harbors Association	2515 E. 17th Street		Fort Lauderdale	FL	33319
	John	Sanborn	Lauderdale Harbors Improvement Assoc.	2238 SE 13th Terrace		Fort Lauderdale	FL	33316
	John	Sanborn	Lauderdale Harbors Improvement Assoc.	P.O. Box 460305		Fort Lauderdale	FL	33340
	John	Sanborn	Lauderdale Harbors Improvement Assoc.	P.O. Box 11255		Fort Lauderdale	FL	33311
	John	Sanborn	Lauderdale Harbors Improvement Assoc.	524 NW 12th Ct.		Fort Lauderdale	FL	33311
	John	Sanborn	Lauderdale Harbors Improvement Assoc.	2300 NE 30th Street		Fort Lauderdale	FL	33306
	John	Sanborn	Lauderdale Harbors Improvement Assoc.	1523 NW 12th		Fort Lauderdale	FL	33312
	John	Sanborn	Lauderdale Harbors Improvement Assoc.	2130 NE 13th St.		Fort Lauderdale	FL	33314
	John	Sanborn	Lauderdale Harbors Improvement Assoc.	4001 S. 75 Terrace		Hollywood	FL	33025

	Ms. C. Ann	Lanese	League of Women Voters	5402 Beverly Court		Tallahassee	FL	82803
	Mr. Mike	Lanese	Leisure Beach Condominium Association	790 S. 33rd Road		Fort Lauderdale	FL	33316
	Mr. Randy	Rinehart	Leisure Park Condominium Association	600 NE 18th Avenue		Fort Lauderdale	FL	33304
	John	Banka	LFV, INC.	P. O. Box 13109		Fort Lauderdale	FL	33316
	Mr. Horace	Liberti	Liberti Association	PO Box 223804		Hollywood	FL	33022
	Rev. James	Williams	Liberty Association Inc.	2403 Cleveland Street		Hollywood	FL	33020
	Charles	Patterson	Lofts of Atria	6635 W. Commercial Blvd.		Tamara	FL	33319
	Barbara	Barbee	Lofts of Palm Aire Village	3270 NW 52nd St		Fort Lauderdale	FL	33309
	Joe	Loeberstein	Lofts of Jackson Street	401 East Jackson Street	Suite 3330	Tampa	FL	33607
	Edy	Maness	Maness Contract Service	528 NW 2nd St		Fort Lauderdale	FL	33311
	Archibry	Sokolosky	Maness Contract Service	6900 Carnegie Blvd.		Charlotte	NC	28209
	Conrad	Fernandez	Maness Contract Service	750 NW 407 Ave., Suite 430		Miami	FL	33172
	Shawm	Grimes	Maness Contract Service	PO Box 11041		Fort Lauderdale	FL	33316
	Alton	Hummel	Magnum Environmental Services, Inc.	1280 N.E. 48th Street		Pompano Beach	FL	33064
	Marlyn	Collins	Manasco International Forwarders, Inc.	P.O. Box 13981		Fort Lauderdale	FL	33316
	Donner	Bourner	Manasco International Forwarders, Inc.	1735 S. Surf Rd		Hollywood	FL	33019
	Chyle	Johnson	Maple Ridge Homeowner's Association	4487 S.W. 38th Way		Hollywood	FL	33312
	Wigne	Wigne	Marathon Ashland Petroleum	PO Box 11111		Fort Lauderdale	FL	33316
	Margaret	Crispin	Marine Mfr. Association	1311 S. Miami Rd		Fort Lauderdale	FL	33316
	Terrell	John	Marine Advisory City of Ft. Lauderdale	1126 S. Federal Highway #118		Fort Lauderdale	FL	33316
	Paul Scott	Abbott	Maritime Communications	201 Vahlha Drive		Cleveland	GA	30528
	Lawrence	Burrows	Maritime Industry Services	15472 SW 6th Terrace		Miami	FL	33195
	Jan	Sabo-Schmidt	Marriott's Harbor Beach	3930 Holiday Dr.		Fort Lauderdale	FL	33336
	Barry	Assad	Master Game Works	3800 N. Powerline Rd.		Pompano Beach	FL	33073
	Ernest	McAllister	McAllister Towing of Port Everglades	321 Royal Plaza Plaza South		Palm Beach	FL	33480
	Bruce	McAllister	McAllister Towing of Port Everglades	2110 Eller Drive		Fort Lauderdale	FL	33316
	Michael	Ring	McAllister Towing of Port Everglades	P.O. Box 21623		Fort Lauderdale	FL	33316
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Thomas	Harriet	Captain	Port Everglades Pilots Association	P.O. Box 13017		Fort Lauderdale	FL	33316
Byran	Byran	Captain	Port Everglades Pilots Association	P.O. Box 13017		Fort Lauderdale	FL	33316
Frank	Vilae		Port Everglades Sales & Leasing, Inc.	23135 SW 30th Ave.		Fort Lauderdale	FL	33325
Mark	Fleet		Florida Yachting Centre, LLC	24010 E. 17th St.	Ste 100	Fort Lauderdale	FL	33322
			Princess Cruises	P.O. Box 160,011		Fort Lauderdale	FL	33318
Jerome	Johnson		Progress Village Civic Assoc.	965 NW 2nd Ave.		Fort Lauderdale	FL	33311
Julij	Johnson		Phoenix Intermarkets, Inc. (Kamas Marine Co)	501 N.W. 13th St.		Fort Lauderdale	FL	33312
Julij	Johnson		Public Communications	2115 S. Andrews Ave.	Room 506	Fort Lauderdale	FL	33312
Brenee	Phillip		Public Works and Transportation Dept.	1 N. University Drive, St. 400		Plantation	FL	33324
Doris	Wendell		Landmark Condominium Association I	2201 South Ocean Drive		Hollywood	FL	33020
Rubens	Rubens	President	Qualcomm Condominium Association II	2501 S. Ocean Drive		Fort Lauderdale	FL	33316
O'Neil	White, Jr.		R.G. White & Company, Inc.	2350 Eisenhower Blvd., Suite 308		Fort Lauderdale	FL	33316
Israel	O'Dell		R.G. White & Company, Inc.	P.O. Box 11280		Fort Lauderdale	FL	33316
Charles	Charles		Radiation Seven Seas Cruises	4001 Corporate Drive, Suite A10		Fort Lauderdale	FL	33312
KATHY	JACKSON		RAVEENWOOD MANAGEMENT ASSOCIATION	2121 SW 53 COURT		Fort Lauderdale	FL	33312
			Reefkeeper International	P.O. Box 13716		Middleton	MO	21769
Nicelle	Nguyen		Regal Two Apartments	540 NW 4th Avenue		Fort Lauderdale	FL	33312
David	Lebrun		Regency South Condominium Association	2750 Galt Ocean Drive		Fort Lauderdale	FL	33308
Christine	Russell		Regency South Condominium Association	2750 Galt Ocean Drive		Fort Lauderdale	FL	33308
Robert	Johnson-Brown		Regency Tower Condominium Association	1800 Galt Ocean Drive		Fort Lauderdale	FL	33308
Dani	Wright		Revelation on the Ocean Condominium Association	6051 North Ocean Drive		Fort Lauderdale	FL	33312
Robert	Gaughan		Resolve Fire & Hazard Response, Inc.	P.O. Box 161,485		Port Everglades	FL	33316
Mike	Holloway		Resolve Fire & Hazard Response, Inc.	18050 SE 17th St		Fort Lauderdale	FL	33316
			Rescue Marine Group	P.O. Box 455,485		Fort Lauderdale	FL	33312
			Reverie Village	P.O. Box 8950		Rancho Santa Fe	CA	92067
Christophe	Patehauze		Rice, Jr., Inc. Reynolds Co.	2950 Davis Drive		Fort Lauderdale	FL	33311
John	Reynolds		Rice, Jr., Inc. Reynolds Co.	115 Chestnut Street		Philadelphia	PA	19106
Elaine	Robinson		Regency Towers Corporate Association	1005 N. E. 4th Street		Fort Lauderdale	FL	33316
Dan	Robinson		River Materials Corp.	P.O. Box 123,44		Fort Lauderdale	FL	33316
Jeramy	Irwin		River Materials Corp.	P.O. Box 13,144		Fort Lauderdale	FL	33316
LOTT II	Johnson		River Materials Corp.	1503 Bakerfield Road		West Palm Beach	FL	33411
Scott	Maguire		River Materials Corp.	P.O. Box 13,144		Fort Everglades	FL	33316
George	Williamson		River Materials Corp.	3501 Brevard Road		West Palm Beach	FL	33406
			Riverview Condominium Association	11205 NW 13th Street		Fort Lauderdale	FL	33312
Warren	Shuman	President	Riverview Civic Association	801 Ponce de Leon		Fort Lauderdale	FL	33316
Wiley	William		Risk Management	115 South Andrews Ave., Rm. 510		Fort Lauderdale	FL	33301
Richard	Russell		River Gardenweaving Estates P&A	329 NW 22nd Ave.		Fort Lauderdale	FL	33312
David	Presley		River Oaks Civic Association	P.O. Box 240,5		Fort Lauderdale	FL	33312
Elizabeth	Hays	Secretary	River Run Zebra Farm	1679 NW 27th Terr.		Fort Lauderdale	FL	33312
Isabelle	Sulek		Riverland	21,400 Southeast 28th Terrace		Fort Lauderdale	FL	33312
			Riverland Baptist Church	1501 Riverland Road		Fort Lauderdale	FL	33312
Nigel	Wendler	President	Riverland Civic Association	204 SW 21st Way		Fort Lauderdale	FL	33312
Alexander	Hayes	Representative	Riverview Village Civic Association	32109 NW 17th St.		Fort Lauderdale	FL	33312
John	Cabera		Riverview Village Civic Association	24235 NW 15th St.		Fort Lauderdale	FL	33312
Wendell	Russell		Riverview Village Civic Association	2120 NW 4th Ave.		Fort Lauderdale	FL	33312
Larry	Rapen		Riverview Woods HOA	2449 NW 25th Way		Fort Lauderdale	FL	33312
Frederic	Burish	President	Riverview Woods Homeowners Association	2001 Woodside Dr.		Fort Lauderdale	FL	33312
Gayle	Rayner	President	Riverview Woods Homeowners Association	2001 Woodside Dr.		Fort Lauderdale	FL	33312
Gryan	Marney		Riverview Hotel	620 E. E. Las Olas Blvd.		Fort Lauderdale	FL	33301
Dave	McShay		Riverview Park Residents Assoc.	P.O. Box 122		Fort Lauderdale	FL	33302
Paul	De Porciunculo		Riverview Reef	14854 Broward Drive		Fort Lauderdale	FL	33302
Kevin	Menault	Executive Director	Riverwalk Fort Lauderdale Trust	P.O. Box 68		Fort Lauderdale	FL	33302
Richard	Bloomberg		Rivers Condominium Association	3550 Galt Ocean Drive		Fort Lauderdale	FL	33309
Mark	Dean	President	Riviera Isles Homeowners Association	400 Seawall Dr.		Fort Lauderdale	FL	33303
Michael	McGuire		Riviera Isles Homeowners Association	855 Riviera Lakes Drive		Fort Lauderdale	FL	33303

SHERWIN M SR	KIESSHAUER			1917 SE 21 AVE		Fort Lauderdale	FL	33316
SARAH E BROWN TR	KRUMME			1940 SE 21 AVE		Fort Lauderdale	FL	33316
CRANF & JOHNE	LEWIS			1925 SE 21 AVE		Fort Lauderdale	FL	33316
R O & ROSIE	Lowell			PO BOX 7304		Fort Lauderdale	FL	33308
Dorothy, William & R H	Lowell			2100 SE 21ST ST		Fort Lauderdale	FL	33316
FEROL MENKES	Ludwig			1995 SE 22 AVE		Fort Lauderdale	FL	33316
MARSHALL	MARCELL, III			1902 SE 21ST AVE		Fort Lauderdale	FL	33316
Loretta	Parkley			2107 SE 21ST ST		Fort Lauderdale	FL	33316
Estate of BELLAH	Peek			2121 SE 21ST AVE		Fort Lauderdale	FL	33316
E & Carolne	Pelney, Jr.			1915 SE 22ND AVE		Fort Lauderdale	FL	33316
Estate of DONNA	Prenant			2200 SE 20 ST		Fort Lauderdale	FL	33316
P D & Peggy	Raymond			1933 SE 21ST AVE		Fort Lauderdale	FL	33316
W J & Dorothy	Rizzo			1949 SE 22ND AVE		Fort Lauderdale	FL	33316
Ricardo	Roffman			1904 SE 21ST AVE		Fort Lauderdale	FL	33316
MARY FRANCES	Rudy			6996 CLASSIC VIEW DRIVE		Indianapolis	IN	46217
Manon	Segal			1990 SE 21ST AVE		Fort Lauderdale	FL	33316
Ali	Ahmed			610 LIDO DR		Fort Lauderdale	FL	33301
LOMINA	Bratt			2401 LAGUNA DR		Fort Lauderdale	FL	33316
Mary	CIARK			PC BOX 10637		Lancaster	PA	17605
			HARBOR PROPERTIES ENTERPRISES, LLC	9101 KLEITZ RD		Evansville	IN	47720
Gerald & Candisa	Kuykendall			2416 SE 21ST ST		Fort Lauderdale	FL	33316
			LIDO REAL ESTATE INVESTMENTS LLC	2100 N STATE ROAD 7		Hollywood	FL	33021
MADELYN	McGarry			2401 SE 21 ST		Fort Lauderdale	FL	33316
John	Miller			8800 SORREL AVE		Potomac	MD	20854
Michael	Cole			2410 SE 21 ST		Fort Lauderdale	FL	33316
P A	Roush			2400 SE 21 ST		Fort Lauderdale	FL	33316
PRISCILLA	Smith			2016 SE 21 AVE		Fort Lauderdale	FL	33316
Ruth	Smith			2024 SE 21ST AVE		Fort Lauderdale	FL	33316
W F & Ann	Smouse			1998 SE 21ST AVE		Fort Lauderdale	FL	33316
Mauro & Maria	Spinaci			1041 SE 21 AVE		Fort Lauderdale	FL	33316
Michael & Pgi	Styies			1940 SE 21ST AVE		Fort Lauderdale	FL	33316
Marjorie	Sundmacher			N 46 W 7355 MOLDENHAUER CT		Cedarburg	WI	53012
Calicon	Snyder			2002 SE 21 AVE		Fort Lauderdale	FL	33316
David & Elizabeth	Wallara			2513 SE 21 ST		Fort Lauderdale	FL	33316
			WILBERT FAMILY PRTR INC	PO BOX 1024		FL Washington	PA	19034
Tammy Jean	Williams			2800 DOUGLAS ROAD STE 604		Coral Gables	FL	33134
Peter & Denise	Witch			2306 SE 21 ST		Fort Lauderdale	FL	33316
Sale & Kristine	Wood			2317 INLET DR		Fort Lauderdale	FL	33316
Andrew	Wurtels			2008 SE 24 AVE		Fort Lauderdale	FL	33316
Virginia	Youngberg			1957 SE 22ND AVE		Fort Lauderdale	FL	33316

**EIS
SUB-APPENDIX L**

**COMMENTS ON DRAFT AND FINAL ENVIRONMENTAL IMPACT
STATEMENT**

FINAL
FEASIBILITY REPORT
AND ENVIRONMENTAL IMPACT STATEMENT
PORT EVERGLADES HARBOR NAVIGATION STUDY
BROWARD COUNTY, FLORIDA

Comments on Final EIS

Agency/ Affiliation	Comment No.	Doc/ Section	Comment	Code	USACE Response
				CC	Concur, change made in complete agreement with comment.
				PC	Partial concurrence, partial change/update made
				NC	No change made; see response for justification
				NR	No response required
FLDEP	1		<p>Prior to permitting this project, the Department would request that the flushing model be validated and calibrated in order to adequately analyze the potential hydraulic impacts from the widening and deepening of the channels and turning basins within the Port.</p>	NG	<p>The Department recognizes that flooding is no longer an issue for Port Everglades, however, they continue to request field verification of model used. We propose a meeting between the Department's hydraulic engineer and our project hydraulic and design engineers to discuss the data USACE used to make this determination in an attempt to resolve the state's concern. Per USACE 2013 comment to Department "Due to the layout of Port Everglades and the fact that it is an open ocean port, a flushing model is unnecessary as altering the channel configuration and depth will have no impact on contaminant levels. Deepening the channel will have some effect on the tidal flow, likely causing an increase in flux, but also likely causing a decrease in tidal velocities. The change in flux will not increase the overall amount of "materials" leaving the inlet as the inlet channel, being within yards of the open ocean, experiences a complete flushing during the tidal cycle. Unlike riverine ports (Savannah and Jacksonville), there is not a steady freshwater "stream" passing through the Port and out of the inlet that will be impacted by a change in channel dimension. Inflows into Port Everglades are a function of upstream freshwater releases and vary annually and seasonally bring in variable levels of nutrients and contaminants. Deepening will only change, marginally, the rate at which materials are evacuated, but will not increase or decrease the overall amount (which is a function of upstream variables not controlled by project features) since the proximity of the inlet channels to the open ocean results in complete (rather than partial) flushing. Nutrients and contaminants will likely flush free of the inlet at a slightly faster rate, but at a slower velocity and over a lesser extent (due to the lower velocities)."</p>
FLDEP	2		<p>The Department would request that a comprehensive survey of the areas surrounding the channel be conducted as this is crucial for adequate comparison to during- and post-construction data. Monitoring plans should be provided for seagrasses and hardbottom. Minimization measures for corals, sponges and octocorals should also be addressed. The Department would like the opportunity to discuss hardbottom mitigation proposals prior to the submission of a permit application. The Department is in agreement with the blended mitigation approach proposed by the Corps, however, using the Uniform Mitigation Assessment Method (UMAM), Department generated mitigation amounts for transplantation requirements exceed those of the Corps. This is an issue that the Department and the Corps have discussed in the past, and the Department looks forward to continued discussions in that regard.</p>	NC	<p>USACE looks forward to continued coordination with the Department on the necessary relocation and mitigation for the project based on site specific data and the lessons learned from Miami Harbor. USACE has completed our analysis with our cooperating agency partner, NOAA, using the HCA methodology to determine final mitigation needs. We are willing to coordinate with Department staff in their efforts to crosswalk the HEA input parameters into UMAM to ensure compliance with state law. Additionally, USACE looks forward to continued coordination with the Department during the revision of the existing hardbottom monitoring plan to incorporate the lessons learned from Miami Harbor, when that project is complete and the After Action Review has been completed.</p>
FLDEP	3		<p>DRP staff will continue to coordinate with the Port to ensure that its Emergency Action Plan is available to staff so that any potential environmental emergencies related to vessels can be properly handled.</p>	NR	Thank you.

FLDEP	4	In recent years, DRP staff has observed increased erosion in the vicinity of Mangrove Assessment Area #7 (eastern shore of the intra-coastal waterway at the terminus of the existing riprap). There is concern that the deepening of the channel will result in increased rates of erosion from port traffic that could threaten this section of the park entrance road. It is unclear what assurances are in place to prevent further erosion.	NC	Based on the analysis in the Feasibility Study (Sections 3.4 and Economic Appendix) and EIS (Section 2.4, Table 36), there is not expected to be an increase in vessel traffic associated with the deepening. Without the deepening project, the number of vessels calling at Port Everglades is expected to increase. With the project, the number of vessels calling the port in 2073 is expected to be fewer (but larger) ships, so future erosion of the shoreline in the vicinity of Mangrove Assessment Area #7 would be lessened.
FLDEP	5	It is unclear how potential impacts to park resources (specifically infrastructure and facilities) will be monitored before, during and after activities take place. DRP would like assurances that monitoring of park infrastructure adjacent to the project area will occur and that any observed impacts will be repaired/rectified. This is especially a concern should blasting occur in this area.	NC	The Corps intends to require the contractor to perform vibration monitoring for structures as discussed in Section 2.9.3.2.4 of the Final EIS. As the project moves forward into the design and construction phases, the Corps and the selected contractor will initiate coordination with the park to identify structures which need monitoring, and for that monitoring to be conducted.
DOI	1	The Chief's Report for the project should include the definition of the term "functional unit."	NC	A Functional Unit is defined in the Mitigation Plan (Appendix E) of the EIS as a credit accrued under the conditions of the Department of Army and South Florida Water Management District permits for ecosystem restoration at West Lake Park. Detailed discussion of the ecosystem restoration at West Lake Park is discussed in Section 5.3 of the EIS and Sections 4, 5 and 6 of the Mitigation Plan.
USCG	1	Due to Coast Guard asset and resource limitations, it is our expectation that temporary movements of Aids to Navigation (ATON) will be carried out by contractors employed for the Port Everglades design project. The Army Corps of Engineers (USACE) environmental analysis should account for contractor ATON movements within the 150 meter impact area that may include dragging of ATON as well as lifting by crane. To further facilitate the project the contract proposal should clearly state the contractor's responsibility for temporary relocation of the ATON with Coast Guard approval.	NC	The USACE understands the challenges that arise with reduction of resources and looks forward to continued coordination with the USCG as it relates to movements of ATONS with the possibility of including this work as part of the construction contract at USCG cost. USACE and USCG will continue to work together so that Coast Guard funding is available at time of construction contract award. As the project moves into the design phase, additional environmental survey work must be conducted, and the Endangered Species Act consultation must be re-initiated. These two activities can be modified to include USCG/ATON movement requirements. In addition, USACE can assist USCG with NEPA compliance and other regulatory requirements by providing survey data and analysis to support USCG's preparation of a NEPA analysis as required by USCG regulations. We will continue to coordinate survey and project information details with the USCG throughout the design phase to provide support to USCG, but the cost of ATON relocation is expected to be USCG cost.
USCG	2	In certain circumstances buoy tender support for ATON relocation may be available. Early communication between our agencies is imperative to providing sufficient lead time to facilitate competing demands for buoy tender assistance in multiple ports.	NC	The USACE will assure continued constant communication with the USCG through the pre-construction engineering and design phase by inviting them to participate in all project delivery team meetings as a stakeholder of this of this project.
USCG	3	The Port Everglades Project will have significant impacts to Coast Guard Station Fort Lauderdale and its tenant commands. Coast Guard Station Fort Lauderdale and tenant units must maintain full operational capabilities throughout the construction period. I request the USACE provide a proposal with options to meet the Coast Guard continuous operational requirement, phasing if applicable and estimated timeline. I would like to reiterate that the Coast Guard has no funding available or budgeted to construct the new facilities or address temporary facilities during the construction period. Any real property agreements, cost, environmental compliance, NEPA and permitting requirements for both temporary and permanent facilities will need to be borne by the USACE.	NC	The USACE will assure continued constant communication with the USCG through the pre-construction engineering and design phase by inviting them to participate in all project delivery team meetings as a stakeholder of this of this project. USACE and the Non-Federal Sponsor will cost share in the reconstruction of the USCG facilities. We will work with you to minimize impacts to operational capabilities.

USCG	4			<p>The existing Coast Guard boat basin does not require maintenance or periodic dredging. It is unknown whether or not the USACE's proposed new boat basin will require maintenance or periodic dredging due either to the new configuration, or changes made to the shoreline and channel by this project. I request the USACE include follow on dredging if required.</p>	NC	<p>The sediment budget performed by the USACE concluded that no significant increase in shoaling would occur in the boat basin. However, the USCG basin currently opens just south of the wider shoal which is generally shallow and contains both loose and consolidated material. Given the shallow depth and proximity to the basin, it is likely that some material is currently moving into the basin due to ship movements and wave conditions. That being said, the reconfigured basin will keep the same orientation (though further to the east). The wider shoal will be significantly deeper removing the source of loose material that currently exists north of the basin. Any additional sediment due to the project will generally settle either in the Outer and Inner Entrance Channels and/or Main Turning Basin with a negligible amount traveling into the South Access Channel. Any sediment that does reach the inner channels will originate near the bottom of the entrance channels and "drift" into the Port at a relatively deep depth. The entrance to the USCG's boat basin and entrance channel are at a higher elevation than the project channels and should not intercept any additional "drifting" sediment.</p>
FAA	1			<p>We note that there is no discussion of the potential effects to the utility of the Fort Lauderdale-Hollywood International Airport (FLL) from the height of the Post-Panamax vessels that will berth at the new facilities. Please address this in the FEIS.</p>	NC	
EPA	1	Paragraph 2d of the Chiefs Report		<p>Based on our review of Paragraph 2d of the Report, the US EPA understands that the use of the Ocean Dredge Material Disposal Site (ODMDS) is expected to be contingent upon a hardbottom habitat assessment. Due to the deep and high current environment at the ODMDS, the EPA Region 4 Water Protection Division staff have estimated the cost of this assessment to be on the order of \$500,000. This cost is reflected in the budget presented in the draft Chiefs Report or FES/Feasibility Study.</p>	NC	<p>Monitoring of the Ocean Dredged Material Disposal Site (ODMDS) will be conducted prior to any material placement from the Port Everglades Deepening project. The monitoring of the Port Everglades ODMDS could mimic the current EPA 102 Designation project at Port Everglades which is funded through alternate means and not financially part of the Port Everglades Navigation Study or Deepening project.</p>
EPA	2	Paragraph 2a of the Chiefs Report		<p>Concerned that the EIS does not specifically spell out how much additional mitigation will be required and that funds may not be available to conduct the mitigation</p>	NC	<p>Funding for additional mitigation is included in the project contingency of 26%.</p>
EPA	3	Paragraph 3 of the Chiefs Report		<p>the projected cost breakdown does not include the cost of monitoring or additional mitigation costs. Considering the significant amount of monitoring and mitigation expected for the proposed project, the USEPA believes that these costs should be addressed and disclosed</p>	NC	<p>The Corps may also utilize the project's contingency to address the ODMDS concerns along with any additional mitigation if necessary. The current project contingency is 26% of the overall cost.</p>
EPA	4	Paragraph 6 of the Chiefs Report		<p>Per Paragraph 6 of the Report, the unknown cost of an unknown amount of mitigation (to be determined through construction monitoring) appears to the USEPA to be a significant risk and the potential uncertainty is not reasonably accounted for in this discussion.</p>	NC	<p>The Corps may also utilize the project's contingency to address the ODMDS concerns along with any additional mitigation if necessary. The current project contingency is 26% of the overall cost.</p>

EPA	5		The DES indicated the permanent removal of approximately 5.58 acres of the middle reef and approximately 11.09 acres of the outer reef for a total of 16.57 acres to be used for mooring and other vessel safety purposes. However, the FEIS indicates the permanent removal of 14.62 acres of the middle and outer reefs, instead of 16.57 acres, to create the entrance channel flare. Clarification of this change is needed for the determination of the total direct impacts acreage amount.	NC	This change occurred through comments received on the Draft Environmental Impact Statement, NMFS and Florida Department of Environmental Protection requested that the Corps utilize the most recent LAOS data for offshore impact acreage assessment. The reduction in acreage resulted from a recalculation utilizing the 2013 LAOS, provided by Broward County, in lieu of the previously used 2008 LAOS.
EPA	6		In order to ensure the implementation of the project avoids and minimizes the impacts to coral reefs and hardbottom communities in accordance with the Clean Water Act Section 404(b)(1) Guidelines, the USEPA recommends that the project plans include the BMPs for prohibiting the anchoring of cutterhead dredge equipment on reef and hardbottom communities.	NC	As stated in the EIS (Section 2.9.1) the Corps is restricted from limiting competition under the Competition in Contracting Act. This Act requires federal agencies to limit how specific specifications are written to prevent limiting competition among contractors. This means the EIS cannot exclude particular pieces of equipment or dredging methods (including anchor deployment outside of the channel) during this phase of the project. Due to this legal restriction, the Corps analyzed all of the potential construction methodologies in Section 2.9 of the EIS and discussed the impacts of each method in Section 4 of the EIS. If no difference was likely to occur between different methods, all methods were treated the same. A review of the potential effects of anchors outside of the channel is included in the EIS, including the calculation of necessary mitigation for those impacts, should they be unavoidable. Compliance with the Section 404(b)1 Guidelines should not result in the violation of another federal law. See Section 2.9.2.2. USACE will utilize the RFP contracting process to allow contractors to submit bids that target the least damaging, viable construction methodologies to decrease impacts associated with anchor-cable use for cutterhead dredging. Plans and specifications will have specific hardbottom and coral protection requirements included in the bid package.
EPA	7		The USEPA is concerned that the amount of mitigation required to compensate for indirect impacts to coral and hardbottom resources has been underestimated as the projected impacts do not account for the indirect effects of sedimentation and turbidity on adjacent hardbottom and coral habitats.	NC	The Final Mitigation plan (prepared jointly with NOAA) evaluates both direct and indirect effects. The Corps has proposed to mitigate 2% upfront of the offshore project area to provide assurances that indirect effects will be addressed.
EPA	8		Mitigation for indirect impacts may not be sufficient	NC	The Corps also proposes to monitor the indirect impact area for any additional impacts greater than 2%. If additional impacts are identified then they will be assessed utilizing the same protocol agreed to by NMFS, to generate a mitigation need. The Corps proposes to compensate for this need by transplanting additional nursery grown specimens.

EPA	9	<p>The USACE indicates the proposed action will impact 1.16 acres of jurisdictional mangrove wetlands located along the east side of the south access channel along J. Lloyd State Park's western shore. However, the USEPA finds there is a larger wetlands impact (8.39 acres) associated with the close linkage between the turning notch component of the proposed action to be done by the USACE and the USACE's proposed dredging and bank stabilization project. Instead of the USACE's proposed action, the project sponsor will remove them to allow the USACE to completely implement the proposed action. The USACE proposes to directly mitigate for only the loss of the approximately 1.16 acres of mangroves in the project footprint by providing one mangrove "functional unit" at a previously permitted restoration project at West Lake Park, which is currently under design. Given the cumulative impacts of all proposed components of this harbor deepening project, both by the USACE and the local sponsor, the USEPA recommends that the USACE include complete information with the total mitigation needed for all direct losses of mangrove wetlands planned and provide this information in the Final Report and/or the ROD.</p>	NC	<p>The Port has worked with the Department of Environmental Protection to develop separate mitigation for the removal of the mangroves associated with the Turning Notch expansion. The cumulative impacts of the Turning Notch were considered, however the Turning Notch is not part of the federal project. The Port conducted live uproot mitigation efforts (1) the removal of exotic and nuisance vegetation and creation of approximately 0.25-acres of mangrove planters with a transitional buffer along the northern and eastern shorelines of the discharge canal (Areas C and D Restoration); (2) restoration of approximately 0.25-acres of mangrove habitat on the north side of the un-released C.E. by installing mangrove planters (C.E. Restoration); (3) enhancement of portions of the un-released C.E., which includes removal of exotic vegetation and planting of mangrove planters; (4) restriction of approximately 0.10-acres within the existing maratee lagoon by removing docks and exotic and nuisance vegetation, and creating a transitional buffer habitat (Maratee Lagoon Restoration); and (5) enhancement of tidal flushing within the un-released C.E. by removing sediment plugs and excavating tidal channels (C.E. Enhancements). The uproot mitigation provides the Port with 3,811 functional units. Unavoidable impacts to 8.61 acres of mangrove for the Turning Notch extension resulted in a functional loss of 4.89 UMAM units. In construct the previously authorized necessary mitigation to offset the loss of 4.89 functional units, the port construct the additional necessary mitigation activities identified as "Segment 4" within the West Lake Park Mitigation project as described in South Florida Water Management District Permit No. 06-04016-P (Including Modifications 1-9). The mitigation activities will provide an additional 1.08 UMAM units, which will be deducted from the West Lake Park Ledger. This project is currently in design and permitting with anticipated construction commencement in mid to late 2016. Please see section 2.5.4 of the EIS.</p>
EPA	10	<p>The USEPA recommends that the mitigation for seagrass and associated habitat for direct impacts be adequate compensation for the direct losses to these aquatic resources. Given the current status of mitigation credits needed to offset losses, the USEPA requests that the USACE fully address compensatory mitigation issues in the Report and/or ROD.</p>	NC	<p>USACE's national mitigation policy is to only mitigate for vegetated seagrass areas. USACE agreed with NMFS to review scientific literature regarding the importance of the unvegetated seagrass areas within the federal channel expansion areas and will determine, after that review, if additional seagrass mitigation is required. See Aug 14, 2014 letter from USACE to NMFS, re:ETH consultation. (Appendix H) for more information.</p>
EPA	11	<p>The USACE has deferred specific BMPs for dredging operations to the proposed contractor and the State of Florida. Water quality and offshore habitat impacts from this 6-7 year project are expected to be very significant and have the potential to degrade water quality and result in secondary sedimentation impacts to ARN.</p>	NC	<p>Future best management practices (BMPs) will be derived from lessons learned from the Miami Harbor Deepening Project and the National Marine Fisheries Service's (NMFS) biological opinion requirement for the creation of an interagency team to assist in future project development. The evaluation during PED will consider the type of equipment, anchoring in or out of the channel, and other measures or methods to avoid or reduce impacts. Deferral will also ensure that the most up to date, implementable BMPs from industry, lessons learned from other projects (including Miami) and other sources can be assessed for application to this project. Committing to particular BMPs at the 30% Feasibility Phase (as represented by this study) would potentially limit the use of newer, better BMPs, should they become available</p>
EPA	12	<p>the USEPA strongly recommends consideration of BMPs from the Permanent International Association of Navigation Congresses' (PIANC) document "Dredging and Port Construction around Coral Reefs," as well as those BMPs discussed in the FEIS.</p>	CC	<p>The additional BMP document referenced in the comment (the PIANC document) has been added to Section 4.4.2.2 and 5.4 of the EIS referring to BMPs.</p>

EPA	13		Estimated funding for ODMDS criteria testing of dredged material is not provided in the EIS.	NC	ODMDS criteria testing is a PED phase activity and all costs estimated for these activities are included in the Cost Appendix of the Feasibility Study. The cost was not detailed out in the EIS due to concerns regarding release of potential costs to future testing contractors; however it is included as part of the "PED costs". EPA did not request that the information be provided in the Feasibility Study document. The cost was based on the testing completed for the 2013 testing of material at Port Everglades which was dredged in 2014. As a majority (>50%) of the material to be dredged is rock, and would be excluded from testing, the cost estimate prepared from the 2013 testing should be sufficient to meet the testing needs of the project.
EPA	14		The USEPA believes a site specific assessment could have been completed and is still recommended to be completed utilizing existing USACE models (e.g., SSFATE, ERDC TN-DOER-E 10) for evaluating the potential extent of sedimentation effects of the dredging operations and evaluating the relative benefits of different BMPs. This modeling with site-specific data would aid in identifying BMPs to avoid and minimize impacts, and as well, to identify the geographic extent of indirect impacts, important for designing the monitoring zone evaluation area, and for ultimately determining the appropriate amount of compensatory mitigation.	NC	USACE has consulted with our modeling experts throughout the agency and determined that the models suggested may not provide the type of information that EPA believes they will generate. Current literature and information from the Port Everglades pilots indicate that the current in the channel are not predictable and thus not likely to be able to be modeled.
Broward County	1	Figure 8, Page	Borrow Areas 1 & 2 remain viable as a source of sand for future Broward County beach nourishment projects, and should be excluded as potential sites from the Port Mitigation Plan	NC	The Corps and Port will work with Broward County to identify the best location for the construction of the 5 acres of artificial reef. The listing of the borrow areas in the mitigation plan, Figure 8, (appendix E) was to show all of the borrow areas, not to select a particular one for placement of the artificial reef. Section 5.2.2 of the EIS states "Figure 86 shows some of the candidate locations for placement, but precise and/or alternate locations will be determined in coordination with Broward County and NMFS"
Broward County	2		We formally request inclusion of Broward County's participation in the various review committees discussed in the plan	NC	As the local sponsor, Broward County will be an invitee to be a member of the interagency working group for the monitoring plan revisions and other project reviews.
Reef Rescue	1		Based on sedimentation seen at Miami Harbor, an alternative turbidity monitoring methodology needs to be developed to protect the significantly more abundant and diverse corals in the vicinity of the Port Everglades project.	NC	USACE will comply with the turbidity monitoring methods required by the State of Florida in their Water Quality Certificate under Section 401 of the Clean Water Act, when issued.
Cry of the Water	1		COW asks for clarification on response to comment on the DEIS #29 "The Corps' mitigation requirements were prepared using habitat analysis that relied on the best science and information available at the time of analysis. To ensure that was the case, the Corps had the mitigation requirements undergo an independent external peer review. This review determined the Corps had properly analyzed the impacts and the necessary mitigation for those impacts. Additionally, NOAA has joined USACE as a cooperating agency on the required mitigation plan for the project and agrees with the impact assessment used for the preparation of the mitigation plan. USACE and Congress has set aside more than enough money for all mitigation contingencies; the USACE is not in a position to try to save money at the expense of the environment, as its conservation is part of the Operating Principles governing this project."	NC	The response to the comment was poorly worded. USACE has estimated the project costs and included contingency costs in the project costs for anticipated events, including the need for additional mitigation. Congress has not authorized the project at this time. Response to comment #29 has been revised. The three follow on questions are then not applicable because the project has not yet been authorized. A summary of all project costs is included in the Feasibility Study and details are included in the Cost Appendix of the EIS.

DEMA	1		DEMA strongly urges the Army Corps of Engineers to incorporate the lessons learned from the Port of Miami project and ensure that the Port Everglades project meets the requirements to avoid direct and indirect damage to the underwater environment.	NC	Unavoidable direct and indirect impacts are expected to occur and detailed throughout the EIS, and compensatory mitigation is planned for those impacts. USACE will incorporate the applicable lessons learned from Miami Harbor when the project is complete and the Alter Action Review of the Miami project is complete.
DEMA	2		Incremental Monitoring activities should be mandatory. If the project is implemented, to ascertain if the same impacts discovered during the Port of Miami project are occurring	NC	Monitoring of the project's direct and indirect impacts is a requirement of the EIS and detailed in Appendix E of the EIS. USACE also makes the commitment to revise the Port Everglades monitoring plan based on the lessons learned of the Miami Harbor project when the project is complete. This commitment is made on the cover of the monitoring plan found in Appendix E of the EIS.
CBD	1	Pgs 48 & 80	The project does not estimate the volume of the expected dredged material	PC	On page 28, Section 2.3.2 the description states "removal of approximately 5.47 million cubic yards of material from channels and basins." Additionally page 11, Table 2.9 and of the Feasibility Study and Table A.19 of the Engineering Appendix of the Feasibility Study. The EIS is an Appendix to the Feasibility Study and incorporates the engineering, design, cost and geotechnical information contained in the Feasibility Study by reference as required by the CEQ NEPA regulations at 1502.21. Additional volumes for the NED Alternative were added to the report.
CBD	2	Pg 82	EIS incorrectly excluded impacts relating to the Atlantic Ocean dredged material disposal site ("ODMDS") expansion from the scope of its EIS analysis. The EIS only feelingly mentions the proposed expansion, but fails to analyze any potential impacts that might arise from the transport or disposal of dredge material at this site. Because the project creates the need for the ODMDS< expansion, these projects are interrelated and should be considered together.	PC	The expansion of the ODMDS is not USACE's jurisdiction. In consultation with EPA, the determination was made that as the ODMDS expansion was not solely driven by the expansion of the harbor (Section 1.3 of EPA EA for Port Everglades ODMDS Expansion), thus EPA would keep the NEPA analysis of the expansion under their leadership, and prepare a NEPA document for those impacts under their authority. The EA for expansion is incorporated by reference in Section 1.8. This section will be refined to clearly denote the adoption and incorporation of that analysis into the EIS for Port Everglades (CEQ Regulations 1500.4 (j) and 1500.5(h)).
CBD	3	Section 2.1	The purpose and need of the project is improperly narrow and internally contradicted. Objective #2 (decrease in transportation costs through increasing economies of scale for cargo and petroleum vessels at the port) impermissibly narrows the analysis and conclusions of the EIS, and it caused the EIS to prematurely eliminate several environmentally preferable alternatives from further consideration	NC	Objective 2 as stated in the main report Section 4.3.2 states that "Objective 2 Decrease transportation costs through increasing economies of scale for cargo and petroleum vessels at Port Everglades through the 500' port expansion." The objective is properly stated. The study objectives are properly stated. Alternatives are evaluated on their ability to meet the study objectives. Additionally, the majority of benefits are from petroleum and contained vessels with a small amount of bulk vessels benefiting as well. Sensitivities were later run and shown in the Economic Appendix B Section 14 to test these objectives by vessel type. The study objectives are not considered in a vacuum, environmental impacts of each one are considered as part of the plan formulation process.
CBD	4	Section 2.4	The EIS States the project is necessary to increase Port safety and maneuverability and to decrease congestion. However, under the Action Alternative, the EIS estimates that the Port can accommodate an additional 1,646 vessels - totaling 5,163 vessels annually - by 2050, up from 3,533 vessels in 2012. If the port can safely accommodate 1,646 additional vessels, this seems to call into question the basic need for the Port Expansion.	NC	It is assumed that the port does and will continue to operate in a safe manner in the future. The port pilots maintain a safe harbor and carry navigational restrictions in order to do so. This objective is stated in the EIS. Section 4.3.2 Objective #2 states that "Objective 2 Decrease transportation costs through increasing economies of scale for cargo and petroleum vessels at Port Everglades through the 500' port expansion." The objective is properly stated. The study objectives are properly stated. Alternatives are evaluated on their ability to meet the study objectives. Additionally, the majority of benefits are from petroleum and contained vessels with a small amount of bulk vessels benefiting as well. Sensitivities were later run and shown in the Economic Appendix B Section 14 to test these objectives by vessel type. The study objectives are not considered in a vacuum, environmental impacts of each one are considered as part of the plan formulation process.

CBD	5		The EIS does not set a baseline for greenhouse gas emissions for the operation of the Port.	NC	Air quality changes as a result of the project and cumulatively, were considered in Sections 4.9.1 and 4.28.5. GHG emissions for the project would be comparable to those emissions calculated in 4.9.6 and were calculated in 4.9.1.5 and Table 34.
CBD	6	Pg 238	The EIS inaccurately states that there are no pillar corals anywhere near the Port	NC	USACE contacted FIMCC with regard to the report cited in the comment and received the following response, "Our closest colonies that we currently monitor are 1.36 kilometers south of PE and 4.14 kilometers north of PE." 1.36 km and 4.14 km are not "very near, if not right outside of the Port" as stated in the comment. USACE stands behind the statement in the EIS and the information provided by FIMCC. Pre-construction surveys shall be conducted and any listed corals, including pillar coral, shall be relocated as required by T&C #2 of the Biological Opinion.
CBD	7		In addition, surveys for all other 2014-listed corals were not thorough enough. The EIS preparers must conduct further surveys and establish protections for any potential colonies in an abundance of caution	NC	Corals were listed after all field work was complete. Surveys specific to the newly listed corals were not conducted as a result. USACE is required by the NMFS Biological Opinion to conduct mapping surveys for the newly listed corals as part of the PED process and the Biological Opinion. Of the 5 newly listed coral species listed by Section 7 of the ESA, The issued Biological Opinion was a categorical exclusion for 3 of the species, and needs to be converted into a full biological opinion (Section 7 regulations - 402.10). Data from existing data sources (NMFS databases, state databases, researchers, other projects in the area, surveys for Port Everglades) were reviewed to determine information on the presence of the newly listed species. However, specific surveys will be conducted during the PED phase and Section 7 consultation initiated. While we have not yet surveyed specifically for the newly listed corals, NMFS has estimated that the expansion of Port Everglades is likely to adversely affect a maximum of 379 colonies of Lemaire's sheath coral, 16,465 colonies of elliptical coral, 20,062 colonies of lobed coral, 627 colonies of mountainous coral, 627 colonies of knobby star coral, and 1,207 colonies of rough cactus coral. Mitigation is planned and will continue to be coordinated with resource agencies.
CBD	8	Pg 29	The EIS inaccurately describes the No Action Alternative. The assumption that the No Action Alternative will result in more vessel calls and decreased safety and efficiency is flawed. Under the No Action Alternative, it is more likely that the Port may lack the capacity to increase traffic but would maintain safety and efficiency at lower traffic volumes.	NC	Under the future without-project condition commodity tonnage for the port is projected to continue to grow. In order to move additional commodity tonnage, there are more vessel calls than under the future with-project condition. This is because as cargo projections continue to grow additional vessels would be required to transport commodities under a deep constrained channel. Under the With Project condition, larger more efficient vessels could be used to move a significant portion of port tonnage. The economic analysis, as shown in Appendix B, used this vessel type data and commodity forecasts to project that the proposed project would allow a more efficient fleet mix without project conditions. However, the proposed project improvement will allow a more efficient vessel fleet mix and result in fewer vessel calls in comparison to the without project (current port configuration) condition (no action).
CBD	9		The EIS fails to discuss or determine the least environmentally damaging practicable alternative. U.S. Army Corps of Engineers ("Corps") regulations prohibit the agency from permitting discharge of dredged material into U.S. waters "if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem" (40 C.F.R. § 230.10(a))	NC	The EIS identifies the NED plan as the least environmentally damaging practicable alternative.

CBO	16	Regardless, the EIS's danger zone calculation is insufficient to protect turtles. A danger zone with a diameter of 5,386 feet ² would not be enough to adequately protect sea turtles from a 50-pound delay weight. The Bi-op referenced a study that used a 50-pound confined underwater blast to test effect of this blast on sea turtles. (Id. at 21). Even this 50-pound confined underwater blast knocked several turtles unconscious, including an individual caged at 3,000 feet from the blast location. (Id.). referenced a study that used a 50-pound confined underwater	NC	<p>The citation provided by NMFS in the Biological opinion was an oil rig removal project where the explosives were inside the legs of the rig below the mudline, not confined in rock below the surface, and as a result the pressure wave not being reduced in strength as seen during fully confined projects where the material is confined in rock. Additionally, in the rig removal the hollow leg of the rig acts as a conduit for the pressure wave to move into the water column, resulting in basically an open water shot. No pressure data was collected during that effort, so it is not possible to compare that effort to confined underwater blasting that is well confined in rock like at Miami Harbor, New York, Columbia River or San Juan Harbor. In the NMFS Project Biological Opinion (See 4.1), NMFS states "For all turtle species, potential routes of effects from the use of blasting are not likely to result in adverse effects...."</p>
CBO	17	The EIS fails to provide estimates of the amount of material to be dredged under each alternative	PC	<p>As the difference between the two alternatives was minor with regard to CY to be dredged, there was no significant difference in the dredging duration and impacts between the two dredging alternatives, with the exception with the potential impacts to hardbottom which are discussed in Sections 4.4.2.2 and 4.4.2.3. The volume of dredged material between the two alternatives is included in the Cost appendix of the Feasibility Study and has been added to Section 2.3.3.</p>
CBO	18	Project dredging would take dozens more sea turtles than the incidental take statement allows	NC	<p>Lethal take of sea turtles usually only occurs with the use of a hopper dredge, and hopper dredges can only dredge non-consolidated material, as discussed in 2.9.2.1. "A hopper dredge could be used to remove unconsolidated overburden material from the entrance channel". In the biological opinion, NMFS discusses that removal of material from the project with a hopper dredge will be limited to unconfined material, and previous O&M dredging at the port of unconfined material was approximately 100,000 cy which had built up over a 7 year period (pg 93). This supports the take limit of two turtles provided by NMFS in the biop, since a hopper dredge cannot be used to remove any consolidated material from the sediment and creating a sand wave in front of the draghead, pushing the turtle out of the way. When the channel bottom is rock, this penetration is prevented, thus lifting the draghead off the bottom and increasing the potential for lethal take. By removal of the deflectors on a rock bottom substrate, the likelihood of take is reduced, by allowing the draghead to sit flat on the rock bottom. Additionally, sea turtles are most commonly taken when they are laying in the bottom of the channel when water temperatures drop (~60 degrees F), in an attempt to stay warm (they are cold blooded). As the water temperature in Port Everglades is under the direct influence of the warm Gulf Stream, it rarely drops below 70 degrees (limit for corals to survive in the Caribbean and Florida), and thus the turtles do not display this behavior at Port Everglades or Miami. No incidental take of sea turtles has been documented at either Miami Harbor or Port Everglades. If new information becomes available to call our previous consultation into question we will reinitiate.</p>

CBD	19	The EIS fails to assess impacts from its ocean and uplands disposal sites	NC	Effects of placement of material in the OOMDS were evaluated by EPA in their expansion EA, which is adopted and incorporated by reference. Use of the upland disposal site for material which does not pass ocean placement criteria has been done before, however, none of the material ever tested at Port Everglades has been classified as toxic. Since the whole port footprint has been previously dredged for O&M events (thus testing occurred), and most of the excavation material is rock (thus exempt from testing), none of the material proposed for dredging is expected to not pass testing. At present, the Corps has not identified available upland sites large enough to contain all of the material to be dredged from the project. In the event new information becomes available relevant to disposal options, the Corps will prepare supplemental NEPA documentation as appropriate pursuant to 40 CFR 1502.9(g).
CBD	20	Please clarify whether any of the mangroves the Project will impact were planted as mitigation for earlier projects. If they are mitigation from an earlier project, we request (1) that these mangroves be avoided if at all possible, or (2) if avoidance is not possible, that the Project proponent be required to carry out additional compensation for eliminating mitigation mangroves.	NC	Current documentation shows that some of the mangroves along the back side of John U Lloyd park are currently believed to be impacted by the project. Should that prove to be correct during construction (based on more detailed design surveys during PED), all efforts to avoid those mangroves will be made.
CBD	21	Finally, the monitoring plan to ensure protected species are not in the danger zone before a blast is entirely visual. (EIS at 76). However, the EIS does not provide for a halt to blasting during low-visibility conditions, such as when weather conditions make the water choppy or when turbidity prevents monitors from spotting marine species.	NC	The standard blasting protection conditions for all Jacksonville District blasting projects include the following requirement: "Climatic conditions must be suitable for optimal viewing conditions, determined by the observers."
CBD	22	Contrary to the EIS, the Bi-Op estimated that as much as 50 percent of the entire Project area may need to be blasted and that there will be as many as 900 blast days. (Bi-Op at 8). It is concerning that there is such a large disparity between the Bi-Op and the EIS regarding blasting and this change in blasting plan likely requires a reinitiation of consultation with NOAA before the EIS should be finalized. If both scenarios are equally plausible, it is more responsible for the EIS to analyze impacts according to the greater-impact scenario described in the Bi-Op.	NC	NMFS prepared the Biological opinion based on a 2012 Biological Assessment (Appendix F) where the original assessed value of blasting was 900 blast days. Since that BA was completed, additional work at Miami Harbor has been completed where no blasting in the outer entrance channel was required, and the inner entrance channel may only require minimal blasting. With that information, USACE revised the estimate in the EIS to reflect the lower value. NMFS' reliance on the larger number is a more conservative estimation for their jeopardy analysis as required under Section 7 of the ESA.
CBD	23	The EIS should address almost certain future riprap failure	NC	The comment refers to rip rap on the south side of the Dania Cutoff Canal. The citation from the EIS, is a cut and paste from a report prepared by another agency and references the southern channel edge of the DCC, which is not a component area of the project. No rip-rap failure has been seen in more than 40 years along the main IWW channel, and none is expected with the project implementation.
CBD	24	The EIS should also discuss other indirect and cumulative impacts to mangroves.	NC	Section 4.28.6 of the EIS discusses cumulative effects of the project to mangrove wetlands. With implementation of the project there will be fewer ships visiting the project than without the project, and with construction of the project mitigation for unavoidable impacts, there will be no net loss of mangroves within Broward County as a result of the project.
CBD	25	The EIS disregards impacts to seagrasses and did not use the best available survey methods to locate seagrass beds and habitat	NC	The EIS is consistent with national mitigation policy for unvegetated seagrass habitats. Seagrass survey methods were consistent with agency mandated seagrass survey protocols. Concerns raised by NMFS and FWC on the draft EIS have been responded to and satisfied (see final comment letters from agencies). Cumulative impacts to seagrasses are assessed in Section 4.28.6.
CBD	26	The Bi-Op determined there will be more impacted acres of corals than the EIS discloses.	NC	USACE assessed total potential impacts to be 14,622 acres of direct removal, 0.70 due to rubble movement down slope and 100 acres due to sedimentation and turbidity for a total of 124.32 acres. NMFS used the 2008 LAOS to calculate their impacts, while USACE used the 2013 LAOS, a newer, and high resolution survey. These values are provided in the Executive summary, throughout Section 4 and Section 5 of the EIS. Additionally, NMFS recognized errors in their calculations in their May 1, 2014 Biological opinion clarification letter.

CBD	27		The EIS ignores key information regarding seasonal coral sensitivity.	NC	Seasonal coral bleaching due to warm water stress is discussed in Section 3.7.2.13 and 3.7.2.14 of the EIS. Additionally the Biological opinion includes an analysis of seasonal sensitivity and includes that information in their jeopardy analysis for listed coral species.
CBD	28		The EIS fails to consider cumulative environmental impacts to corals	NC	Section 4.28.6 discusses the cumulative effect of the project on hardground and corals that live on the hardground habitats. None of the issues raised in the comment ("ocean warming, ocean acidification, dredging, coastal development, coastal point source pollution, agricultural and land use practices, disease, predation, reef fishing, aquarium trade, physical damage from boats and anchors, marine debris, aquatic invasive species) are a "significant aspect of the environmental impact of a proposed action" except the project dredging and as a result, are not analyzed in the Cumulative effects analysis. The analysis is specific to the cumulative effects of the proposed action, not everything happening to the habitat or species. In the NMFS Biological Opinion, Section 4.2.2, NMFS discusses the impacts of the topics raised by the comment, and that information is incorporated by reference from Appendix F.
CBD	29		More closely related to the project, Port operation may increase sedimentation, more ships may spill toxic chemicals into coastal waters, such as antifoulants and oils, and increased shipping traffic and larger ships may increase the risk of ship strikes and coral breakage	NC	The comment is describing the future without project condition, where there is an increase in vessel calls as compared to the future with project and is described in Section 4.4.2.1, as well as Section 4.5.10.1.
CBD	30		NMFS did not authorize the take of pillar corals, and there were no adequate surveys for other 2014-listed corals	NC	When the biological opinion was prepared, the coral species in question were still proposed and NMFS prepared a conference opinion under Section 7. Prior to construction, USACE must initiate consultation with NMFS to convert the conference opinion to a biological opinion with an incidental take statement. Part of the reinitiation of consultation will include a survey for listed coral species in the project area.
CBD	31		NMFS' incidental take statement does not provide adequate mitigation for impacts to corals listed in 2014	NC	At present there is no prohibition of take for newly listed species. USACE will reinitiate consultation under Section 7 prior to construction.
CBD	32		The EIS does not disclose the full extent of impacts to corals within the impact area. Additionally, the EIS should have discussed the full impacts arising from the project, including the estimated recovery time for corals within the 150-meter impact zone.	NC	Section 4.4.2.2 details potential impacts of direct, incidental and indirect effects on corals within the project vicinity. Given the paucity of hard coral coverage within the vicinity of the port (~1% over 15 years of survey data from a variety of sources), it is unlikely that impacts will be significantly different at the time of construction, after additional surveys and analysis during the PED phase of the project. Recovery of corals from impacts is discussed in the mitigation plan, Appendix E, "Mitigation Requirements Anticipated for Impacts to Hardbottom Resources". Recovery from indirect effects was estimated to be 320/50 years - see table 19 of the Appendix.
CBD	33		The EIS will create unsuitable habitat as mitigation for impacts to protected corals	NC	As discussed in section 6.4.2 of the Mitigation Plan (Appendix E of the EIS) the artificial reef shall be established by either dredge rock OR quarried rock. The rock will be powder sized, no less than three feet in diameter, similar to what has been previously used at other artificial reefs throughout South Florida. Rubble is not a suitable construction material and has never been proposed as an artificial reef construction material.

CBD	34		The EIS discussed a worst-case dredge anchor cable configuration but did not forbid it	NC	As stated in the EIS (Section 2.9.1) the Corps is restricted from limiting competition under the Competition in Contracting Act. This Act requires federal agencies to limit how specific specifications are written to prevent limiting competition among contractors. This means the EIS cannot exclude particular pieces of equipment or dredging methods (including anchor deployment outside of the channel) during this phase of the project. Due to this legal restriction, the Corps analyzed all of the potential construction methodologies in Section 2.9 of the EIS and discussed the impacts of each method in Section 4 of the EIS. If no difference was likely to occur between different methods, all methods were treated the same. A review of the potential effects of anchors outside of the channel is included in the EIS, including the calculation of necessary mitigation for those impacts, should they be unavoidable. Compliance with the Section 404(b)(1) Guidelines should not result in the violation of another federal law. See Section 2.9.2.2. USACE will utilize the RFP-contracting process to allow contractors to submit bids that target the least damaging, viable construction methodologies to decrease impacts associated with anchor-cable use for cutterhead dredging. Plans and specifications will have specific hardbottom and coral protection requirements included in the bid package.
CBD	35		The EIS should not have dismissed impacts to corals from blasting events	NC	All of the references provided by the commenter refer to unconfined blasting in open water and are not applicable to the proposed blasting associated with the project.
CBD	36		The Bi-Op sets an unreasonable timetable for elkhorn and slaghorn coral mitigation	NC	Comment addresses a document prepared by NMFS and should be addressed directly to NMFS
CBD	37		The EIS must provide more mitigation for manatees	NC	Mitigation for manatees during construction activities has been coordinated with USFWS and FWC and both agencies have found the mitigation measures proposed by USACE to be sufficient. USFWS and FWC have a good working relationship with the Port and will continue to work with them to protect manatees that use areas of the Port during the winter months, as USACE has no jurisdiction over port operations.
CBD	38		Seagrass removal during project is a negative cumulative impact to manatees that use Port Everglades	NC	Per Mizich (2001) "Manatees that winter at the Broward County power plants are foraging primarily on aquatic vegetation in Dade County. Distribution and abundance of freshwater aquatic vegetation in the area of the Broward county power plants is relatively limited and relegates to vegetation growing in the canals on the shoreline. The most significant foraging are located in Deertrout Bay, North Bay, and West Bay. Between 700 and 750 manatees are located in South Broward Bay, which is on the west side of the bay and the north shore of Virginia Key. Removal of the grass along the colonized the side slope of the federal channel is not expected to have a significant impact on the foraging of manatees that utilize the port (Section 3.7.2.5)
CBD	39		Next, the EIS assumes that the post-Project Port dimensions and operation would have manatee less than the operation of the Port under the No Action Alternative (EIS at 222). As with other species susceptible to ship strike, the EIS fails to compare the Recommended and National Economic Development plans to the 2012 environmental baseline	NC	In comparing the With and without project future, as required by the 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and ER-1105-2-100, the future with the project will have fewer ship calls than the future without the project, and as a result the evaluated increment between the two project will not have increased impacts associated with shipping traffic and larger vessels.
CBD	40		The EIS did not discuss cumulative impacts to sea turtles	NC	An analysis of the cumulative effects of the project on sea turtles is included in Section 4.28.5 as well as in the NMFS biological opinion. The issues raised by the commenter (1) the effect of beach warning on hatching sex ratios and (2) the increased occurrence of fibropapillomatosis (FFP) in sea turtles) are not effects of the project.
CBD	41		The EIS does not provide an accurate analysis of air quality and greenhouse gas impacts	NC	Air quality changes as a result of the project and cumulatively, were considered in Sections 4.9.1 and 4.28.5. GHG emissions for the project would be comparable to those emissions calculated in 4.9.6 and were calculated in 4.9.1.5 and Table 3.4.

CBD	42	The EIS did not consider upstream or downstream impacts related to the Project	NC	Per 33 CFR Part 325, Appendix B, the federal government analyzes the actions for which it has direct control and jurisdiction. The day to day operations of the Port, and the resulting "upstream or downstream impacts" are not under the Corps' control or jurisdiction, and thus, are not analyzed as an effect of the project. The analysis in Section 4.23 is consistent with the CEQ 1997 "Considering Cumulative Effects Under the National Environmental Policy Act"
CBD	43	The EIS may need to consider the indirect impacts from increased port-related traffic.	NC	As stated throughout the EIS, the with project condition results in fewer vessels than the without project condition (no action alternative) and as a result, there is no increase in port-related traffic associated with the expansion of the harbor.
BBWK	1	Turbidity and sedimentation impacts from the dredging will exceed the estimated 150 meter indirect impact area that is accounted for in the Study. Alternatively, the Port of Miami project should be used as the reference in an SEIS to estimate potential impacts and necessary mitigation and monitoring. A full survey to identify the scope of the sedimentation impacts beyond 150 meters and the magnitude of coral mortality should be conducted in the Port of Miami, and the cost associated with mitigation and monitoring for impacts beyond 150 meters need to be factored into the estimated project cost and the Cost Benefit Analysis for Port Everglades.	NC	As discussed in section 4.4.2.2 of the FEIS, the indirect effects are expected to vary depending on where the dredge is physically located. If the dredge is in the nearshore, sedimentation and turbidity are expected to move to the south due to the north to south longshore drift. In the 2nd/3rd reef, the sedimentation and turbidity are expected to move in a predominantly northern direction due to the south to north direction of the Gulf Stream. The 150m boundary around the project is a planning average that will be modified based on the final monitoring at the Miami Harbor project, which will provide a more realistic example of sediment movement due to currents offshore of SE Florida. The overall total coverage area for indirect effects is not expected to be significantly larger than the 109 acres of hardbottom habitats previously assessed in the FEIS. The lessons learned from Miami Harbor will be incorporated into the mitigation plan and if appropriate based on new information we will update our NEPA.
BBWK	2	The coral mitigation plan must account for all direct and indirect effects, in both the direct and indirect impact areas. Direct effects in the indirect impact area have far exceeded direct effects in the direct impact area for the Port of Miami. Thousands of corals in the indirect impact area (+150m north and south of the channel) in the Port of Miami have suffered near or total mortality. We would expect to see the same types of impacts in Port Everglades as supported by the FEIS (pages 194 and 199 quoted in #1 above). These types of direct effects in the indirect impact area have not been factored into the estimated project cost and the Cost Benefit Analysis for Port Everglades.	NC	Indirect impacts to hardbottom and reef habitats adjacent to the channel have been calculated and included in the Cost Benefit Analysis. The assumed impacts and necessary mitigation for those impacts were analyzed in Appendix E, in the HEA. Lessons learned from Miami Harbor, when complete, will be incorporated into the mitigation plan and if appropriate, we will update our NEPA and potential increases in mitigation costs would be covered by the project cost contingency.
BBWK	3	Stabilizing the hardbottom following dredging would prevent this damage and avoid future mitigation costs. Because it would constitute an avoidance and minimization measure, reducing potential environmental impacts to reefs, including ESA-listed corals, stabilization should be required as a part of the project scope and requirements.	NC	There is no known method for stabilization of the bottom of an active shipping channel. Hardbottom stabilization methods for ship groundings are diver intensive and entail safety issues, USACE does not allow for divers under contract to USACE to dive in an active shipping channel.
BBWK	4	NMFS' concerns (regarding seagrasses and seagrass habitats) have not been addressed in the FEIS, and unoccupied seagrass habitat is still not included in the proposed FEIS seagrass mitigation plan.	NC	NMFS' April 17, 2015 letter regarding the final EIS states "Appendix E.1 of the Final EIS indicates the project would directly impact 21 acres of seagrass and an additional 3,200 acres of seagrass habitat would be proposed for mitigation. The project would impact 7.41 acres of seagrass habitat. Seagrass habitat is not included in the District's planned approach for addressing seagrass impacts. While NMFS continues to recommend the Jacksonville District include all previously mapped seagrass habitat in the impact assessment and mitigation planning, NMFS appreciates the District's commitment to consider during PED phase planning additional information on the ecological services of seagrass beds that naturally contract and expand." USACE national policy is to mitigate for only vegetative impacts, not unvegetated impacts.

BBWK	5	In other states with Coastal Zone Management regulations specifying mitigation (e.g. New Jersey, N.J.A. 7:7E-3.618) for unoccupied seagrass habitat, the USACE must consider impacts to unoccupied seagrass beds. Therefore, there does not seem to be a nationwide USACE policy regarding mitigating for unoccupied seagrass habitat, as seems to be suggested in FEIS Appendix L responses from USACE.	NC	In compliance with USACE national policy, which has been verified with USACE HQ in response to this comment, this project will not mitigate for non-vegetated habitats. During five separate seagrass surveys of the project area, inside the port channels where seagrass is known to grow on the channel side-slopes, all of the surveys have documented less than five acres of grass coverage during any one survey period. However, the EIS has been modified to capture an impact to a total of 7.41 acres of seagrass habitat, 4.21 of that being vegetated. Final mitigation requirements for seagrass impacts shall be determined during a pre-construction seagrass survey. At that time, if there is more than 4.21 acres of vegetated seagrass habitat, USACE shall propose additional mitigation options.
BBWK	6	Concerns that Westlake Park Mitigation plan, as proposed by Broward County and previously authorized by the State of Florida, does not have jurisdiction to create the manatee protection area have been raised by FWC in the DEIS and their comments have been addressed in the FEIS by USACE. The current uncertainty (FEIS Appendix E, page 14) pertaining to the area of seagrass requiring mitigation leaves the total cost of the seagrass mitigation plan in limbo. Accounting for the total acreage of seagrass mitigation in the FEIS is the kind of consideration that is crucial to be made at the planning stage, rather than immediately prior to starting construction. Failure to include the full area of potentially required seagrass mitigation in the FEIS will result in potential "surprises" in project costs when construction begins. Mitigating for all seagrass habitat (occupied and unoccupied) must also be factored into the estimated project cost and the Cost Benefit Analysis for Port Everglades.	NC	The mitigation plan has been coordinated by the Corps Regulatory Division with SFWMD and found to be compliant with the State's CZMA prior to the issuance of the SFWMD and RD permits. coordination with FWS and FWC occurred at the same time. Although most of southeast Florida is in one watershed, we believe that mitigating for impacts through ecosystem level restoration is preferable to mitigating 25-40 miles away from the impact area. The County has the lead to develop the credits and bring them to the table for USACE to buy, and those credits are determined in accordance with UMAM. Establishment of manatee mitigation zones is not within Corps authority and has not been determined to be required as mitigation for this project.
BBWK	7	The seagrass present at West Lake Park do not provide equivalent critical ecological function as seagrass removed from Port Everglades, which is used as nursery habitat for federally managed, oceanic and estuarine spawners, such as the gray snapper, gag grouper, and blue striped grunt.	NC	The literature cited by FWC, EPA and NMFS, and incorporated by the commenter references seagrasses in the Indian River Lagoon. Port Everglades is not an estuary like the Indian River Lagoon. It is a man-made navigation channel to the sea and part of a flood damage reduction project which shunts large volumes of fresh water to the sea to prevent flooding of areas inland of the Port. Comparing this navigation channel and flood damage reduction project to the Indian River Lagoon is not appropriate as the two are not similar in structure. The seagrasses at West Lake Park are within 1 mile of the inlet – which is within the 5 km distance cited by Gilmore 1995 as being the boundary of similar seagrass habitats.
BBWK	8	A complete mitigation plan for seagrass, including occupied and unoccupied seagrass beds, must be established, and the associated costs factored into the estimated project cost and the Cost Benefit Analysis for Port Everglades and the above issues must be addressed in the FEIS.	NC	The mitigation plan for impacts to resources within the project has been developed and includes contingencies for unexpected impacts, or revisions made as a result of the After Action Review of the Port of Miami project. The contingency is included in the project cost, and as such is included in the project Cost Benefit Analysis.
BBWK	9	The biological monitoring plan for Port Everglades has not yet been developed, and estimated costs associated with such a plan have not been factored into estimated project costs or Cost Benefit analysis.	NC	The project Biological Monitoring plan is included in Appendix E of the EIS. The plan's cover sheet says "It may be updated based on the lessons learned from and results of the Miami Harbor expansion project which began construction in Fall 2013" and after the Miami Project is complete, and the After Action Review has been completed, the Monitoring plan for Port Everglades will be updated to incorporate the appropriate lessons learned.
BBWK	10	We support the development of a new biological monitoring plan in the FEIS as required by the NMFS Biological Opinion. Because a new biological monitoring plan will have to be significantly modified to detect impacts, it should be made available for public comment through an SEIS.	NC	The monitoring plan included in Appendix E-5 of the EIS shall be revised during the PED phase of the project.
BBWK	11	The Environmental Baseline included in the FEIS is still from 2001, and has not been updated.	NC	This is incorrect, the baseline components for seagrasses were updated in 2003, 2006, 2009 and 2013. The hardbottom information in the 2001 baseline was updated in 2009 with the Baseline report. All of these documents are included in Appendix D and are all considered baseline documents.

BBWK	12		The listed coral survey for Port Everglades must be redone based on new information from Port of Miami to comply with to comply with NEPA regulation 40 CFR §1502.9(c)(1)(ii).	NC	A final pre-construction survey for the hardbottom habitats within the project area, shall be conducted during PED, which is also a Term and Condition of the Biological Opinion.
BBWK	13		There should be no upper limit on the number of corals to be relocated, and costs should assume that corals in the indirect impact zone may also require relocation and that all corals over 10cm should be relocated from the direct impact area	NC	The 12,235 coral value cited in the comment was the estimated number of corals >10cm in size estimated to be larger when the project was proposed to be dredged to a total depth of 59 feet. The current estimate, as detailed in Appendix E is 11,502 corals based on the max depth of 57 feet. Additional preconstruction surveys will be conducted which will be informed by experience with Miami Harbor. As required by T&C #2 of the Biological Opinion, all listed corals without regard to size shall be relocated.
BBWK	14		The Draft Environmental Impact Statement only received a conditional consistency determination by the State of Florida for the Coastal Zone Management Act consistency review, and the State deferred a final consistency determination until such time as the WQC was obtained. The Final Feasibility Report, including the Final Environmental Impact Statement (FEIS), has not yet been deemed to be consistent with Florida's Coastal Management Program.	NC	The State of Florida's standard procedure is to issue final consistency with the Florida Coastal Zone program as part of the Water Quality Certificate. The conditional concurrence issued for the Port Everglades project is consistent with this standard procedure. We will continue to work with the State of Florida throughout project implementation.
BBWK	15		Five conditions remain to be addressed to satisfy Florida's CZM program Per the comment letter on the draft EIS	NC	The State of Florida's comments on the Final EIS revisited the conditions from the draft report to the Flushing Model and the mitigation and monitoring for hardbottom resources. USACE and DEP will continue to work toward conclusion on these two issues prior to issuance of the Water Quality Certificate for the project by the State
BBWK	16		FWC also identified multiple colonies of the exceedingly-rare <i>Dendrogyra cylindrus(pillar)</i> coral close to Port Everglades.	NC	USACE contacted FWC with regard to the report cited in the comment and received the following response: "Our closest colonies that we currently monitor are 1.36 kilometers south of PE and 4.14 kilometers north of PE. 1.36 km and 4.14 km are not "very near. If not right outside of the Port" as stated in the comment. USACE stands behind the statement in the EIS and the information provided by FWC.
BBWK	17		Coral species surveys for ESA species may have missed corals due to results of Miami Harbor. Survey methods for Port Everglades and Miami for listed coral species was the same methodology, raising concern of adequacy	NC	This is incorrect. The Port Miami survey methods were the NMFS approved survey method for the Port where Acropora sp were already known to be present due to previous surveys conducted by DERM. Port Everglades had no such data, and a new method was developed for the project, which was specifically developed for Port Everglades, and approved by NMFS.
BBWK	18		We recommend that the ESA-listed coral survey in Port Everglades be updated to avoid the same underestimation of the number of listed species and avoid "take." This study should also be updated to include the six additional coral species listed in 2014 to appropriately account for additional mitigation and monitoring costs. These additional costs should be factored into the estimated project cost and the Cost Benefit Analysis for the Port Everglades Feasibility Study.	NC	During PED, a pre-project baseline survey will be conducted on the hardbottom habitats within the project vicinity. This survey is also a requirement of the terms and conditions of the biological opinions and will include mapping of ESA listed corals that may be in the project area. Costs for this survey have already been included in the project costs.

BBWK	19			<p>Dredging-related disease impacts on corals have not been considered in the FEIS. The impact of disease on corals adjacent to dredging must be considered in the Final EIS. Recently, Pollock et al. (2014) showed that corals exposed to chronic dredging sediments are twice as likely to develop diseases.</p>	NC	<p>The comment notes that a recent paper by "Pollock et al. 2014 showed that corals exposed to chronic dredging sediments are twice as likely to develop diseases." What is not disclosed is that the study by Pollock et al. (2014) was performed off the coast of Western Australia. Comparing conditions at the Port Everglades to the reefs in Western Australia is like comparing apples and oranges. Coral cover of these reefs in Australia is quite high (~30%) compared to those of Port Everglades (<1%), coral diversity off Western Australia is also quite high (hundreds of species) where in Port Everglades it is relatively low (a couple dozen species), and the types of coral diseases identified (and their pathogens) are different between locations (ocean basins). In addition, water clarity off Western Australia is exceptional due to low runoff from the surrounding desert-like environment where Port Everglades is regularly subjected to a host of water quality issues that greatly reduce water quality and clarity (Section 3.5). Specifically, the project in Western Australia involved the removal and dumping of approximately 7.6 million tons of marine sediment over an 18-month period (October 2010 to May 2011) there was an extreme sea-surface warming event (Pearce et al. 2011) that caused significant coral bleaching and coral mortality on the reefs off Western Australia (Moore et al. 2012). Interestingly, the unprecedented bleaching and coral mortality were limited to the Port Everglades area (Pollock et al. 2014) and did not extend to the rest of the clear linkage between mass coral bleaching events and subsequent disease outbreaks (Burke et al. 2007; Miller et al. 2008; Muller et al. 2008). These local site-specific background conditions clearly set the stage for the impact described in the Pollock et al. (2014) manuscript.</p>
BBWK	20			<p>Storms and hurricanes are not an appropriate estimation of dredging-related impacts. Furthermore, hurricanes and storms suspend coarse natural sediments already residing on reefs/capex, while dredging is contributing more volume overall, and finer, sediments to the system.</p>	NC	<p>This is incorrect. Blair et al. (1994) states "A moderate silt layer (1 to 2 cm thick), however, was noted on the reef surfaces within the first month after the storm. These areas had a variable layer (1-3 cm) of congealed, silty sediment. In many locations a gray-back layer (assumed to be anoxic) had formed at the interface between the congealed sediment and the underlying sand. The sediment layer dispersed during the subsequent 2 months. Concurrent with this dispersal, a moderate accumulation of sediment occurred in the scoured depression and gully areas." This demonstrates that dredging has similar effects based on material type and deposition patterns. Sedimentation impacts have been shown to be temporary at the Port of Miami, where sediments deposited on the hardbottoms adjacent of the channel have been discharging over time, as was demonstrated by the hurricane deposited sediments in Precht and Precht (2015).</p>
BBWK	21			<p>Turning notch cumulative impacts must be considered. Reasons for removal of the Turning notch from the federal project should be spelled out. Impacts of the Port's project should be considered part of the Corps deepening project and should not be considered a reduction in impacts of the project</p>	NC	<p>Additional Information regarding the reasons for removal of the TN from the federal project are found in Section 4.9.2 of the feasibility study. Since the TN is not part of this proposed federal action, the impacts of construction cannot be considered in this EIS as a direct project impact. Instead the impacts of the removal of the mangroves associated with the Port's expansion of the TN are analyzed as a cumulative effect in Section 4.28.6. With implementation of the project there will be fewer ships visiting the project than without the project, and with construction of the project mitigation for unavoidable impacts, there will be no net loss of mangroves within Broward County.</p>
BBWK	22			<p>Inadequate plan to address leaking of dredged material disposal</p>	NC	<p>Section 2.9.2.5 discusses disposal vessel operations and methods to limit leaks from disposal vessels</p>
BBWK	23			<p>Turbidity limits are too high</p>	NC	<p>USACE will comply with the turbidity monitoring methods and limits required by the State of Florida in their Water Quality Certificate under Section 401 of the Clean Water Act, when issued.</p>

BBWK	24		Newly-discovered staghorn coral reefs were identified in close proximity to Port Everglades. These new thickets of <i>Acropora cervicornis</i> corals are exceedingly rare. Although these corals reside outside the currently designated 150m impact area, a consideration of possible impacts to this species must be included in this EIS.	NC	<p><i>Acropora cervicornis</i> is not "exceedingly rare" in Florida. NMFS published a final rule on September 10, 2014, declining to up list the <i>Acropora</i> species from "threatened" to "endangered." In so doing, NMFS reasoned that relative population abundance and evidence of population expansion did not warrant the species' uplisting. NMFS estimated that tens of millions of <i>Acropora</i> colonies existed in the Florida Keys and the Dry Tortugas alone. Based on the lessons learned from Miami Harbor, the monitoring plan for Port Everglades will be revised, and may include monitoring of areas beyond 150m north and south of the channel.</p>
BBWK	25		Turbidity from sediment plumes can also shade corals, making it difficult for them to obtain energy from sunlight via their symbiotic algae. This results in decreased energy stores for corals, leading to slower growth, reduced reproduction, and greater disease risk. Atlantic <i>Acropora</i> , specifically, are known to be reliant on access to sunlight for fulfilling their energetic needs, as they are poor feeders, and are therefore unlikely to be able to compensate for a loss of energy from shading. Staghorn corals are known to be among the most susceptible species to turbidity stress. Estimating a similar range of sediment impacts and size of turbidity plume in Port Everglades, these newly discovered staghorn reefs could be at risk and must be included in the FEIS.	NC	<p>The comment states, "Staghorn corals are known to be among the most susceptible species to turbidity stress." This is an incorrect citation of Rogers (1990). What Rogers (1990) actually stated was staghorn corals were the most susceptible to "shade" stress, not turbidity stress. (Citing her comment to research Rogers 1979). Rogers (1979) set up experiments that physically shaded a portion of a reef in Puerto Rico by covering it with black plastic. Staghorn corals left under this black plastic for a period of five-weeks bleached and then died. However, when Rogers (1979, 1983) treated staghorn corals directly with carbonate sediment on the same reef she found no negative effect on the growth or survivorship of these corals. In fact, Rogers (1983) stated "the cylindrical branches of <i>A. cervicornis</i>, better adapt these species to higher sediment loads." The commenter also fails to mention that Rogers (1990) stated "we are unable to rigorously predict the responses of coral reefs and reef organisms to sedimentation from coastal development and other sources". This is due in-part to the variable nature of the responses of individual reef corals to different levels of sediment, chronic and acute, natural and anthropogenic, in time and space. Specifically, Lirman and Fong (2007) noted that in Florida the proximity to potential sources of stressors (sediments, turbidity, nutrients) may not always prove an adequate proxy for assigning potential risks to reef health, and that hypothesized patterns of coral cover, population size-structure, growth, and mortality are not always directly related to water quality gradients.</p>
BBWK	26		New information from the Port of Miami expansion triggers the need for a reinitiation of consultation for Port Everglades under Section 7 of the Endangered Species Act.	NC	<p>USACE will be reinitiating consultation with NMFS under the ESA for the newly listed coral species as the project biological opinion considered the new corals as proposed for listing, not listed and issued a conference opinion for these species. As a result, now that the coral species are listed, the consultation must be reinitiated. See sections 11.3 and 12 of the biological opinion. As required by Section 7 of the ESA, if additional information is available that demonstrates effects not previously considered in the consultation, those items shall also be included in the revised Biological Opinion.</p>



**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

BOB MARTINEZ CENTER
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

JONATHAN P. STEVERSON
SECRETARY

April 21, 2015

Mr. Theodore A. Brown, P.E., Chief
Planning & Policy Division, CECW-P (SA)
U.S. Army Corps of Engineers, Headquarters
7701 Telegraph Road
Alexandria, VA 22315-3860

RE: Department of the Army, Jacksonville District Corps of Engineers
Final Feasibility Report and Environmental Impact Statement, Navigation Study
for Port Everglades Harbor – Fort Lauderdale, Broward County, Florida.
SAI # FL201503117224 (Reference Prior SAI # FL201306266640C)

Dear Mr. Brown:

The Florida Department of Environmental Protection (Department) appreciates the opportunity to comment on the Final Feasibility Report and Environmental Impact Statement, Navigation Study for Port Everglades Harbor – Fort Lauderdale, Broward County, Florida (FEIS). In light of the cooperative spirit of the interagency agreement between the Department and the United States Army Corps of Engineers (Corps), the Department would like to use this opportunity to provide a few comments to the FEIS and touch on a couple topics that the Department and the Corps will address during the permitting of this project, thereby simplifying the permitting process for the Corps.

Initially, the Department appreciates the inclusion in the FEIS of a discussion of potential impacts associated with project-generated sedimentation. Indeed, the Department appreciates that the Corps included information on sedimentation resulting from the recent expansion of the Port of Miami and the effects on hardbottom habitats. The Department will work with the Corps to apply lessons learned from the Port of Miami expansion project to the Port Everglades project, in order to minimize impacts to the greatest extent practicable and to ensure that mitigation offsets unavoidable impacts to resources resulting from dredging activities and associated sedimentation.

As you are aware, the Florida State Clearinghouse coordinated the state's review of the Corps' Draft Feasibility Report and Environmental Impact Statement (DEIS), in June of 2013, and the review of supplemental mitigation information supplied in March of 2014, and subsequent communications and presentations both by the Corps and the National Marine Fisheries Service (NMFS). The Department determined that the proposed federal action, identified in the DEIS, was conditionally consistent with the enforceable policies of the Florida Coastal Management Program, provided certain conditions would be satisfied before or during the permitting phase.

Mr. Theodore A. Brown, P.E.

Page 2 of 3

April 21, 2015

These conditions requested additional or revised information on the flooding and flushing model, hardbottom impacts, mangrove and seagrass impacts, monitoring and mitigation plans, and John U. Lloyd Beach State Park¹ impacts.

The FEIS for the Port Everglades Project was published in the Federal Register on March 20, 2015. The FEIS included written responses to address the conditions in the Department's June, 2013 conditional consistency letter. The Department acknowledges that the Corps has provided more information addressing the Department's comments relating to the seagrasses located within the project area. Furthermore, the Department has recently re-reviewed its comments and determined that the Department is now satisfied that there shouldn't be any flooding issues associated with this project. Notwithstanding the Corps' additional efforts, it appears that there are still a few matters that will need to be addressed as part of the permitting process. They are as follows:

The Flushing Model

Prior to permitting this project, the Department would request that the flushing model be validated and calibrated in order to adequately analyze the potential hydraulic impacts from the widening and deepening of the channels and turning basins within the Port.

Monitoring & Mitigation

The Department would request that a comprehensive baseline survey of areas surrounding the channel be conducted, as this is crucial for adequate comparison to during- and post-construction data. Monitoring plans should be provided for seagrasses and hardbottom. Minimization measures for corals, sponges and octocorals should also be addressed.

The Department would like the opportunity to discuss hardbottom mitigation proposals prior to the submission of a permit application. The Department is in agreement with the blended mitigation approach proposed by the Corps; however, using the Uniform Mitigation Assessment Method (UMAM), Department-generated mitigation amounts for transplantation requirements exceed those of the Corps. This is an issue that the Department and Corps have discussed in the past, and the Department looks forward to continued discussions in that regard.

The Department is committed to work with the Corps to assist with the resolution of all of the above items.

Sincerely,



Frederick L. Aschauer, Jr., Director
Division of Water Resource Management

¹ This letter is not intended to address the FEIS' discussion of the State Park.

Mr. Theodore A. Brown, P.E.

Page 2 of 3

April 21, 2015

cc: Dr. Jeffrey Payne, NOAA OFCM Acting Director
Mr. Eric Summa, USACE-SAJ
Ms. Terri Jordan-Sellers, USACE-SAJ
Mr. Steven Cernak, Broward County Port Everglades Department
Ms. Danielle Irwin, DEP Division of Water Resource Management
Dr. Lainie Edwards, DEP Beaches, Mining and ERP Support Program
Mr. Martin Seeling, DEP Beaches, Inlets and Ports Program
Ms. Kristina May, DEP Beaches, Inlets and Ports Program
Mr. Kevin Claridge, DEP Florida Coastal Office
Mr. Parks Small, DEP Bureau of Natural and Cultural Resources
Mr. Lewis Scruggs, DEP Office of Park Planning
Ms. Lauren Milligan, DEP Office of Intergovernmental Programs
Mr. Scott Sanders, FWC Conservation Planning Services

From: Milligan, Lauren
To: Bush, Eric L SAJ; Summa, Eric P SAJ; Perez, Cynthia B SAJ; Spinning, Jason J SAJ; Jordan-Sellers, Terri SAJ
Cc: Gaskin, Carla; Cobb, Paula; Deal, Tori; Aschauer, Fred; Irwin, Danielle; Edwards, Lainie; Peterson, Jennifer M.; Dow, Roxane; Seeling, Martin; May, Kristina; Kosmynin, Vladimir; Stahl, Chris; Claridge, Kevin; Prado, Rebecca; Lazar, Ann; Morris, Kristine P.; Walczak, Joanna; Monty, Jamie; Waters, Lauren; Small, Parks; Bryan, Dana; Kaufmann, Greg; Flake, Marshall; Scruggs, Lewis; Murray, Sine; Carver, Jennifer; Maehl, John; Yerian, Art; Dale, Steven; Cowan, Ernest
Subject: [EXTERNAL] RE: USACE Final EIS, Port Everglades Harbor Navigation Study - Additional DEP Comments
Date: Friday, April 24, 2015 10:15:12 AM

Eric and USACE-SAJ staff:

In addition to the DEP letter forwarded earlier, we request that the following comments provided by the Department's Division of Recreation and Parks (DRP) also be considered during project development and permitting:

- * DRP staff will continue to coordinate with the Port to ensure that its Emergency Action Plan is available to staff so that any potential environmental emergencies related to vessels can be properly handled.
- * In recent years, DRP staff has observed increased erosion in the vicinity of Mangrove Assessment Area #7 (eastern shore of the intracoastal waterway at the terminus of the existing riprap). There is concern that the deepening of the channel will result in increased rates of erosion from port traffic that could threaten this section of the park entrance road. It is unclear what assurances are in place to prevent further erosion.
- * It is unclear how potential impacts to park resources (specifically infrastructure and facilities) will be monitored before, during and after activities take place. DRP would like assurances that monitoring of park infrastructure adjacent to the project area will occur and that any observed impacts will be repaired/rectified. This is especially a concern should blasting occur in this area.

For further information and assistance, please contact Mr. Greg Kaufmann in the DRP Bureau of Natural and Cultural Resources at (850) 245-3113 or Greg.Kaufmann@dep.state.fl.us.

Thank you!

Lauren

Lauren P. Milligan, Coordinator
 Florida State Clearinghouse
 Florida Department of Environmental Protection
 3900 Commonwealth Blvd, M.S. 47

Tallahassee, FL 32399-3000
ph. (850) 245-2170
fax (850) 245-2190

Lauren.Milligan@dep.state.fl.us <<mailto:Lauren.Milligan@dep.state.fl.us>>

From: Milligan, Lauren

Sent: Friday, April 24, 2015 9:49 AM

To: 'Theodore.A.Brown@usace.army.mil'; Bush, Eric L. SAJ; 'Summa, Eric P SAJ'; Perez, Cynthia B SAJ; Spinning, Jason J SAJ; 'Jordan-Sellers, Terri SAJ'

Cc: Gaskin, Carla; Cobb, Paula; Deal, Tori; Aschauer, Fred; Irwin, Danielle; Edwards, Lainie; Peterson, Jennifer M.; Dow, Roxane; Seeling, Martin; May, Kristina; Kosmynin, Vladimir; Stahl, Chris; Claridge, Kevin; Prado, Rebecca; Lazar, Ann; Morris, Kristine P.; Walczak, Joanna; Monty, Jamie; Waters, Lauren; Small, Parks; Bryan, Dana; Kaufmann, Greg; Flake, Marshall; Scruggs, Lewis; Murray, Sine; Carver, Jennifer; Maehl, John; Yerian, Art; Dale, Steven; Cowan, Ernest; Scott Sanders (scott.sanders@MyFWC.com); Jennifer Goff (jennifer.goff@MyFWC.com); Conservation Planning Services (fwcconservationplanningservices@myfwc.com); Estes, Jim; Lisa Gregg (lisa.gregg@MyFWC.com); 'Kellie.Youmans@MyFWC.com'; Mary Duncan (mary.duncan@MyFWC.com); Ron Mezich (ron.mezich@MyFWC.com); Robbin Trindell (robbin.trindell@MyFWC.com); 'Hight, Jason'; 'Marks, Ernest'; 'Donald.Moore@MyFWC.com'; Erin McDewitt (Erin.McDewitt@MyFWC.com)

Subject: USACE Final EIS, Port Everglades Harbor Navigation Study - State of Florida comments

Dear Mr. Brown and USACE-SAJ staff:

RE: Department of the Army, Jacksonville District Corps of Engineers – Final Feasibility Report and Environmental Impact Statement, Port Everglades Harbor Navigation Study – Fort Lauderdale, Broward County, Florida.

SAI # FL201503117224 (Reference Prior SAI # FL201306266640C)

Please find attached the Florida Department of Environmental Protection's and Florida Fish and Wildlife Conservation Commission's comments on the Final EIS for your records. We appreciate the USACE's continued cooperation and look forward to resolving the issues of concern. If you have any questions or need further assistance, please don't hesitate to contact me at (850) 245-2170 or Lauren.Milligan@dep.state.fl.us.

Sincerely yours,

Lauren P. Milligan

Lauren P. Milligan, Coordinator

Florida State Clearinghouse

Florida Department of Environmental Protection

3900 Commonwealth Blvd, M.S. 47

Tallahassee, FL 32399-3000

ph. (850) 245-2170

fax (850) 245-2190

Lauren.Milligan@dep.state.fl.us

Dep Customer Survey <<http://survey.dep.state.fl.us/?refemail=Lauren.Milligan@dep.state.fl.us>>



**Florida Fish
and Wildlife
Conservation
Commission**

Commissioners:

Richard A. Corbett
Chairman
Tampa

Brian Yablonski
Vice Chairman
Tallahassee

Ronald M. Bergeron
Fort Lauderdale

Richard Hanas
Oviedo

Aliese P. "Liesa" Priddy
Immokalee

Bo Rivard
Panama City

Charles W. Roberts III
Tallahassee

Executive Staff

Nick Wiley
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Assistant Executive Director

Jennifer Fitzwater
Chief of Staff

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32399-1600
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(800) 955-8771 (T)
(800) 955-8770 (V)

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DEP Office of
Intergov't Programs

April 17, 2015

Ms. Lauren Milligan
Office of Intergovernmental Programs
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, FL 32399-3000
Lauren.Milligan@dep.state.fl.us

RE: SAI #FL201503117224 - Department of the Army, Jacksonville District Corps of
Engineers - Final Feasibility Report and Environmental Impact Statement, Navigation
Study for Port Everglades Harbor - Fort Lauderdale, Broward County, Florida

Dear Ms. Milligan:

The Florida Fish and Wildlife Conservation Commission (FWC) has reviewed the
Final Feasibility Study (FFS) and Environmental Impact Statement (FEIS) for Navigation
Improvements in Port Everglades Harbor.

FWC is pleased to see that USACE has incorporated a number of our recommendations on the
Draft Environmental Impact Statement and provided additional information as part of the Final
EIS. We stand ready to assist the Florida Department of Environmental Protection and the
USACE in resolving any remaining issues during the Water Quality Certification/permitting
phase of this project.

The FWC appreciates the opportunity to review the Final Feasibility Study and Environmental
Impact Statement for Navigation Improvements in Port Everglades Harbor. If you need further
assistance, please do not hesitate to contact Jane Chabre either by phone at (850) 410-5367 or by
email at FWCConservationPlanningServices@MyFWC.com.

Sincerely,

Scott Sanders, Director
Office of Conservation Planning Services

ss/jdg
ENV 1-3-2
Port Everglades Harbor Navigation Study Final EIS_20813_041715

cc: Eric Summa, USACE, Eric.P.Summa@usace.army.mil
Fred Aschauer, FDEP, Fred.Aschauer@dep.state.fl.us



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

APR 17 2015

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PEP/NRM

ER 13/0465

Jeremy LaDart
Project Review Team Lead
Headquarters US Army Corps of Engineers
CECW/P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860

RE: Chief of Engineers and the Report of the District Engineer on the Port Everglades Harbor Navigation Improvement Project, FL

Dear Mr. LaDart:

The U.S. Department of the Interior (Department) has reviewed the U.S. Army Corps of Engineers (Corps), Chief of Engineers Report, and supporting documents on the Port Everglades Harbor Navigation Improvement Project.

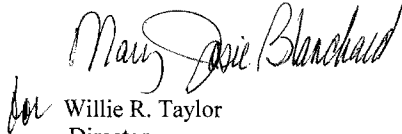
Our U.S. Fish and Wildlife Service (FWS) South Florida Ecological Service Office (SFESO) previously provided comments to the Corps St. Paul district office under the Fish and Wildlife Coordination Act (FWCA). SFESO has previously commented on the project (August 20, 2013) via a Wildlife Coordination Act Report (2007-FA-1548) and provided concurrence on the project based on implementation of specific conservation and minimization. The SFESO did not have time to complete a thorough review of the attached Final Environmental Impact Statement (FEIS) for Port Everglades Harbor Navigation Improvement. Based on the review of the FEIS, Appendix L, page 200, concerning the Corps' comments on the FWS letter dated August 20, 2013, the Corps did not provide any further comments on Departmental concurrence with the Corps' determinations in regard to the American crocodile, sea turtles, and the West Indian manatee. No further comment or discussion is necessary at this time. The FWS also provided extensive recommendations to further minimize or avoid possible adverse effects of the proposed project on fish and wildlife resources. The Department advises the Corps to include all the protective measures previously identified.

In the Wildlife Coordination Act Report, the FWS concluded that implementation of the proposed project may impact fish and wildlife resources directly and indirectly as a result of dredging and/or blasting activities. Examples of fish and wildlife resources likely to be affected include seagrass, low relief hardbottom, high relief coral reefs, rock/rubble habitat, and shallow sandy bottom habitats. It would be helpful if the term "functional unit" that is used in the Chief's Report is defined.

In addition to previous comments and recommendations, the Department continues to support the recommendations of the National Oceanic and Atmospheric Administration's National Marine Fisheries Service as it relates to all essential fish habitat issues.

We appreciate the opportunity to provide comments. If you have any questions or need further assistance related to the FWCA, please contact Jeff Howe, U.S. Fish & Wildlife Service, South Florida Ecological Services Office at 772-469-4283 or at Jeffrey_howe@fws.gov.

Sincerely,


Willie R. Taylor
Director
Office of Environmental Policy
and Compliance

bcc: PEP (File)
REOs/Atlanta
BIA, FWS, NPS, GS

Email to: Jeremy.M.LaDart@usace.army.mil and Terri.Jordan-Sellers@usace.army.mil

U.S. Department of
Homeland Security

United States
Coast Guard



Commander
United States Coast Guard
Seventh District

909 S.E. 1st Avenue
Miami, FL 33131-3050
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Phone: (305) 415-6701
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Email: John.G.Turner@uscg.mil

5080

Headquarters
U.S. Army Corps of Engineers
CECW-P (SA)
7701 Telegraph Road
Alexandria, VA 22315-3860
ATTN: Jeremy LaDart

Dear Sir:

In response to your March 16, 2015 letter concerning the Port Everglades Feasibility Report and Environmental Impact Statement, the Coast Guard offers the following comments concerning the impact to the affected Port Everglades Aids to Navigation (ATON) and Coast Guard Station Fort Lauderdale. Please note that Coast Guard attention on these issues is the responsibility of two distinct and separate programs. To maintain continued effective communication for both, appropriate points of contact for each are noted below.

Aids to Navigation: POC Mr. Gene Stratton, Seventh District Waterway Branch

Phone: (305) 415-6750

Email: allen.e.stratton@uscg.mil

Existing ATON will have to be relocated throughout the project in order to facilitate dredging as well as other project activities. The ATON relocation, whether permanent or temporary will require environmental analysis to comply with NEPA. Due to Coast Guard asset and resource limitations, it is our expectation that temporary movements of ATON will be carried out by contractors employed for the Port Everglades dredging project. The Army Corps of Engineers' (USACOE) environmental analysis should account for contractor ATON movements within the 150 meter impact area that may include dragging of ATON as well as lifting by crane. To further facilitate the project the contract proposal should clearly state the contractor's responsibility for temporary relocation of the ATON with Coast Guard approval.

The Coast Guard will provide and maintain the proper number of navigational aids for the day and night as indicated on page 88 of the EIS and will employ the most cost effective ATON to facilitate safe navigation at minimal expense to taxpayers. In certain circumstances buoy tender support for ATON relocation may be available. Early communication between our agencies is imperative to providing sufficient lead time to facilitate competing demands for buoy tender assistance in multiple ports. Contractor relocations of ATON will facilitate the project and will be verified by more readily available Coast Guard assets.

USCG Station Fort Lauderdale: POC LCDR Jeffrey Coon, Civil Engineering Unit Miami

Phone: (305) 278-6764

Email: Jeffrey.K.Coon@uscg.mil

The Port Everglades Project will have significant impacts to Coast Guard Station Fort Lauderdale and its tenant commands. The preferred alternative is described in the Coast Guard

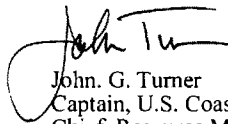
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A-2 1 2 10

Civil Engineering Unit (CEU) Miami's Facilities and Infrastructure Requirements for Station Fort Lauderdale Multi-Mission Facility dated August 2009. Coast Guard Station Fort Lauderdale and tenant units must maintain full operational capabilities throughout the construction period. I request the USACOE provide a proposal with options to meet the Coast Guard continuous operational requirement, phasing if applicable and estimated timeline. I would like to reiterate that the Coast Guard has no funding available or budgeted to construct the new facilities or address temporary facilities during the construction period. Any real property agreements, cost, environmental compliance, NEPA and permitting requirements for both temporary and permanent facilities will need to be borne by the USACOE.

The existing Coast Guard boat basin does not require maintenance or periodic dredging. It's unknown whether or not the USACOE's proposed new boat basin will require maintenance or periodic dredging due either to the new configuration, or changes made to the shoreline and channel by this project. I request the USACOE include follow on dredging if required.

Sincerely,



John. G. Turner
Captain, U.S. Coast Guard
Chief, Resource Management Division

Copy: Jacksonville District Army Corp of Engineers
CGD Seven (DPW)
CEU Miami



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 4
 ATLANTA FEDERAL CENTER
 61 FORSYTH STREET
 ATLANTA, GEORGIA 30303-8960

By Electronic Mail

April 20, 2015

Theodore A. Brown, Chief,
 Planning and Policy Division
 Directorate of Civil Works,
 Headquarters, U.S.C.E., CECW-P (SA)
 7701 Telegraph Road
 Alexandria, VA 22315-3860

SUBJECT: Port Everglades Harbor Navigation Study Final Environmental Impact Study and Feasibility Study, Broward County, Florida, CEQ No. 20150064, ERP No. COE-E00000-FL

Dear Mr. Brown:

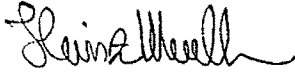
To fulfill U.S. Environmental Protection Agency's (USEPA's) Clean Air Act (CAA) §309 and National Environmental Policy Act (NEPA) §102(2)(C) responsibilities, the USEPA reviewed the above final EIS (FEIS). Under §309, USEPA is directed to review and comment publicly on the environmental impacts of Federal activities. In its review of the draft EIS (DEIS), the USEPA expressed environmental concerns over potentially significant impacts to public water supplies, water quality, aquatic ecosystems including corals and hardbottoms, mangrove wetlands, seagrasses, and the associated mitigation identified to offset these impacts.

The USEPA continues to have some environmental concerns for the project as proposed, including concerns that were raised following the review of the DEIS and that remain unaddressed in the FEIS. A summary of these unresolved environmental concerns are further discussed in an attachment to this letter (please see Attachment A). In addition, numerous environmental issues associated with the Port of Miami project and its associated dredging impacts have further highlighted the need for Best Management Practices (BMPs) for the proposed dredging operations to avoid and minimize direct and indirect (secondary) impacts; an improved assessment methodology and monitoring plan; appropriate mitigation commitments for proposed dredging activities; and adequate budgeting for monitoring (including disposal site) and mitigation. The EPA Region 4 Water Protection Division can provide more detailed technical comments to the U.S. Army Corps of Engineers (USACE) to help address some of the identified issues regarding BMPs for dredging operations, and to clarify some issues surrounding the ocean disposal of dredged material from the proposed project. In addition, for the purposes of addressing potential technical issues regarding the ocean disposal of dredged material from the proposed project prior to the USACE's Marine Protection Research and Sanctuaries Act (MPRSA) Section 103 determination, the EPA Region 4 Water Protection Division can also provide additional technical comments regarding this matter under separate cover.

In summary, the USEPA continues to have environmental concerns regarding the proposed mitigation from direct impacts to Aquatic Resources of National Importance, water quality impacts and associated indirect project impacts. The USEPA recommends that the unresolved issues identified in Attachment A be further addressed by the USACE and documented in the Chief's Report and/or Record of Decision (ROD). Additionally, we understand that USACE plans to host an interagency team to refine the monitoring plan and evaluate its effectiveness during implementation for this project. We strongly recommend the USACE convene meetings with this team within the next three or four months and also utilize this team to work through the other issues highlighted in this correspondence.

If you wish to discuss these comments provided further, please contact Beth Walls, (404-562-8309 or Walls.beth@epa.gov), or Christopher Militscher, (404-562-9512 or Militscher.chris@epa.gov), of my staff.

Sincerely,



Heinz J. Mueller, Chief
NEPA Program Office
Resource, Conservation, & Restoration Division

Attachment A

CC: Eric Suma, Chief, Environmental Branch, Planning Division, Jacksonville District Corps of Engineers w/Attachment A

Attachment A
Summary of Comments on Final EIS and Feasibility Study for Port Everglades Harbor
Navigation Improvements, Broward County, Florida
CEQ No. 20150064
April 20, 2015

The USEPA has identified a number of yet unresolved issues from the DEIS. The primary issues are the implementation of Best Management Practices (BMPs) and dredging technology; the quantification of direct impacts and quantification and mitigation of indirect impacts to coral reef and hard bottom communities; the quantification and mitigation for direct impacts to mangrove wetlands; the monitoring plan; and adequate budgeting for monitoring (including the disposal site) and mitigation. The issues are more fully described below.

Environmental Concerns Identified from the Draft Chief's Report (Report)

The USEPA is concerned that the proposed funding for the compliance with the Marine Pollution, Research and Sanctuaries Act (MPRSA), including appropriate amount of sediment testing, disposal site monitoring, compliance and site selection (if needed), appears to be inadequate. Based on our review of Paragraph 2d of the Report, the USEPA understands that the use of the Ocean Dredge Material Disposal Site (ODMDS) is expected to be contingent upon a hardbottom habitat assessment. Due to the deep and high current environment at the ODMDS, the EPA Region 4 Water Protection Division staff have estimated the cost of this assessment to be on the order of \$500,000. This cost is not reflected in the budget presented in the draft Chief's Report or FEIS/Feasibility Study.

Paragraph 2e of the Report states, "*Additional mitigation will be provided for any direct and indirect impacts caused by dredging or increased turbidity/sedimentation.*" However, the Report does not quantify or provide an estimate regarding the amount of mitigation that might be required or clearly describe how this will be determined. Moreover, the FEIS/Feasibility Study does not identify which BMPs for the dredging operations will be implemented nor were site specific impact assessments conducted with respect to whether/how such BMPs are utilized. The USEPA recommends that the USACE clarify this issue and clearly document it in the Report. The level of impacts from the dredging operation (and amount of mitigation required to offset such impacts) will be dependent on the BMPs selected to be implemented. Accordingly, the USACE should require specific BMPs as part of the dredging operation that ensure the avoidance and minimization of increased turbidity/sedimentation. The USEPA will be pleased to offer technical assistance to the USACE to ensure the implementation of appropriate BMPs during the dredging operation.

Per Paragraph 3 of the Report, the projected cost breakdown does not include the cost of monitoring or additional mitigation costs. Considering the significant amount of monitoring and mitigation expected for the proposed project, the USEPA believes that these costs should be addressed and disclosed.

Per Paragraph 6 of the Report, the unknown cost of an unknown amount of mitigation (to be determined through construction monitoring) appears to the USEPA to be a significant risk and the potential uncertainty is not reasonably accounted for in this discussion.

The Affected Environment to be Impacted

The USEPA considers mangrove, seagrass, coral reefs and hardbottom communities to be Aquatic Resources of National Importance (ARNI) and every effort should be made to avoid these impacts. Moreover, the Clean Water Act's implementing regulations establish environmental standards for the USEPA and the USACE's use in evaluating USACE feasibility studies for those activities impacting special aquatic sites,¹ (e.g., the Port Everglades harbor mangrove wetlands and submerged aquatic vegetation habitats).² The Florida Department of Environmental Protection designated the waters within the Port as Class III, acceptable for recreation, fish, and wildlife, and the waters adjacent to State Park, the Atlantic Ocean, as Outstanding Waters of the State.³

Environmental Impacts, Proposed Mitigation, Status of the Issue and Recommendations

Corals/hardbottom: One of the most significant impacts associated with dredging the outer entrance channel is the permanent removal of coral and hardbottom habitat. Within the outer reef system, the proposed action will widen the outer entrance channel an additional 3 feet, deepen the outer entrance channel from 45 to 57 feet, and extend the channel 2,200 feet further into the middle and outer reef tracts. The DEIS indicated the permanent removal of approximately 5.58 acres of the middle reef and approximately 11.09 acres of the outer reef (a total of 16.57 acres) to create the entrance channel flare for vessel safety purposes. However, the FEIS indicates the permanent removal of 14.62 acres of the middle and outer reefs, instead of 16.57 acres, to create the entrance channel flare. Clarification of this change is needed for the determination of the total direct impacts acreage amount.

The FEIS identifies the potential for up to an additional 17.13 acres of reef and nearshore hardbottom impacts with respect to the option for anchoring of cutterhead dredge equipment (See Section 4.5.10.2.2.). In order to ensure the implementation of the project avoids and minimizes the impacts to coral reefs and hardbottom communities in accordance with the Clean Water Act Section 404(b)(1) Guidelines, the USEPA recommends that the project plans include the BMPs for prohibiting the anchoring of cutterhead dredge equipment on reef and hardbottom communities.

The USEPA is concerned that the amount of mitigation required to compensate for indirect impacts to coral and hardbottom resources has been underestimated as the projected impacts do not account for the following:

- The FEIS indicates the proposed action will remove 0.07% of the middle reef (shallow colonized pavement and linear reef middle tract) and 0.52% of the outer reef (deep

¹ 40 CFR Part 230, Subpart E - Potential Impacts on Special Aquatic Sites, §§ 230.41 Wetlands and 230.43 Vegetated shallows.

² CWA, Section 404(b)(1) Guidelines.

³ FEIS (2015), Section 3.9.1, p. 152.

colonized pavement; linear reef outer tract; spur & groove reef) foraging habitat within Broward County by expansion of the outer entrance channel. However, these estimates do not include secondary impacts to the coral reef complex associated with the actual construction activity (e.g., dredging, and any blasting effects, including associated turbidity and sedimentation).

- The USEPA notes that uncertainty may continue to exist between the USACE's and the National Oceanic and Atmospheric Agency (NOAA) Fisheries' defined indirect impacts as it is unknown whether impacts will extend beyond 150 meters as assumed by the USACE. The USEPA recommends further coordination with NOAA to help narrow the uncertainties associated with indirect impacts considering the importance of the resources that may be effected by this proposed project.

The USACE proposes a hybrid mitigation plan that includes mitigation for the direct removal of approximately 14.62 acres of complex, high-profile, linear and spur/groove reef habitat through the creation of approximately 5 acres of artificial reef, along with the transplantation of 11,502 corals from the impact site to the artificial reef. A third component of the USACE hybrid mitigation plan includes the enhancement of approximately 18 acres of reef via the installation of approximately 103,000 coral colonies out-planted from coral nurseries. However, the amount of mitigation required to compensate for indirect impacts to coral and hardbottom resources may not be sufficient as the impacts are not fully defined due to the potential uncertainties with the USACE criteria.

Seagrasses: The DEIS indicates dredging will permanently remove up to 3.57 acres of mixed or monoculture Johnson's seagrass where it occurs along the south access channel and widener and impede post-dredging recolonization as the seagrasses require shallow, 13-14 foot habitats. The USEPA notes a discrepancy in defined impacts exists between the USACE and the NOAA Fisheries. The proposed project may include the removal of approximately 7.41 acres of vegetated and un-vegetated seagrass habitat (including that within the new channel footprint and resulting side slopes).

The USACE proposes mitigation for seagrass impacts to involve the use of approximately 2.4 seagrass 'functional units' at a previously permitted restoration project at West Lake Park, which is currently under design. The difference in the quantification of the direct impacts should be clearly identified in the Final Chief's Report ('Final Report') and/or Record of Decision (ROD). The USEPA recommends that the mitigation for seagrass and associated habitat for direct impacts be adequate compensation for the direct losses to these aquatic resources. Given the current status of mitigation credits needed to offset losses, the USEPA requests that the USACE fully address compensatory mitigation issues in the Report and/or ROD.

Mangrove wetlands: The USACE indicates the proposed action will impact 1.16 acres of jurisdictional mangrove wetlands located along the east side of the south access channel along J. Lloyd State Park's western shore. However, the USEPA finds there is a larger wetlands impact (8.59 acres) associated with the close linkage between the turning notch component of the proposed action to be done by the USACE and that being directly performed by the local project sponsor. Instead of the USACE removing these black and red mangrove wetlands, the project

sponsor will be removing them to allow the USACE to completely implement the proposed action.

The USACE proposes to directly mitigate only for the loss of approximately 1.16 acres of mangroves in the project footprint by providing one mangrove 'functional unit' at a previously permitted restoration project at West Lake Park, which is currently under design.

Given the cumulative impacts of all proposed components of this harbor deepening project, both by the USACE and the local sponsor, the USEPA considers the proposed mangrove wetlands mitigation to be insufficient. The USEPA recommends that the USACE include complete information with the total mitigation needed for all direct losses of mangrove wetlands planned, and provide this information in the Final Report and/or the ROD.

Water Quality and BMPs: The USACE has deferred specific BMPs for dredging operations to the proposed contractor and the State of Florida. Water quality and offshore habitat impacts from this 6-7 year project are expected to be very significant and have the potential to degrade water quality and result in secondary sedimentation impacts to ARNI. The FEIS/Feasibility Study does not provide a comprehensive analysis or specific BMP requirements that addresses avoidance and minimization of secondary sedimentation impacts and minimization of water quality impacts during the multi-year project in accordance with CWA Section 404(b)(1) Guidelines .

The USACE has proposed to follow a similar monitoring criteria and BMP implementation process that was utilized for the Port of Miami project which has proved problematic, resulting in a citizen lawsuit and a warning letter from the State of Florida. Because the USACE's proposed monitoring plan is written in the context of adaptive management, the USEPA recommends that the impacts to water quality and aquatic resources be addressed in a timely manner. The USEPA can provide the USACE with technical assistance that would help to meet the avoidance of potentially critical impacts before they become a re-occurring problem.

The USEPA does not believe that the proposed identification, monitoring and enforcement of future, project-specific BMPs to protect water quality under the Clean Water Act and ARNI is adequately detailed in the FEIS. Because required BMPs are to be determined based on the USACE dredging contractor's discretion, it is unknown what minimization efforts will be instituted for the proposed project. In addition, the USEPA strongly recommends consideration of BMPs from the Permanent International Association of Navigation Congresses' (PIANC) document "*Dredging and Port Construction around Coral Reefs*," as well as those BMPs discussed in the FEIS.

The USEPA believes a site specific assessment could have been completed and is still recommended to be completed utilizing existing USACE models (e.g., SSFATE, ERDC TN-DOER-E10) for evaluating the potential extent of sedimentation effects of the dredging operations and evaluating the relative benefits of different BMPs. This modelling with site-specific data would aid in identifying BMPs to avoid and minimize impacts, and as well, to identify the geographic extent of indirect impacts, important for designing the monitoring zone evaluation area, and for ultimately determining the appropriate amount of compensatory mitigation.

The USEPA requests that the BMPs or appropriate equipment selection be implemented through Federal contracting practices in accordance with the USACE's *Dredging and Dredged Material Disposal Engineer Manual 1110-2-5025*. The USEPA recommends that the most effective and practical BMPs should be utilized by established USACE methods. The costs associated with these BMPs should be incorporated into the project budget and be required and implemented as part of the USACE's dredging contract.

Because the estimated funding to perform adequate ODMDS criteria testing of dredged materials is not provided in the FEIS, the USEPA questions if adequate funding for the testing of materials is going to be provided based upon past experience with the District's deepening projects. The FEIS did not provide an assessment of the risks of the project's full implementation if portions of the project do not meet the ocean disposal criteria. The USEPA also questions if the USACE has underestimated the costs associated with conducting their own ODMDS site selection pursuant to MPRSA Section 103, as the draft Chief's Report and FEIS/Feasibility Study do not appear to include all costs associated with the monitoring of the proposed expanded ODMDS.

The USEPA requests that further coordination and communication with the USACE prior to the commencement of the proposed project. Based on the review of the FEIS/Feasibility Study, the USEPA would be pleased to share extensive and detailed technical comments on the proposed dredging contracting and operations. The USEPA believes these detailed technical comments can identify potential solutions to reasonably foreseeable problems with water quality and associated indirect impacts to ARNI and can be provided to the USACE under separate cover. In addition, the USEPA would also be pleased to discuss these issues with the interagency team that we understand the USACE will be leading with respect to this project.


UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office

263 13th Avenue South

St. Petersburg, Florida 33701-5505

<http://sero.nmfs.noaa.gov>

F/SER47:JK/pw

Colonel Alan Dodd, Commander
 U.S. Army Corps of Engineers, Jacksonville District
 P.O. Box 4970
 Jacksonville, Florida 32232

APR 17 2015

Dear Colonel Dodd:

NOAA's National Marine Fisheries Service (NMFS) reviewed the *Final Environmental Impact Statement, Port Everglades Harbor Navigation Study, Broward County, Florida* (EIS) dated March 6, 2015. The Final EIS recommends deepening the outer entrance channel (OEC) to -57 feet mean lower low water (MLLW), widening the OEC to 800 feet, and extending the OEC seaward 2,200 feet; deepening the main turning basin to -50 feet MLLW and extending the southeastern boundary of the turning basin 300 feet; widening and deepening the south access channel; and deepening the turning notch to -50 feet MLLW after the local sponsor dredges the same area to -42 feet MLLW.¹ Blasting may be required to remove rock substrate. Dredged material disposal would occur at an expanded Port Everglades Harbor Ocean Dredged Material Disposal Site (ODMDS).²

During the past two years, the Jacksonville District and NMFS worked diligently to complete consultations for this project under the Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), including face-to-face meetings with senior leadership from both agencies on September 5 and 6, 2013; November 18, 2013; and April 17 and 18, 2014. These consultations were completed during 2014, and their primary focus was offsetting impacts to coral reef and hardbottom, which are designated critical habitat for corals under the ESA and a Habitat Area of Particular Concern for the snapper-grouper fishery under the Magnuson-Stevens Act. Appendix E-3 of the Final EIS describes this mitigation plan.

Comments on the Final EIS

By letter dated August 13, 2013, NMFS provided the Jacksonville District with 14 essential fish habitat (EFH) recommendations after reviewing the Draft EIS. The Jacksonville District provided its response to those EFH conservation recommendations in Appendix H of the Final EIS, dated August 14, 2014. NMFS will use the EFH conservation recommendations and the District's response as a framework for commenting on the Final EIS. The responses provided for EFH conservation recommendations No. 5 (monitoring of blasting), No. 9 (evaluation of the OEC as a sink for larval corals), No. 13 (updates to cumulative impact assessment), and No. 14

¹ By letter dated April 2, 2014, NMFS responded to public notice SAJ-1984-04146 for the dredging by the local sponsor.

² The U.S. Environmental Protection Agency is the lead federal agency for expanding the Port Everglades Harbor ODMDS and developed an Environmental Assessment for the expansion separate from this Final EIS for the Port Everglades Harbor Navigation Study.



(best management practices to avoid and minimize impacts) require no further comment from NMFS.

Biological Monitoring

EFH conservation recommendations No. 1 (mitigation for indirect impacts to coral reef below the dredging depth) and No. 3 (environmental monitoring plan) and Terms and Conditions Nos. 5, 6, and 7 of the Biological Opinion issued by NMFS on March 7, 2014, address monitoring for impacts beyond those anticipated in the Final EIS. Two of the potential causes of those impacts are rubble rolling down slope from the dredge cut colliding with coral colonies and sediments suspended by the dredge or spilled from transfer barges smothering coral colonies. As the project moves forward, the Jacksonville District will work with NMFS, the U.S. Environmental Protection Agency, and State of Florida natural resource agencies to finalize an environmental monitoring plan. Section 2.7.2 of the Final EIS indicates continued development and refinement of the plan will occur during the Preconstruction Engineering and Design (PED) phase after the U.S. Congress authorizes the Port Everglades expansion project.

Given the high importance of the monitoring and adaptive management to successful implementation of the agreements NMFS and the Jacksonville District reached during the ESA and Magnuson-Stevens Act consultations, NMFS offers to lead the interagency coordination needed to finalize the environmental monitoring plan. Both NMFS and the Jacksonville District have committed to having the Port Everglades monitoring reflect lessons learned from recent monitoring of the Port of Miami expansion project. The environmental monitoring plan in Appendix E-6³ of the Final EIS largely reflects experiences prior to the Port of Miami expansion. During January 2014, NMFS provided the Jacksonville District with an alternate plan developed in close coordination with the Florida Department of Environmental Protection. On February 13, 2015, NMFS provided the Jacksonville District with a report entitled, *Port of Miami Acropora cervicornis Relocation Report*, which included summaries of observations by NOAA divers examining the severity and spatial extent of impacts to coral colonies from the Port of Miami dredging. These observations include methods for detecting and relocating stressed corals in the field before the colonies succumb to chronic, severe sedimentation. Together, this alternate monitoring plan and relocation report serve as a viable base for incorporating lessons learned regarding the severity and spatial extent of sedimentation from dredging operations in coral reef environments.

Compensatory Mitigation for Coral Reef Impacts

As already noted, the Jacksonville District and NMFS worked diligently to develop a coral reef compensatory mitigation plan. The expected impacts to coral habitat are 17.51 acres, including 10.58 acres of high quality outer reef not impacted from past dredging and 2.90 acres of coral outside the dredging footprint impacted indirectly by sedimentation. To offset these impacts, the Jacksonville District will: (1) create five acres of hardbottom habitat by placing boulders on the seafloor, (2) transplant approximately 11,500 corals rescued from the dredge footprint onto 2.03 acres of those boulders, and (3) enhance approximately 18.93 acres of coral reef with approximately 103,200 nursery raised corals. A majority of the outplanted coral will be ESA-

³ While Appendix E-6 of the Final EIS lists NMFS as a co-author of the monitoring plan, NMFS only contributed to Section 4.7 (pages 20 to 23) and the Biological Opinion requires further development and refinement of the environmental monitoring plan. Accordingly, NMFS requests it not be listed as co-author of the current version of the monitoring plan.

protected staghorn corals (*Acropora cervicornis*) because this species performs well in nursery settings and its fast growth and three-dimensional structure promote settlement and growth by other coral reef organisms. This mitigation effort addresses EFH conservation recommendations No. 1 (mitigation for direct impacts to coral reef), No. 2 (mitigation for impacts to coral reef resulting from anchoring), No. 4 (mitigation for indirect impacts to coral reef from sedimentation and turbidity), No. 6 (mitigation amounts are determined using Habitat Equivalency Analysis), and No. 7 (compensatory mitigation for coral, coral reef, and hardbottom impacts). Regarding the Habitat Equivalency Analysis, NMFS appreciates the Jacksonville District noting in Section 4.6.1.4 of Appendix E-3 of the Final EIS that NOAA and U.S. Army Corps of Engineer policies differ on use of discount rates in Habitat Equivalency Analysis and these differences did not require resolution to complete the Port Everglades mitigation plan.

Coral Relocation

EFH conservation recommendation No. 8 addresses relocation of corals from the dredging footprint. While the Final EIS commits the Jacksonville District to relocating approximately 11,500 corals, many times that amount will not be relocated because the District views the relocation to be impracticable. In Section 2.7.2 of the Final EIS, the Jacksonville District indicates development of a final coral relocation plan will occur during the PED phase and that plan will reflect the best information available at that time. NMFS appreciates the District's commitment to consider new information to guide relocation of corals, particularly the numerous smaller colonies in the project area whose relocation would increase the likelihood of the boulder portion of the mitigation succeeding. NMFS also recommends planning during the PED phase closely evaluate potential efficiencies from integrating the coral relocation with operation of the coral nurseries because these project components have similar equipment and personnel needs. NMFS is prepared to work closely with the Jacksonville District on this integration and on development of performance standards, monitoring protocols, and schedules for the coral relocation.

Seagrass Impacts and Mitigation

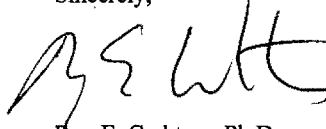
The Jacksonville District notes in the Final EIS it is unable to address fully at this time the EFH conservation recommendations pertaining to the assessment and mitigation for seagrass impacts; i.e., EFH conservation recommendation No. 10 (direct impacts to seagrass habitat), No. 11 (indirect impacts to seagrass habitat), and No. 12 (compensatory mitigation for seagrass habitat impacts). Appendix E-1 of the Final EIS indicates the project would directly impact 4.21 acres of seagrass and an additional 3.20 acres of seagrass habitat⁴ would be mapped prior to construction to determine if mitigation for up to 7.41 acres of seagrass habitat is needed. Section 4.1 of Appendix E-1 describes the District's planned approach for addressing seagrass impacts. While NMFS continues to recommend the Jacksonville District include all previously mapped seagrass habitat in the impact assessment and mitigation planning, NMFS appreciates the District's commitment to consider during PED phase planning additional information on the ecological services of seagrass beds that naturally contract and expand. An important part of the evaluation will be post-construction surveys showing exact locations of past dredging events.

⁴ The seagrass species present (i.e., *Halophila decipiens* and *Halodule wrightii*) exhibit seasonal growth tied to a moveable seed bank. This 3.20-acre area has had seagrass present during some surveys but not during all surveys.

Closing

Thank you for the opportunity to provide these comments. The NMFS looks forward to further cooperation with the Jacksonville District on the Port Everglades project to ensure the conservation of the nation's marine resources. Please direct related questions or comments regarding the ESA consultation to the attention of Ms. Kelly Logan at 727-460-9258 or Kel.Logan@noaa.gov. Please direct related questions or comments regarding the EFH consultation to the attention of Ms. Jocelyn Karazsia at 561-249-1925 or Jocelyn.Karazsia@noaa.gov.

Sincerely,



Roy E. Crabtree, Ph.D.
Regional Administrator

cc: USACE - Jason Spinning
USFWS - Jeffrey Howe
FWCC - Lisa Gregg
FDEP - Lainie Edwards
EPA - Ron Miedema, Beth Walls
SAFMC - Roger Pugliese
PPI-NEPA (ppi.nepa@noaa.gov)
F - Leathery
F/SER3 - Logan
F/SER47 - Karazsia

From: [Lin, Jeffrey P HQ](#)
To: [Stratton, Terry D SAD](#); [Perez, Cynthia B SAJ](#); [Jordan-Sellers, Terri SAJ](#); [Matusiak, Mark HQ02](#)
Subject: FW: Port Everglades, FL (UNCLASSIFIED)
Date: Thursday, April 30, 2015 11:02:14 AM
Attachments: [Port Everglades Dft Chiefs Rpt.docx](#)
Importance: High

Classification: UNCLASSIFIED
 Caveats: NONE

FYSA, response from FHWA

Jeff Lin
 Planner
 USACE SAD-RIT
 Office: (202) 761-4552
 Cell: (202) 870-7385

-----Original Message-----

From: Bee, Patricia L HQ02
 Sent: Thursday, April 30, 2015 10:38 AM
 To: LaDart, Jeremy HQ; Lin, Jeffrey P HQ
 Subject: Port Everglades, FL (UNCLASSIFIED)
 Importance: High

Classification: UNCLASSIFIED
 Caveats: NONE

FHWA response.

-----Original Message-----

From: [Luis D.Lopez@dot.gov](mailto:Luis.D.Lopez@dot.gov) [<mailto:Luis.D.Lopez@dot.gov>]
 Sent: Wednesday, April 29, 2015 1:45 PM
 To: Bee, Patricia L HQ02
 Cc: Ann.Broadwell@dot.state.fl.us
 Subject: [EXTERNAL] FW: Port Everglades, FL (UNCLASSIFIED)
 Importance: High

Good afternoon Trish,

The FHWA doesn't have any comments at this point. We highly recommend any additional coordination with the Florida Department of Transportation, District 4, and the Broward Metropolitan Planning Organization. These organizations have accurate information about upcoming transportation projects, therefore would be able to provide a better response to your request.

Cordially,

Luis D. López-Rivera, P.E.
 Environmental Specialist
 Federal Highway Administration | Florida, Puerto Rico and US Virgin Islands
 United States Department of Transportation
 400 W. Washington Street, Room 4200| Orlando, FL 32801
 Dir: 407-867-6420

From: Virginia.Lane@faa.gov
To: Jordan-Sellers_Terri_SAI
Cc: Rebecca.Henry@faa.gov; Bart.Vernace@FAA.GOV; Jim.Castleberry@faa.gov; Juan.Brown@faa.gov; Pablo.Auffant@faa.gov
Subject: [EXTERNAL] USACE Final EIS Port Everglades Feasibility Project Final Feasibility Report (FR) and Environmental Impact Statement (FEIS)
Date: Wednesday, April 29, 2015 4:46:57 PM

Mrs. Jordan-Sellers:

We have reviewed the FEIS for the Port Everglades Feasibility Project. We note that there is no discussion of the potential effects to the utility of the Fort Lauderdale-Hollywood International Airport (FLL) from the height of the Post-Panamax vessels that will berth at the new facilities. Please address this in the FEIS. Thank you.

Virginia Lane

Environmental Protection Specialist

FAA Orlando ADO

(407) 812-6331 Ext. 129

From: [Lin, Jeffrey P HQ](#)
To: [Perez, Cynthia B SAJ](#); [Jordan-Sellers, Terri SAJ](#); [Stratton, Terry D SAD](#)
Subject: FW: Port Evergades, FL (UNCLASSIFIED)
Date: Thursday, April 30, 2015 11:05:05 AM
Importance: High

Classification: UNCLASSIFIED
 Caveats: NONE

FYSA

Jeff Lin
 Planner
 USACE SAD-RIT
 Office: (202) 761-4552
 Cell: (202) 870-7385

-----Original Message-----

From: Bee, Patricia L HQ02
 Sent: Thursday, April 30, 2015 10:46 AM
 To: LaDart, Jeremy HQ; Lin, Jeffrey P HQ
 Subject: FW: Port Evergades, FL (UNCLASSIFIED)
 Importance: High

Classification: UNCLASSIFIED
 Caveats: NONE

FEMA response...

-----Original Message-----

From: Madson, Stephanie [<mailto:Stephanie.Madson@fema.dhs.gov>]
 Sent: Thursday, April 30, 2015 6:40 AM
 To: Bee, Patricia L HQ02
 Cc: Everfield, Stephanie; FEMA-R4EHP
 Subject: [EXTERNAL] RE: Port Evergades, FL (UNCLASSIFIED)

Thank you Patricia.

I am out of the office this week. Will a response early next week be sufficient? I believe our reviewer received your report and had no comments, but this will allow me time to confirm.

Stephanie Madson, Ph.D.
 Regional Environmental Officer |DHS/FEMA Region IV | 404-561-9503

Classification: UNCLASSIFIED
 Caveats: NONE

Classification: UNCLASSIFIED
 Caveats: NONE

From: [Lin, Jeffrey P HQ](#)
To: [Jordan-Sellers, Terri SAJ](#); [Stratton, Terry D SAD](#); [Perez, Cynthia B SAJ](#)
Subject: FW: Port Everglades, FL (UNCLASSIFIED)
Date: Thursday, April 30, 2015 11:05:31 AM

Classification: UNCLASSIFIED
 Caveats: NONE

FYSA

Jeff Lin
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 USACE SAD-RIT
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 Cell: (202) 870-7385

-----Original Message-----

From: Bee, Patricia L HQ02
 Sent: Thursday, April 30, 2015 10:47 AM
 To: LaDart, Jeremy HQ; Lin, Jeffrey P HQ
 Subject: FW: Port Everglades, FL (UNCLASSIFIED)

Classification: UNCLASSIFIED
 Caveats: NONE

NRCS response.

-----Original Message-----

From: Moore, Rosalind - NRCS, Gainesville, FL [<mailto:Rosalind.Moore@fl.usda.gov>]
 Sent: Wednesday, April 29, 2015 3:41 PM
 To: Bee, Patricia L HQ02
 Cc: Morgan, Russell - NRCS, Gainesville, FL
 Subject: [EXTERNAL] RE: Port Everglades, FL (UNCLASSIFIED)

Hi Trish,

NRCS-Florida has no comments on the Final Feasibility Report and Environmental Impact Statement for the Port Everglades Harbor Navigation Study in Broward County, Florida. Thank you for contacting us for comment, and let me know if you have any questions or concerns on this topic.

Rosalind Moore
 Wetland Conservation Specialist
 Environmental Compliance Specialist
 USDA NRCS Florida
 352-338-9582

Classification: UNCLASSIFIED
 Caveats: NONE

Classification: UNCLASSIFIED
 Caveats: NONE



BERTHA W. HENRY, County Administrator

115 S. Andrews Avenue, Room 409 • Fort Lauderdale, Florida 33301 • 954-357-7362 • FAX 954-357-7360

April 16, 2015

Alan M. Dodd, U.S Army, District Commander
U.S. Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, FL 32207

**RE: Navigation Study for Port Everglades Harbor
FINAL Feasibility Investigation Report and
Environmental Impact Statement, Broward County, Florida
December 2014**

Dear Colonel Dodd:

On behalf of Broward County, I am pleased to provide our full endorsement of the project described in the documents listed above. I also note with appreciation that these documents incorporated many of the changes we requested in our comments of August 12, 2013 on the draft versions of these reports. We appreciate the opportunity to review, provide input, and serve as the non-Federal sponsor on this critically significant project for Broward County, the South Florida Region, the State of Florida, and the Nation.

In reviewing the documents it was evident that the U.S. Army Corps of Engineers (ACOE) conducted a thorough analysis of all reasonable alternatives and has recommended the plan that maximizes national and regional objectives. It was also evident that significant improvements were made to the June 2013 Draft Feasibility Report and Environmental Impact Statement. Most notably, the economic reanalysis conducted since then shows an even more robust benefit-cost ratio, and the modifications to the project mitigation plan reflect a strong cooperative effort with NOAA/NMFS to select a sound plan to mitigate for unavoidable impacts to hardbottom and reef habitats. These changes have met the goal of adding value to the overall project and have also satisfied the intent of NEPA by incorporating improvements in the project based on public and agency input received during the public review process.

In our review, we did note, that the Mitigation Plan for the project continues to make reference to the proposed use of offshore borrow areas for the location of reef mitigation. We believe it is important to clarify that Borrow Areas 1 and 2 (as shown in Figure 8, page 43) remain viable as a source of sand for future Broward County beach nourishment projects and should be excluded as potential sites from the Port Mitigation Plan. Additionally, as the non-Federal sponsor for this critical regional project, we would like to formally request inclusion of Broward County's participation in the various review committees discussed in the plan. Broward County looks

forward to our continued partnership as this project moves toward completion of the feasibility phase, culminating with the Chief of Engineers Report, commencement of the preconstruction, engineering and design (PED) phase and Congressional authorization. Please contact David Anderton, Assistant Director of Port Everglades, at 954-468-0144 if you have any questions or require additional information.

Sincerely,



Bertha Henry
County Administrator

Cc: Steve Cernak, BC Port Everglades Department, Chief Executive/Port Director
Glenn Wiltshire, BC Port Everglades Department, Deputy Director
David Anderton, BC Port Everglades Department, Assistant Director
Cynthia Chambers, BC Environmental Protection and Growth Management
Department, Director
Tim Murphy, ACOE
Jerry Scarborough, ACOE
Cynthia Perez, ACOE

Palm Beach County REEF RESCUE

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April 20, 2015

U.S. Army Corps of Engineers
701 San Marco Blvd.,
Jacksonville, FL 32207

Via email: Terri.Jordan-Sellers@usace.army.mil, eric.p.summa@usace.army.mil

**Re: Comments - Environmental Impact Statement Port Everglades Expansion
Feasibility Study and Final EIS**

The purpose of this correspondence is to provide comments pursuant to the Port Everglades Expansion Feasibility Study and Final EIS, Broward County, Florida. Impacts observed during the Miami Phase III Federal Channel Expansion Permit #0305721-001-BI (Port of Miami dredging) raise significant concerns regarding the ability of the turbidity monitoring methodologies, employed in Miami and propose for Port Everglades, to accurately assess project related silt generation and to adequately protect the resource.

A review of turbidity monitoring data reported from the Miami project show turbidity values measured downcurrent of the dredge "Texas" to generally be in compliance with the permit required 29 NTU above background outside of a 150 meter mixing zone. However, in-water inspections performed by the Florida Department of Environmental Protection⁽¹⁾, the Miami-Dade Department of Environmental Resources Management⁽²⁾ and others show significant accumulations of project related silt smothering corals and Acropora Critical Habitat well beyond the anticipated project impact area. One can only conclude that the project turbidity monitoring protocols employed failed to capture the silt generating events which negatively impacted the benthic communities. Assuming the turbidity samples were collected and analyzed in compliance with permit requirements the documented habitat degradation and coral mortality demonstrate an alternative turbidity monitoring methodology needs to be developed to protect the significantly more abundant and diverse corals in the vicinity of the Port Everglades project.

The infrequently collected discreet, grab turbidity sampling performed in Miami is likely a contributing factor for the failure of that projects methodology to detect the significant silt contribution to the receiving environment. The responsible party must be required to propose alternative turbidity monitoring methodologies that are capable of realistically assessing silt and sediment discharges to the receiving environment. Such proposed

To monitor, preserve and protect the coral reef ecosystem of South Florida through research, education and public awareness

Palm Beach County REEF RESCUE

monitoring needs to account for the dynamic tidal flux in the Port Everglades area that is capable of transporting and depositing detrimental accumulations of sediments at the dredge site, project area and beyond. Propose turbidity sampling methodologies should investigate alternative approaches such as, but not limited to; continuous monitoring, entire water column monitoring employing Acoustical Current Doppler Profilers (ACDP), real-time and archivable aerial assessment photography, real-time and archivable Remotely Operated Vehicle (ROV) photography, continuous peristaltic sample collection, benthic data loggers with real-time feed. These are just a few of many additional monitoring techniques that are far superior to the presently employed turbidity monitoring that is more suited for assessing impacts from beach renourishment projects where an easily discernable, compact turbidity plume slowly migrates in shallow water influenced by long-shore currents. Dredging in an inlets tidal flow is a significantly different environment demanding appropriate tools to assess turbidity generation and sediment transport.

The employment of more reliable alternative turbidity monitoring techniques will likely add to up-front project costs. However, responsible sediment management will help avoid 10's of millions of dollars in post-project mitigation costs that will no doubt arise if the Port Everglades dredging repeats the destruction to coral reef habitat already documented to have occurred at the Miami Deep Dredge project.

Sincerely,
Ed Tichenor,
Executive Director,
Palm Beach County Reef Rescue

1) Florida Department of Environmental Protection. 18 August 2014. "Field notes on impact assessment in Miami Harbor Phase III Federal Channel Expansion Permit #0305721-001-B1."

2) Miami-Dade Department of Regulatory and Economic Resources, Division of Environmental Resources Management. July 2014. "US Army Corp [sic] of Engineer's Port of Miami Channel Deepening Project: Report on Opportunistic Hardbottom/Reef Inspections."



April 20, 2015

Terri Jordan-Sellers, Regional Technical Specialist
U.S. Army Corps of Engineers
Jacksonville District
701 San Marco Boulevard
Jacksonville, FL 32207

Via Email: Terri.Jordan-Sellers@usace.army.mil

Re: Port Everglades Feasibility Project, Final Feasibility Report and Environmental Impact Statement

Dear Mrs. Jordan-Sellers:

I am writing on behalf of the Diving Equipment and Marketing Association (DEMA) and the many divers and dive-related businesses in South Florida, regarding the above referenced project.

The Diving Equipment and Marketing Association (DEMA) is a non-profit trade association based in San Diego California, representing the business and consumer interests of the recreational scuba and snorkel diving industries all over the world. DEMA's mission is to promote sustainable growth in safe recreational scuba diving and snorkeling while protecting the underwater environment.

DEMA is highly concerned with the Port Everglades Dredging project and its potential impact on the local Diving Industry in South Florida. In order to provide a greater understanding of the Diving Industry's concerns as well as how diving contributes to the South Florida economy, herein I describe the diving consumer, and the Diving Industry's economic impact due to the presence in South Florida of both natural and artificial reefs.

How Important is the Diving Industry in South Florida?

Florida is second only to California in the number of new diver certifications in the US each year (See EXHIBIT E-Open Water Certifications 2005 to 2014) and South Florida is one of the most important diving regions in the world. The Diving Industry in South Florida depends on sustainable interaction with the marine environment for its very existence, and is aware of the need for long term sustainability of these resources for all citizens of the U.S. The Industry is keenly aware of this dependence for diving and for all citizens, and as a result is dedicated to a healthy marine environment and protection of submerged cultural resources. For these reasons DEMA's mission statement includes an express acknowledgment of the need for environmental protection.

Scuba divers and snorkelers are stewards of an environment that is unique, and upon which they depend for recreation and study, and all scuba divers today are educated to maintain proper buoyancy and positioning configuration while diving that helps to prevent accidental damage to natural marine and other aquatic resources. Many divers have sought additional training above their initial diving “certification,” in order to better understand how they can protect the aquatic environment, and many have sought and received training to better understand the complex nature of coral reef communities, fishery resources and how to contribute to the knowledge base needed to monitor and protect these environments. With their first-hand observation of these protected areas, divers can encourage others to protect these resources.

South Florida: The Economic Impact of the Diving Industry

Recreational scuba diving and snorkeling contribute about \$11 billion to the US gross domestic product. In Florida, largely centered in South Florida, snorkeling accounts for about 4.24 million visitor-days per year while scuba diving accounts for about 4.56 million visitor-days annually. The combination of snorkeling and scuba diving creates about 26,000 full-time equivalent tourism-related jobs in Florida each year.

Visitors participating in recreational scuba diving and snorkeling contribute about \$904.4 million to the Florida economy each year. Florida residents learning to dive in the state annually contribute an additional \$20 million in sales of equipment, education and travel to the local economies in the state.

The most active divers in the U.S. today participate in diving activities in many areas of the country, and Florida is the number one US-based diving destination for divers living in the United States (See EXHIBIT C– Percentage of Active Divers from the US Diving in Florida). Today’s most active divers fit the following profile:

- Participant’s Age: Mean: 33, Median: 30
- Head of Household: Mean Age: 53
- Participant’s Gender: Males: 65%, Females 35%
- Annual Household Income: 64.4% make between \$100,000 & \$150,000
- Occupation: 53.6% are Managerial/Technical/Professional
- Education: 59.2% completed college or grad school
- Home Ownership: 91.9% own their home
- Marital Status: 75.9% are married
- Presence and age of children in Household: 23.7% have children between 11 and 17 years of age

(See EXHIBIT D–Demographic Profile of Recreational Diver):

Recreational scuba divers and snorkelers contribute to tourism revenue by purchasing day-long and more extended dive trips originating in South Florida, diving equipment and other diving-related items, and by spending on hotels, food, air and ground transportation, as well as other secondary items while in South Florida to dive. Divers contribute to sales tax revenues for local counties, municipalities and the state, and to federal and state tax revenues through the creation of diving tourism-related jobs.

While much of Florida has natural reefs, artificial reefs also contribute to the local economy. For example, estimates from research submitted by The University of West Florida indicate there are more than 4,200 chartered dive trips taken to the artificial reef/aircraft carrier Oriskany off of Pensacola Florida annually, carrying divers from all over the world. Annual revenue generated from visitors traveling from Escambia county Florida and Baldwin county Alabama alone is estimated at \$2.2 million, and dive-related expenditures drive an economic impact of \$3.6 million in local output and additional jobs while generating \$1.4 million in local income. The Fort Lauderdale area immediately adjacent to Port Everglades boasts more than 65 artificial reef structures.

Diving is actively conducted under a variety of conditions and in a variety of locations around the state of Florida. In South Florida, including the area near Port Everglades, divers have access to both natural and artificial reefs.

South Florida Tourism: Natural Reefs

Natural coral reefs contribute some \$375 billion in goods and services to the world and according to a 2000 report from the World Resources Institute, coral reefs in the Caribbean (including South Florida) alone contribute \$2.1 billion for dive tourism. Recreational divers, snorkelers, fishers, and others are attracted by the presence and accessibility of coral reefs. In Florida, coral reefs provide more than 18.4 million visitor days of recreational use (Source: *Coral Reef Ecosystems Value: Enhancing Resilient Communities* presented during Capitol Hill Ocean Week, June 4, 2008, Billy D. Causey, Ph.D., Regional Director, Southeast Region, National Marine Sanctuaries - See EXHIBIT A - Florida Coral Reefs Recreational Use).

According to the *Socioeconomic Study of Reefs in Southeast Florida* (October 2001, Florida Fish and Wildlife Conservation Commission, National Oceanic and Atmospheric Administration, in association with Florida State University), reef-related expenditures generated over \$4.395 billion in sales in Palm Beach, Broward, Miami-Dade and Monroe Counties combined, during the 12-month period from June 2000 to May 2001. These sales resulted in generating \$2.047 billion in income to Palm Beach, Broward, Miami-Dade, and Monroe County residents during the same time period. According to the same study, during the same period, reef-related expenditures provided 71,300 jobs in these four southeast Florida counties. Two-thirds of the economic contribution was associated with natural reef-related expenditures in Miami-Dade and Palm Beach Counties, seventy five percent of the economic contribution was associated with natural reefs in Monroe County, and about fifty percent was associated with natural reefs in Broward County (See EXHIBIT B – Economic Contribution of Reef-Related Expenditures in Four Florida Counties).

In the presentation, *Taking the Heat in Tropical Seas* (Rodney V. Salm, PhD for Capitol Hill Ocean Week, June 4, 2008) the average value of coral reefs was estimated to be about \$813,000/sq. mile for recreational use, food, jobs and other services combined.

South Florida Tourism: Artificial Reefs

Artificial Reefs, including those close to the dredging project at Port Everglades, have been shown to contribute significantly to local economies. For example, economic contribution estimates from the sinking of the ex-USS Vandenberg off of Key West

Florida range from \$5.6 to \$16.1 million per year. The expenditures of divers visiting artificial reefs in Florida are estimated at more than \$131 for every \$1 dollar of local and state investment (Source: Jon Dodrill, Florida Fish and Wildlife Conservation Commission). Diving and marine tourism are so influential to the economy that in 2008 the State of Florida legislation which established a matching grant program titled Ships to Reefs (S. 379.249, Fla. Stat.; Ch. 2008-100; SB 432). The program authorizes the sinking of decommissioned U.S. Military vessels specially cleaned and prepared to increase marine habitat and for use by recreational scuba divers and fishers.

It should be clear that recreational diving and snorkeling contribute significantly to tourism-related businesses, in addition to the revenue contribution from diving activities derived directly by diving-related businesses. The Recreational Diving Industry is dependent on the availability of quality diving and snorkeling sites, and this dependency extends to hotels, restaurants, marinas and other businesses associated with diving activities.

The Potential Impact of the Port Everglades Project on the Diving Industry

DEMA is highly concerned about the Port Everglades Dredging Project, its effect on the local underwater environment and the resultant impact on the South Florida Diving Industry.

While we understand that while some detrimental impacts from this dredging project are inevitable and will be permitted due to the physical nature of dredging, we strongly believe that a well-designed and well-managed effort may not significantly impact a large area. However, “well-designed” and “well-managed” must be mandatory.

Our concern stems from the fact that the Final Environmental Impact Statement indicates that the “turbidity and sedimentation effects associated with the Port Everglades Navigation Project Recommended Plan (will be)...similar to those seen at the ongoing Miami Harbor expansion project.” Further, the Environmental Impact Statement indicates that, “the material disposed in the Port of Miami project is the same type of material being dredged at Port Everglades...and should result in similar conditions regarding associated sedimentation and turbidity generated by the material.”

According to Dr. Richard Dodge, Executive Director of the National Coral Reef Institute and Dean of the Nova Southeastern University Oceanographic Center (See EXHIBIT F – Correspondence, Dr. Richard Dodge), it appears that the Port of Miami project has caused negative effects on the environment (with potential negative impacts on the local diving industry) and DEMA is deeply concerned that the Port Everglades project may encounter or create similar issues. Should damage to the natural and artificial reef structures in the Port Everglades area be similar to the damage already found as a result of the Port of Miami project, significant environmental and economic consequences would occur. The loss of revenue to hotels, restaurants, marinas, tourist-related small businesses, as well as to diving businesses could result in the loss of thousands of jobs, and millions in tax revenues to the state of Florida.

Suggestions for the Port Everglades Dredging Project

Prior to beginning the Port Everglades Dredging project DEMA strongly urges the Army Corps of Engineers to incorporate the lessons learned from the Port of Miami project and ensure that the Port Everglades project meets with the requirements to avoid direct and indirect damage to the underwater environment. The information from the Port of Miami project should be incorporated into the Port Everglades Final Environmental Impact Statement to help ensure the best design and management of this issue. In addition, incremental monitoring activities should be mandatory, if the project is implemented, to ascertain if the same impacts discovered during the Port of Miami project are occurring. Diving related professionals are available to assist the Army Corp in making these assessments.

Thank you for your consideration,

A handwritten signature in black ink, appearing to read "Tom Ingram", with a stylized, flowing script.

Tom Ingram
Executive Director

EXHIBITS**EXHIBIT A – Florida Coral Reefs Recreational Use**

Recreational Use of Coral Reefs in Florida	
Snorkeling	4.24 million visitor days
Scuba Diving	4.56 million visitor days
Fishing	9.72 million visitor days
Glass-bottom Boats	0.12 million visitor days
TOTAL	18.64 million visitor days
Ref: Dr. Vernon R. Leeworthy, Chief Economist, Office of National Marine Sanctuaries	

EXHIBIT B – Economic Contribution of Reef-Related Expenditures in Four Southeast Florida Counties

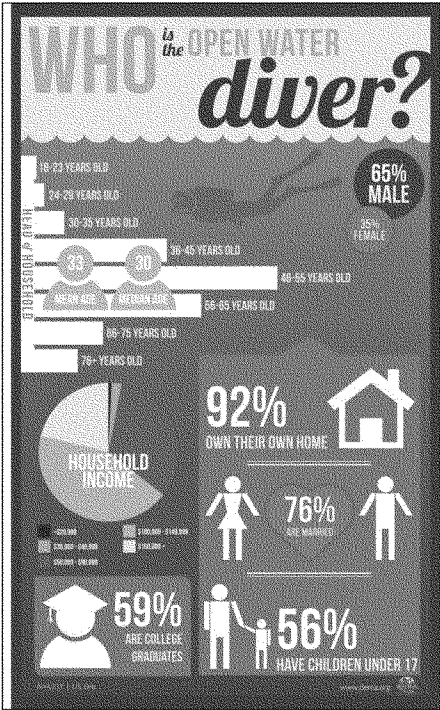
Table ES-4 Economic Contribution of Reef-Related Expenditures to Each County¹ June 2000 to May 2001 – Residents and Visitors				
Type of Economic Contribution	Palm Beach County	Broward County	Miami-Dade County	Monroe County
Sales – All Reefs (in millions of 2000 dollars)	\$505	\$2,069	\$1,297	\$490
Artificial Reefs	\$148	\$961	\$419	\$127
Natural Reefs	\$357	\$1,108	\$878	\$363
Income – All Reefs (in millions of 2000 dollars)	\$194	\$1,049	\$614	\$139
Artificial Reefs	\$52	\$502	\$195	\$33
Natural Reefs	\$142	\$547	\$419	\$106
Employment – All Reefs (number of full- and part-time jobs)	6,300	36,000	19,000	10,000
Artificial Reefs	1,800	17,000	6,000	2,000
Natural Reefs	4,500	19,000	13,000	8,000

Source: *Socioeconomic Study of Reefs in Southeast Florida*, Johns, Leeworthy, Bell, Bonn

EXHIBIT C – Percentage of Active Divers from the US Diving in Florida

In the LAST 12 months WHERE did you go on a day dive trip (WITHOUT AN OVERNIGHT STAY) in the US/US Territories (whether on a dive boat, land-based dive location or other)? N=6,134	
Answer Options	Response Percent
Florida	23.3%
California	14.5%
Hawaii	7.0%
Texas	5.8%
Pennsylvania	5.0%
Source: <i>Diver Study 2014</i> , Diving Equipment and Marketing Association	

EXHIBIT D-Demographic Profile of Recreational Diver



Profile of **Open Water-level*** Divers in the US

- Participant's Age: Mean: 33, Median: 30
- Head of Household: Mean Age: 53
- Participant's Gender: Males: 65%, Females 35%
- Annual Household Income: 64.4% make between \$100,000 & \$150,000
- Occupation: 53.6% are Managerial/Technical/Professional
- Education: 59.2% completed college or grad school
- Home Ownership: 91.9% own their home
- Marital Status: 75.9% are married
- Presence and age of children: 23.7% have kids between 11 and 17

*Open Water Divers are entry-level divers

(Source: Diving Equipment and Marketing Association 2014 Diver Study)

EXHIBIT E – Open Water (Entry level) Diver Certifications 2005 to 2014

Open Water Certification Statistics: Top Diving States in the US 2005 to 2014

State by State 2005-2013	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2005-2014	% By State
CALIFORNIA	22,572	22,329	21,429	20,464	18,270	18,552	18,765	19,727	20,267	20,451	202,846	13.90%
FLORIDA	13,688	15,055	14,493	13,933	13,377	13,661	15,226	15,351	13,849	13,793	142,426	9.76%
TEXAS	10,307	11,058	11,125	11,429	10,741	10,966	11,930	11,545	11,449	11,565	112,115	7.68%
NEW YORK	7,480	7,481	7,678	7,691	7,105	7,793	7,314	6,838	7,010	6,926	73,316	5.02%
VIRGINIA/MARYLAND/D.C	7,783	7,597	7,613	7,367	7,081	7,895	7,789	7,489	7,284	6,871	74,779	5.01%

Source: Diving Equipment and Marketing Association Certification Census

EXHIBIT F – Correspondence, Dr. Richard Dodge

From: Richard Dodge [<mailto:dodge@nova.edu>]

Sent: Saturday, April 11, 2015 11:07 AM

To: Tom Ingram

Cc: David Gilliam; Brian Walker

Subject: RE: Port Everglades Dredging Project

Dear Tom,

Thanks for your email.

We too are also concerned, and as an academic institution, we are trying to do our best to be able to work with and advise the relevant agencies on how to keep the dredging impacts as minimal as possible and to offer to help them design and implement the best mitigation efforts to compensate for permitted impacts. NOAA has been a pleasure to work with for example.

Although some impacts from this dredging project are inevitable and will be permitted (e.g., dredging...) a well-designed and managed effort should not/ may not significantly negatively affect the all the SEFL region, and so the dive industry would not/might not suffer too heavily or at all. However, well- design and good management must be mandated and implemented. An example of not so well-design and management may be the Port of Miami dredging project where serious concerns about the dredging have been warranted.

We will continue to do our best to encourage that lessons learned from current and ongoing science as well from as during the POM project are utilized during the PE project to minimize impacts and optimize mitigation. At present there is no guarantee they will take our advice, but we will keep on trying.

Hope this is responsive in some ways to your email.

Best regards.

Dick

From: Tom Ingram [<mailto:tingram@dema.org>]

Sent: Monday, March 16, 2015 2:39 PM

To: Richard Dodge

Subject: Port Everglades Dredging Project

Dear Dr. Dodge:

I am the Executive Director of the Diving Equipment and Marketing Association, located in San Diego California. I have been contacted by more than a few diving operators in the Fort Lauderdale area expressing concerns about the potential negative impact on the quality of recreational diving due to the Port Everglades dredging project. Their major

concern is, of course, the silting issue and potential damage to the living coral and sea grass areas near the Port project.

I have read the final Army Corps of Engineers' Environmental Impact Statement, and we understand this project is moving forward regardless of any remaining concerns from the diving community. However, DEMA would like to provide feedback to divers and diving groups in the area regarding any concerns or comments you and the National Coral Reef Institute may have regarding this issue. While we understand that there are potential hazards for sensitive habitat areas associated with this project, any direction to research or any reassurance you can provide which indicates that the quality of the reefs and the recreational diving in the area will be minimally impacted by this dredging project would be helpful.

Thank you in advance for pointing us toward any resources that can mitigate these concerns.

Tom Ingram, CAE

Executive Director

Diving Equipment and Marketing Association

3750 Convoy Street, Suite 310

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CENTER for BIOLOGICAL DIVERSITY

Because life is good.

April 20, 2015

SENT VIA ELECTRONIC AND CERTIFIED MAIL

Terri Jordan-Sellers, Regional Technical
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***RE: PORT EVERGLADES HARBOR NAVIGATION STUDY, FINAL ENVIRONMENTAL
IMPACT STATEMENT***

I. Introduction

The Center for Biological Diversity ("Center") is submitting these comments on behalf of its members. The Center is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 50,000 members and 800,000 online activists. Our members include scientists who study ocean ecosystems and marine life, as well as individuals that live near ocean coasts and enjoy viewing marine wildlife.

Port Everglades ("Port") and the marine waters off the coasts of Fort Lauderdale, Dania Beach, and Hollywood contain invaluable, highly sensitive marine resources. We are concerned that the Final Environmental Impact Statement ("EIS") for the Port Everglades channel widening and deepening ("Project") is insufficient to avoid severe environmental impacts to these

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resources during both the construction and operational phases of the Project that will have irreversible consequences. The EIS does not adequately analyze or compensate for the impacts these resources face as a direct and indirect result of the Project. We request that the EIS be revised to reconsider these impacts and to provide more robust protection to the marine environment surrounding and affected by the Project.

II. Project Background

The Project proposes to widen and deepen all portions of the Port Everglades channel to accommodate new, larger Panamax and Aframax vessels. (ARMY CORPS OF ENGINEERS, Port Everglades Harbor Navigation Study, Final Environmental Impact Statement 2 (2015) [hereinafter “EIS”]). In addition, the EIS determined the Project is needed to increase channel safety and maneuverability and to decrease congestion and channel passage restrictions at the Port compared to its current dimensions. (*Id.* at 1).

The Project seeks to extend the Port entrance to 2,200 feet, widen it to 800 feet, and deepen it to a maximum of 57 feet. (*Id.* at iii, 28). In addition to Port entrance changes, the Project plans to deepen all other stretches of the port to approximately 50 feet to accommodate higher numbers of the new, larger Panamax and Aframax ships. (*Id.* at iii-iv). The Project will achieve its new dimensions through a mix of dredging and explosives. (*Id.* at 48). The EIS does not estimate the volume of the expected dredged material, but it provides for 400 blast days over the five-year construction period. (*Id.* at 48, 80). The National Marine Fisheries Service (“NMFS”) biological opinion (“Bi-Op”) estimated there would be 900 blast days. (NAT’L MARINE FISHERIES SERV., Endangered Species Act – Section 7 Consultation Biological Opinion 8 (2014) [hereinafter “Bi-Op”]). The EIS allows for the disposal of dredged and blasted materials primarily at an ocean dump site approximately four miles offshore from Fort Lauderdale. (EIS fig. 38).

III. Issues inadequately address in the EIS

A. The EIS improperly excluded the related expansion of the ODMDS from the scope of the Project

The National Environmental Policy Act (“NEPA”) requires agencies to prepare an EIS for “major federal actions significantly affecting the quality of the human environment.” (42

U.S.C. § 4332(2)(C)). Scoping is the process of deciding “the range of actions, alternatives, and impacts to be considered in an [EIS].” (40 C.F.R. § 1508.25). An EIS must not only include an analysis of the impacts from the proposed action, but also from actions that are (1) “closely related” to the action, (2) cumulatively significant when combined with the action, or (3) similar to the action. (*Id.*). Furthermore, the scope of the EIS must include an analysis of both the direct and indirect effects of the action. (40 C.F.R. § 1508.8).

Here, the EIS incorrectly excluded impacts relating to the Atlantic Ocean dredged material disposal site (“ODMDS”) expansion from the scope of its EIS analysis. The EIS only fleetingly mentions the proposed expansion, but fails to analyze any potential impacts that might arise from the transport or disposal of dredge material at this site. (EIS at 82). Despite hardly mentioning the ODMDS expansion, the Project is the main reason why this expansion would need to happen. (*Id.*). The EIS states that it cannot dump its dredged materials at the ODMDS *unless* the ODMDS is expanded. (*Id.*). In contrast, in its Bi-Op the National Marine Fisheries Service (“NMFS”) determined that NMFS needed to consider environmental impacts from the ODMDS in conjunction with the Project because the ODMDS “is interrelated to and interdependent with the Port Everglades Expansion project.” (Bi-Op at 13).

It was improper for the EIS not to analyze the impacts of the ODMDS expansion in conjunction with the Project. Not only are these projects closely related, but they are cumulatively significant, and they are occurring in similar geographic locations and timeframes. (40 C.F.R. § 1508.25). Because the Project creates the need for the ODMDS expansion, these projects are “interrelated” and should be considered together. (*Id.*; Bi-Op at 13).

B. The purpose and need of the project is improperly narrow and internally contradicted

The purpose and need section of the EIS should not impermissibly narrow the analysis of environmental impacts in the EIS. (*Citizens for Smart Growth v. Dep’t of Transportation*, 669 F.3d 1203, 1212 (11th Cir. 2012)). “[A]n agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action, and the EIS would become a foreordained formality.” (*Id.* (quoting *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991))).

Objective 2 states there is a need to “[d]ecrease transportation costs through increasing economies of scale for cargo and petroleum vessels at the Port.” (*Id.*). Objective 2 of the Project would only be accomplished if the Port were to accommodate larger ships. (EIS at 1). The only way to realize a “greater econom[y] of scale” is to “buy in bulk,” or allow for a greater number of larger vessels to call at the Port. This objective impermissibly narrows the analysis and conclusions in the EIS, and it caused the EIS to prematurely eliminate several environmentally preferable alternatives from further consideration. Thus, the “EIS [became] a foreordained formality.” (*Citizens for Smart Growth v. Dep’t of Transportation*, 669 F.3d at 1212 (quoting *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d at 196)).

Additionally, the EIS states that the Project is necessary to increase Port safety and maneuverability and to decrease congestion. (EIS at 1 (objectives 1 and 3)). However, under the No Action alternative, the EIS estimates that the Port can accommodate an additional 1,646 vessels—totaling 5,163 vessels annually—by 2060, up from 3,533 vessels in 2012. (*Id.* at 248). If the Port can safely accommodate 1,646 additional vessels, this seems to call into question the basic need for the Port expansion.

C. Issues with the affected environment analysis

NEPA requires agencies to provide baseline data on which they base their environmental analysis. (*N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1083 (9th Cir. 2011); 40 C.F.R. § 1502.15). An accurate environmental baseline is essential to understanding the true impacts of the Project; a baseline that underemphasizes or ignores certain aspects of the environmental setting of the Project may improperly skew the environmental analysis in favor of the Project. (*Natural Res. Defense Council v. U.S. Forest Serv.*, 421 F.3d 797, 811 (9th Cir. 2005) (An EIS with misleading information can “impair[] the agency’s consideration of the adverse environmental effects and [] skew[] the public’s evaluation of the proposed agency action.”)).

1. The EIS does not set a baseline for greenhouse gas emissions for the operation of the Port

The EIS fails to set a baseline for greenhouse gas (“GHG”) emissions. (*See, e.g.*, EIS at 161). The EIS never calculates or mentions current Port and vessel operating GHG emissions, so

it is impossible to compare the baseline GHG emissions with those of the future operation of the Project. (*Id.*). By law, this must be addressed as part of the environmental review. (*N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1083 (9th Cir. 2011); 40 C.F.R. § 1502.15; see also Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts, COUNCIL ON ENVIRONMENTAL QUALITY (2014), available at https://www.whitehouse.gov/sites/default/files/docs/nepa_revised_draft_ghg_guidance_searchable.pdf).

2. The EIS incorrectly states that there are no pillar corals anywhere near the Port

The EIS correctly states that pillar coral (*D. cylindrus*) is “exceedingly rare” in Broward County, as it is everywhere else in the world. (EIS at 238). However, it was incorrect for the EIS to substitute an unsubstantiated statement regarding this coral’s rarity for conducting a more rigorous survey of this species. (*Id.* At 151). Pillar coral has only been spotted in Broward in a handful of locations; however, one of the locations where *multiple colonies* have been spotted is very near, if not right outside of, the Port. (See MCDEVITT ET AL., A SPECIES ACTION PLAN FOR THE PILLAR CORAL DENDROGYRA CYLINDRUS, FLA. FISH & WILDLIFE COMM’N 3 (2013)). This study is “best available science” and must be included in this analysis.

The EIS should have consulted more with NMFS and the Florida Fish and Wildlife Conservation Commission (“FWC”) to determine whether these agencies had documentation of pillar corals being present near the Port. (*Id.*). FWC has collected records of pillar coral sightings along the Florida coast, which it published in its action plan, and it may have additional information regarding the occurrence of this species near the Port. (*Id.*).

Especially considering the exceeding rarity of this species and its documented occurrence near the Port, the EIS must do more to ensure any pillar coral colonies near the Port are adequately protected and have the opportunity to thrive. Instead, the EIS provides no protection of or mitigation for impacts to this species.

In addition, surveys for all other 2014-listed corals were not thorough enough. The Port of Miami surveys only recorded ten percent of all corals actually present in that project’s impact area, which placed the majority of healthy corals near that project at risk. Here, when coral surveys were conducted for the Project, they were not conducted with the goal of locating these corals. Surveys were not re-conducted after the new corals were listed. In order to

ensure there will not be a repeat of what happened at the Port of Miami, improved surveys must be undertaken.

The lack of sufficient information regarding newly listed corals places any nearby colonies at a much higher risk. The EIS preparers must conduct further surveys and establish protections for any potential colonies in an abundance of caution. (*Sierra Club v. Strock*, 495 F. Supp. 2d 1188, 1210 (S.D. Fla. 2007) (“Courts are justifiably reluctant to approve environmental permitting decisions when the record demonstrates that those decisions were based upon assumptions rather than upon an independent study of the issues.”)).

D. Issues with the alternatives discussion

NEPA requires that an EIS contain a detailed statement of alternatives to the proposed action. (42 U.S.C. § 4332(2)(C)(iii)). The alternatives section is the “heart” of the EIS. (40 C.F.R. § 1502.14). The alternatives analysis, in conjunction with the environmental baseline, is instructive because it helps decisionmakers and the public to better understand and compare the different options before the decisionmaker. (40 C.F.R. § 1502.14(b)). Failure to consider all reasonable alternatives invalidates the EIS. (40 C.F.R. § 1502.14(a); 5 U.S.C. § 706(2)(A); *N. Buckhead Civic Ass’n v. Skinner*, 903 F.2d 1533, 1541 (11th Cir. 1990) (applying a rule of reason to determine the adequacy of agency’s alternatives discussion)).

1. The EIS inaccurately describes the No Action Alternative

The assumption that the “No Action” Alternative will result in more vessel calls and decreased safety and efficiency is flawed. (EIS at 29). Under the No Action Alternative, it is more likely that the Port may *lack* the capacity to increase traffic but would maintain safety and efficiency at lower traffic volumes.

Finally, the EIS cites capacity issues under the No Action Alternative—namely that, if the Port is not deepened and widened, this would cause more ships to anchor outside of the Port. (*Id.*). This “more ships, more waiting” argument does not logically play out; if the Port can take on an additional 1,600 vessels under the No Action Alternative, then Port capacity must not be that much of an issue. Offshore anchoring is more a problem of berth capacity, not channel capacity. An increase in anchored vessels that is not the cause of Port overcapacity can be easily

alleviated by better Port coordination and more efficient loading and unloading at berths, and has nothing to do with environmental conditions at the Port.

2. The EIS fails to discuss or determine the least environmentally damaging practicable alternative

U.S. Army Corps of Engineers (“Corps”) regulations prohibit the agency from permitting discharge of dredged material into U.S. waters “if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem.” (40 C.F.R. § 230.10(a)). To permit dredge discharge, the Corps must make a formal determination that other, less environmentally damaging alternatives to the proposed project are impracticable. (40 C.F.R. § 230.10(a)(2)).

The No Action Alternative, as well as the “PORTS” Alternative are both practicable and less environmentally destructive. The EIS suggests that the Corps has no authority to require the Port to use the PORTS program to solve most or all of the problems raised in the Objectives section. (EIS at 1, 40). This is not true; the Corps has discretion to condition its permit approval upon a wide variety of mitigation measures, including operational limitations. (40 C.F.R. 1505.3). In fact, the Corps is compelled to require this alternative. (40 C.F.R. § 230.10(a)(2)). The EIS recognized that implementing the PORTS program is both practicable and less environmentally damaging than the proposed Project. (EIS at 39-40).¹ As the EIS points out, it is practicable to meet increased shipping demand even under the No Action Alternative; shipping traffic can increase even without the Project. The PORTS program would provide the final piece of the “purpose and need” puzzle because it can provide the Port with the added safety the EIS claims is lacking in the No Action Alternative. (EIS at 40).

Sea level rise may also alleviate some need to deepen the Port to the depths of the Recommended Plan. As the EIS confirms, sea level may rise as much as 2.24 feet near the Port. (*Id.* at 261). Port-wide, this could allow the Project to be deepened to a shallower depth than was put forward in the Recommended Plan. Even reducing the dredge depth by one foot would reduce the amount of dredged material by more than 130,000 cubic yards *in the OEC alone*, with

¹ As discussed above, Objective 2 presents the public and decisionmakers with a false choice among alternatives. (EIS at 1). This objective has nothing to do with need or practicability, but, rather, a preference for larger ships to call at the Port in the future.

comparative decreases in all sections of the Project (IEC, MTB, SAC, TN, etc.). (*Id.* at 201). This would also make it possible to complete the Project dredging in fewer construction days and produce fewer trips to and from the ODMDS. This, in turn would create substantial decreases in impacts to benthic habitats, both through decreases in the amount of sedimentation and damage to corals from the operation of the dredging equipment.

E. Problems with the discussion of environmental impacts and mitigation

“NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.” (*Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371 (1989)). To aid in this informed decisionmaking, an EIS must include a discussion of the environmental impacts of the agency’s proposed action and outline appropriate mitigation measures that would reduce the impacts from the action. (42 U.S.C. § 4332(2)(C)(iii); 40 C.F.R. § 1502.14(f)). The EIS must consider the direct, indirect, and cumulative impacts related to the proposed action. (40 C.F.R. §§ 1508.8(a)-(b), 1508.7; *City of Oxford v. FAA*, 428 F.3d 1346, 1353 (11th Cir. 2005)). The agency must also consider ways to mitigate these impacts, preferably through impact avoidance or minimization. (40 C.F.R. § 1508.20). Courts are required to review the agency’s analysis of environmental impacts and proposed mitigation to ensure the agency took a “hard look” at these aspects of its proposed action. (*Sierra Club v. Strock*, 495 F. Supp. 2d 1188, 1211 (S.D. Fla. 2007); 5 U.S.C. § 706(2)(A)).

1. The EIS erroneously ignores environmental impacts to marine species from increased shipping traffic and larger vessels

The EIS does not assess impacts from increased marine noise, coral damage, and ship strikes resulting from increased, and larger, vessel traffic calling at the Port as a result of the Project under the Recommended Plan and National Economic Development Plan. (*See, e.g.*, EIS at 217-21). Instead, the analysis suggests that the impacts are not worth discussing because “[t]he [P]roject allows for a shift from smaller, less efficient ships, to larger, more efficient ships carrying more cargo resulting in a decrease in overall vessel calls.” (*Id.* at 217). However, this analysis is contrary to the information before the agency, which indicates that post-Project traffic will increase as compared to the 2012 baseline. (EIS at 248).

Higher traffic volumes of larger ships will increase, not decrease, the marine noise, the risk of collisions with marine mammals and sea turtles, and damage to corals. (See Response to Docket No. 080410551–4596–01—Capital Construction Fund: Fishing Vessel Capital Construction Capital Construction Fund Vessel Capital Construction Fund Procedures, Proposed Rule, CTR. FOR BIOLOGICAL DIVERSITY (2014)). Ship noise can mask marine mammal calls. (Jason Gedamke, *Ocean Sound & Ocean Noise: Increasing Knowledge Through Research Partnerships*, NAT’L OCEANIC & ATMOSPHERIC ADMIN. 2 (2014), available at <http://cetsound.noaa.gov/Assets/cetsound/documents/MMC%20Annual%20Meeting%20Intro.pdf>; C.W. Clark et al., *Acoustic Masking in Marine Ecosystems as a Function of Anthropogenic Sound Sources*, at *1, available at https://www.academia.edu/5100506/Acoustic_Masking_in_Marine_Ecosystems_as_a_Function_of_Anthropogenic_Sound_Sources (last visited Oct. 29, 2014); OCEAN NOISE AND MARINE MAMMALS, NAT’L RES. COUNCIL 41-42 (2003), available at http://www.nap.edu/openbook.php?record_id=10564&page=R1). NOAA has recognized that this masking may affect marine mammal survival and reproduction by decreasing these animals’ ability to “[a]ttract mates, [d]efend territories or resources, [e]stablish social relationships, [c]oordinate feeding, [i]nteract with parents, or offspring, [and] [a]void predators or threats.” (Gedamke, *supra*, at 2). In addition to masking effects, marine mammals have displayed a suite of stress-related responses from increased ambient and local noise levels. These include “rapid swimming away from [] ship[s] for distances up to 80 km; changes in surfacing, breathing, and diving patterns; changes in group composition; and changes in vocalizations.” (OCEAN NOISE AND MARINE MAMMALS, *supra*, at 94). Some avoidance responses to localized marine sounds may even lead to individual or mass strandings. (*Id.* at 132). Louder anthropogenic sounds may also lead to permanent hearing loss in marine mammals. (S.G. Kujawa & M.C. Liberman, *Adding Insult to Injury: Cochlear Nerve Degeneration After “Temporary” Noise-Induced Hearing Loss*, 29 J. NEUROSCIENCE 14,077 (2009)).

In addition, larger vessels account for a disproportionate number of ship strikes—especially fatal ship strikes. (Laist et al., *Collisions Between Ships and Whales*, 17 MARINE MAMMAL SCI. 35, 54 (2001); Silber et al., *Hydrodynamics of a Ship/Whale Collision*, 391 J. EXPERIMENTAL MARINE BIOLOGY & ECOLOGY 11, 18-19 (2010) (ship size correlated to risk and severity of ship strike)). Partly due to their greater weight and partly because of their decreased

maneuverability, “most, if not all, lethal collisions are caused by large ships rather than small vessels.” (*Id.*). It was arbitrary for the EIS to not consider the environmental impacts unique to the Panamax, Aframax, and other larger ships that would have a greater presence at the Port resulting from the Project.

These problems are symptomatic of the EIS’s overall deficiencies in assessing impacts from the operational phase of the project. The EIS must analyze the indirect and cumulative impacts of its actions, not just the direct impacts from permitting dredging and other construction-related activities. (40 C.F.R. §§ 1508.8(a), (b); 1508.7). This mandate requires the EIS to rigorously analyze the environmental impacts arising from the operation of the post-Project Port, not just the construction phase of the Project. (*Id.*).

2. The mitigation measures in the EIS do not ensure adequate protection of marine species from the use of high-powered explosives

The EIS estimates that large sections of the Project will need to be blasted with heavy explosives in order to reach desired Port widths and depths. (EIS at 67). This is potentially one of the most impactful environmental side-effects of the Project.

An initial concern is that the EIS does not disclose or attempt to estimate or limit the amount or size of explosives—all we can glean from the EIS is that “the weight of explosives to be used in each blast will be limited to the lowest poundage of explosives that can adequately break the rock.” (EIS at 67, 74). The size of the explosive matters greatly; smaller delays pose a much lower risk to nearby marine species. The failure of the EIS to estimate or analyze impacts from the Project’s probable explosive sizes means that it is impossible to even begin to assess the impacts to species from one of the most harmful aspects of the Project. (40 C.F.R. § 1502.22 (EIS must measure or estimate foreseeable significant adverse environmental impacts)).

Second, if delay weights are much larger than those used in the Port of Miami and bombing occurs over a longer period of time, it is unreasonable to attempt to analogize blasting impacts from the Port of Miami and the Project. (EIS at 70-71, 74). The Port of Miami project detonated forty charges over 38 days. (*Id.* at 79). By contrast, the EIS states that there may be 400 blast days, with several blasting events allowed each day and possibly much heavier delays due to the presence of harder rock. (*Id.* at 71, 79). By its sheer weight of explosives, the Project may be ten to twenty times more impactful to species. However, as stated above, without a solid

estimate of blast sizes and the number of blasting events the actual threat to species is unknowable.

Contrary to the EIS, the Bi-Op estimated that as much as 50 percent of the entire Project area may need to be blasted and that there will be as many as 900 blast days. (Bi-Op at 8). It is concerning that there is such a large disparity between the Bi-Op and the EIS regarding blasting and this change in blasting plan likely requires a reinitiation of consultation with NOAA before the EIS should be finalized. If both scenarios are equally plausible, it is more responsible for the EIS to analyze impacts according to the greater-impact scenario described in the Bi-Op. (Bi-Op p.21)

Further, the EIS needs to clarify whether the danger, safety, and watch zones will change depending on the weight of the delay or be fixed to the largest predicted or allowed delay weight. Between the two methods, it would be significantly easier to set one danger, safety, and watch zone for all blasting. Conversely, it may be difficult to adequately monitor these zones during blasting if these ranges changed during each blast event. Regardless, we are concerned that the EIS did not adequately clarify how to properly apply this mitigation method.

Without knowing the delay weights, it is impossible to calculate the different harassment zone radii. However, we note that a 600-pound bomb would produce large danger, safety, and watch zones. The danger zone (including the exclusion zone) for a blast this size would have a 5,386 foot diameter (radius = $(260 \times \sqrt[3]{600}) + 500$), the safety zone would have an 8,772 foot diameter (radius = $520 \times \sqrt[3]{600}$), and the watch zone would have a 13,158 foot diameter (radius = $780 \times \sqrt[3]{600}$). (EIS at 75-76). It is unlikely that the visual monitors would be able to effectively monitor such a large area. (EIS at 76). There is a real risk that monitoring will be patchy at best, and deficient monitoring will provide protected species ample opportunity to enter the danger zone undetected. This risk is especially serious for sea turtles. A single blasting event could easily surpass the sea turtle take limit (two turtles total) without adequate monitoring, which would force the Corps to re-open consultation with NMFS. (Bi-Op at 127).

Regardless, the EIS's danger zone calculation is insufficient to protect turtles. A danger zone with a diameter of 5,386 feet² would not be enough to adequately protect sea turtles from a 50-pound delay weight. The Bi-Op referenced a study that used a 50-pound confined underwater

² The diameter for a 600-lb delay, under the current formula.

blast to test effect of this blast on sea turtles. (*Id.* at 21). Even this *50-pound* confined underwater blast knocked several turtles unconscious, including an individual caged at 3,000 feet from the blast location. (*Id.*). Turtles that were knocked unconscious were expected to have drowned. (*Id.*) All surviving turtles at all distances from the blast exhibited negative effects even three weeks after the blast. (*Id.*). By contrast, the EIS would allow much larger confined underwater blasts, including those that are considerably heavier than the 376-pound delays used in the Port of Miami expansion, which could easily kill turtles well beyond the danger zone formulations in the EIS. (EIS at 71). Because the Bi-Op study has proven the EIS’s proposed blasting mitigation to be ineffective, the EIS must be revised to provide more protective mitigation.

Finally, the monitoring plan to ensure protected species are not in the danger zone before a blast is entirely visual. (EIS at 76). However, the EIS does not provide for a halt to blasting during low-visibility conditions, such as when weather conditions make the water choppy or when turbidity prevents monitors from spotting marine species. If the EIS only requires visual monitors, it should require minimum visibility conditions to ensure this monitoring is more effective.

3. The EIS does not adequately discuss dredge volumes and impacts, and the dredging activities would far surpass the allowable take for sea turtles

a. The EIS fails to provide estimates of the amount of material to be dredged under each alternative

Where the proposed agency action is taken under a substantive statute, such as the Clean Water Act, “the statutory objectives of the project serve as a guide by which to determine the reasonableness of objectives outlined in [the] EIS.” (*Westlands Water Dist. v. U.S. Dep’t of Interior*, 376 F.3d 853, 866 (9th Cir. 2004)). Section 404 of the CWA regulates the dredging and filling of navigable waters of the United States. (33 U.S.C. § 1344(a)). In addition, the “cumulative effects attributable to the discharge of dredged or fill material in waters of the United States should be predicted to the extent reasonable and practical This information shall be documented and considered during the decision-making process.” (40 C.F.R. § 230.11(g)(2); *see also Protect Our Water v. Flowers*, 377 F. Supp. 2d 844, 868 (E.D. Cal. 2004)).

The EIS does not disclose or otherwise estimate the total volume of material that it would permit to be dredged under each alternative—it only states that dredging would total 5.47 million

cubic yards. (EIS at 28). However, this estimate cannot be representative of all alternatives—each alternative would allow for different amounts of dredging. (*See id.* at 25-29 (discussing variations between the alternatives). This oversight is especially glaring considering the federal action being considered is a Section 404 application for the dredging and filling of waters of the U.S. (EIS at 16). Direct, indirect, and cumulative impacts to jurisdictional waters would vary wildly depending on how much material is dredged and then deposited into an as-yet finalized ODMDS. Thus, not having this information makes it impossible for decisionmakers and the public to understand the extent of the environmental impacts associated with the Project under each alternative. (*Westlands Water Dist. v. U.S. Dep't of Interior*, 376 F.3d at 866; *Natural Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d at 811).

b. Project dredging would take dozens more sea turtles than the incidental take statement allows

The take from dredging activities would likely far exceed the two-turtle take limit for green and loggerhead turtles. (Bi-Op at 94). The Bi-Op used the volume of dredged material as a proxy for the take of sea turtles. (*Id.*). The Bi-Op determined that approximately one turtle would be taken for every 200,000 cubic yards of dredged material, and it only permitted the take of two sea turtles *total*. (*Id.* at 94, 127). Thus, the Project would reach its take limit so long as it dredged 400,000 cubic yards of material. (*Id.*). The Project proposes to remove 5.47 million cubic yards of material. (EIS at 28). This means the Project would take 28 sea turtles, according to NMFS' proxy take calculation. (Bi-Op at 94). This is consistent with the number of recorded sea turtle takes at Palm Beach Harbor, where the dredging of 2.45 million cubic yards of material caused the death of 11 sea turtles. (*Id.*). This is all the more concerning because dredging is more likely to kill much rarer loggerhead turtles than the relatively common green turtles. (*Id.*).

In addition, the dredging contractor for the Port of Miami expansion asked, mid-project, to stop using turtle screens. Because the use of screens was an issue at the Port of Miami, we are concerned that this mitigation may become an issue for the Project as well. We do not recommend that the dredging screens be taken off, even if this causes issues with the dredging equipment.

Because NMFS' incidental take statement ("ITS") only allows for the take of two turtles, the Corps must re-initiate Section 7 ESA consultation to assess the much greater impacts of its

project on local turtle populations, including its potential to disproportionately affect leatherback turtles. (Bi-Op at 94, 127).

c. The EIS fails to assess impacts from its ocean and uplands disposal sites

It is also impossible to know the true impacts of the Project's filling activities because the EIS failed to provide any real analysis of the impacts from any of its proposed ODMDS sites, let alone finalize the location and size of its proposed dump site. (EIS at 82). The EIS's short, one-page discussion of the proposed ODMDS sites failed to discuss any potential direct, indirect, or cumulative environmental impacts arising from the use of either of these sites. (*Id.* at 82-84).

Several potential impacts from these sites are apparent. First, the upland disposal site is meant to be used to dispose of dredged material that is too toxic for ocean dumping. (*Id.* at 82). However, the proposed upland ODMDS is a poor site to place toxic dredged material, as the upland ODMDS directly adjacent to a canal that feeds into the ocean. (*Id.* at fig.38). There are no improvements on the upland ODMDS site—not even an earthen berm that would at least halfheartedly prevent some of this toxic dredged material from re-entering marine waters. (*Id.*) It is highly likely that most of this material would wash right back into the ocean during the first major weather event.

The EIS fails to discuss direct, indirect, and cumulative impacts from using the ocean ODMDS as well. (*Id.* at 82). Because all dredged material would be dropped from the water surface, there is a real risk that heavier boulders could kill or injure marine species, including protected whales, sea turtles, and dolphins, during their descent. The finer sediment would likely be taken by ocean currents, falling well outside of the ODMDS and possibly deposited onto corals up and down the Florida coast. Additionally, dredge barges that take dredged material to either ODMDS have been known to leak, creating a sediment cloud that chokes corals in their wake.

It is also impossible to assess the direct, indirect, or cumulative impacts of either the upland or ocean ODMDS because the neither ODMDS area has been finalized. (*Id.*). This is a major shortcoming of this EIS and suggests that finalizing the EIS was premature. This may leave the Project without a well-planned disposal site. If none of the proposed ODMDS sites are approved, the public and decisionmakers would be left completely in the dark as location and

impacts of the offshore disposal plan for this project. This could also incur additional costs to this project.

4. The EIS does not sufficiently mitigate impacts to mangroves and seagrasses

a. Impacts to mangroves

It is unclear from reading the EIS whether any of the impacted mangroves currently serve as mitigation for earlier projects. The EIS states that:

Some of the mangrove habitat in this assessment area is mitigation for previous wetland impacts associated with the Turning Notch Project in the mid-1990s. Approximately 23 acres of mangroves were planted along the eastern edge of the IWW at John U. Lloyd State Park for mitigation associated with the Turning Notch Project. (EIS at 100).

Please clarify whether any of the mangroves the Project will impact were planted as mitigation for earlier projects. If they are mitigation from an earlier project, we request (1) that these mangroves be avoided if at all possible, or (2) if avoidance is not possible, that the Project proponent be required to carry out additional compensation for eliminating mitigation mangroves.

The EIS should address almost certain future riprap failure. The EIS mentions that mangrove riprap is “actively eroding”—specifically that “frequent large vessel traffic and associated large wakes . . . contribute to the erosion.” (EIS at 102). Despite acknowledging the operation phase of the Project will continually degrade the riprap protecting the mangrove habitats, the EIS proposes no mitigation, such as periodic riprap maintenance and repair or operational specifications.

The EIS should also discuss other indirect and cumulative impacts to mangroves. The Bi-Op mentions that mangroves in the action area “are subject to constant traffic and pollution.” (EIS at 18). The EIS needs to do more to consider these impacts as they related to the Project. (40 C.F.R. §§ 1508.8, 1508.7). For instance, increased traffic and larger ships would likely exacerbate the already constant pollution and traffic-related impacts the mangrove communities suffer.

b. The EIS disregards impacts to seagrasses and did not use the best available survey methods to locate seagrass beds and habitat

As with all other species, the EIS does not provide a cumulative impacts analysis of impacts to seagrasses. By contrast, the Bi-Op listed several impacts that may cumulatively affect seagrasses in and near the Port, including “(1) dredging and filling, (2) construction and shading from in-and over-water structures, (3) propeller scarring and anchor mooring, (4) trampling, (5) storms, and (6) siltation.” (Bi-Op at 71-77). The EIS should have discussed the status of these and any other impacts on nearby seagrass beds.

We echo the large list of concerns raised by the EPA, NMFS, the Florida Department of Environmental Protection (“FDEP”), and FWC regarding underestimation of seagrass occurrence within the Port area and impacts from the Project. (EIS Sub-Appendix L: Comments on Draft Environmental Impact Statement at 4, 5, 12, 24, 28, etc.). NMFS and FDEP both disagreed with the Corps’ seagrass survey approach, stating that it was not based on the best available science. (*Id.* at 5). Instead of addressing these concerns, the Corps dismisses them. (*Id.* at 12). The EPA also expressed concern that the Corps’ seagrass mitigation was not based on the best available science. (*Id.* at 11). NMFS raised concerns that the mitigation would not be effective because there were not enough “seagrass credits” available to offset impacts to seagrasses resulting from the Project, and that these offsets would not provide equivalent ecosystem services. (*Id.* at 24).

If more seagrass would be impacted than is listed in the EIS, this would obviously lead to insufficient mitigation for impacted seagrass beds. Also, if planned mitigation is ineffective or insufficient, as the various state and federal agencies justifiably believe, the mitigation would be ineffective and the Project would cause a net decrease in seagrasses, which would have incidental effects to other species that depend on these grasses for food and habitat and that the EIS does not accurately account for.

5. The EIS does not adequately analyze impacts to protected corals or provide suitable mitigation for coral species

a. The Bi-Op determined there will be more impacted acres of corals than the EIS discloses

NMFS' Bi-Op determined that the Project would impact 118 acres of corals. (Bi-Op at 11). Conversely, the EIS only identifies impacts to 25.71 acres of coral habitat. (EIS at 31). This is a large discrepancy with an expert agency—one that cannot be “ascribed to a difference in view or the product of agency expertise.” (*Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. at 43). The EIS does not attempt to explain this discrepancy, and, instead, ignores it. The EIS must be corrected to reflect NMFS' higher impact acreage. As the EIS is written now, it does not correctly convey the true extent of impacts to corals and their habitats. (*California v. Block*, 690 F.3d 753, 761 (9th Cir. 1982) (EIS must provide a complete and accurate discussion of foreseeable environmental impacts of the proposed action and any unavoidable environmental effects)).

b. The EIS ignores key information regarding seasonal coral sensitivity

Turbidity and sedimentation can kill corals that depend on sunlight to survive. (Bi-Op at 60). NMFS was concerned that the protected corals face added environmental stressors from July to September, making them more sensitive to turbidity. (EIS, Appx. F., *Meeting: ESA Consultation – Status, Review, and Future Plans* 4 (Apr. 8, 2008)). (*Id.*). Sedimentation and turbidity events during these months “can cause both lethal and sublethal damage resulting in compromised coral health” because waters may be too still to remove sedimentation from corals. (Bi-Op at 60). Additionally, staghorn and elliptical star corals reproduce during these months, and their reproductive cycles may be affected by sedimentation and turbidity. (*Id.* at 46, 48).

In a 2008 meeting with the Corps, NMFS recommended to the Corps that the “Entrance Channel dredging be completed during a time of year that will not expose the already stressed *Acropora* . . . to turbidity and sedimentation.” (EIS, Appx. F., *Meeting: ESA Consultation – Status, Review, and Future Plans* 4 (Apr. 8, 2008)). However, neither NMFS nor the Corps followed up with these recommendations. Dredging between July and September exposes all corals in the vicinity to a heightened risk of death and other health impacts during these months. This is noteworthy because the Bi-Op only requires relocation of corals larger than 10 cm,

leaving all colonies smaller than 10 cm subject to all of the impacts from the dredging activities. (Bi-Op at 106).

The record shows that dredging during all months will likely choke nearby protected coral colonies, most of which are not slated for relocation. As NMFS indicated, this could cause a much higher die-off if dredging were occurring during periods when corals are under added environmental stress. It is unacceptable for the EIS to entirely ignore important information before the agency. (*Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. at 43). The EIS and ITS should add seasonal dredging limitations, at least for the OEC and IEC sections of the Project. (EIS, Appx. F., *Meeting: ESA Consultation – Status, Review, and Future Plans 4* (Apr. 8, 2008)).

c. The EIS fails to consider cumulative environmental impacts to corals

An environmental impact statement (“EIS”) must analyze “every significant aspect of the environmental impact of a proposed action.” (*Vermont Yankee Nuclear Power Corp. v. Natural Res. Def. Council*, 435 U.S. 519, 553 (1978); 42 U.S.C. § 4332(2)(C)). The EIS must include a discussion of cumulative impacts relating to the proposed federal action. (40 C.F.R. §§ 1508.25, 1508.7; *City of Oxford v. FAA*, 428 F.3d at 1353).

NMFS’ website provides a long list of cumulative impacts to corals, including “ocean warming, ocean acidification, dredging, coastal development, coastal point source pollution, agricultural and land use practices, disease, predation, reef fishing, aquarium trade, physical damage from boats and anchors, marine debris, aquatic invasive species.” (*Corals*, NAT’L OCEANIC & ATMOSPHERIC ADMIN. (Jan. 13, 2015), <http://www.nmfs.noaa.gov/pr/species/invertebrates/corals.htm> (emphasis added)). In NMFS’ final 2014 rule listing five species of Caribbean corals occurring in Florida’s coastal waters, NMFS identified “ocean warming, ocean acidification, overharvesting, natural predation, disease, [and] habitat loss” as factors contributing to the decline and ongoing endangerment of these corals. (Final Listing Determinations on Proposal to List 66 Reef-Building Coral Species and to Reclassify Elkhorn and Staghorn Corals, 79 Fed. Reg. 53852, 53853 (Sept. 10, 2014); O. Hoegh-Guldberg et al., *Coral Reefs Under Rapid Climate Change and Ocean Acidification*, 318, 318 (2007)). Sea level rise may also force corals to move closer to the coast, placing them in greater danger of anthropogenic impacts.

Corals may be negatively affected by “[m]ultiple municipal, [agricultural], industrial, and household sources, as well as atmospheric transport, introduce various pollutants such as pesticides, hydrocarbons, organochlorides (e.g., DDT, PCBs, and PFCs).” (Bi-Op at 26). Increased water temperatures and nutrients, including coliform bacteria, in waters stimulate the growth of algae that can choke out corals and occupy otherwise prime coral habitat. (*Id.* at 60; EIS at 153; Kathryn Sutherland et al., *Human Pathogen Shown to Cause Disease in the Threatened Elkhorn Coral Acropora Palmata*, 8 PLOS ONE, at *1 (2011); L. Kaczmarzsky et al., *Is There a Relationship Between Proximity to Sewage Effluent and the Prevalence of Coral Disease?*, 41 CARIBBEAN J. OF SCIENCE 124 (2005)). Overfishing of herbivorous fish can further exacerbate the imbalance between macroalgae and corals. (Anthony Kenneth et al., *Ocean Acidification and Warming Will Lower Coral Reef Resistance*, 17 GLOBAL CHANGE BIOLOGY 1798, 1798-99 (2011)). Ocean warming may increase the risk of coral disease as well. (Bi-Op at 57).

More closely related to the project, Port operation may increase sedimentation; more ships may spill toxic chemicals into coastal waters, such as antifoulants and oils; and increased shipping traffic and larger ships may increase the risk of ship strikes and coral breakage.

The EIS acknowledges that “the reefs off Broward County, like many areas, are subject to multiple anthropogenic stressors,” yet the EIS declines to further explain any of the cumulative impacts these corals face. (EIS at 276). It is telling that the EIS does not mention ocean acidification even once, let alone its impact on nearby corals in conjunction with other factors that cumulatively exacerbate impacts to these corals. The EIS should have devoted time to discussing these impacts. (40 C.F.R. §§ 1508.25, 1508.7; *City of Oxford v. FAA*, 428 F.3d at 1353).

d. NMFS did not authorize the take of pillar corals, and there were no adequate surveys for other 2014-listed corals

Pillar coral may be within the impact area of Project. (See MCDEVITT ET AL., A SPECIES ACTION PLAN FOR THE PILLAR CORAL *DENDROGYRA CYLINDRUS*, FLA. FISH & WILDLIFE COMM’N 3 (2013)). However, the Bi-Op did not analyze impacts to *Dendrogyra cylindrus*, and NMFS’ incidental take statement does not authorize the take of this species. (See Bi-Op at 129). The EIS has not conducted adequate surveying for this species, and it does not provide for

adequate monitoring during Project construction and operation to ensure there will be no impacts to this species during life of the Project. As with the Port of Miami project, it will likely be too dangerous to survey or monitor corals while construction is underway. (Lizette Alvarez, *Despite Protections, Miami Port Project Smothers Coral Reef in Silt*, NEW YORK TIMES (Mar. 7, 2015), http://www.nytimes.com/2015/03/08/us/despite-protections-miami-port-project-smothers-coral-reef-in-silt.html?_r=0).

If any pillar coral are present in the Project's impact area, construction will have to stop while the Corps re-initiates Section 7 ESA consultation. As a necessary precaution, the Corps should re-initiate consultation before it approves the 404 permit so that NMFS and the Corps can more adequately conduct species surveys, assess potential threats and impacts, and integrate a mitigation strategy to ensure these corals are not harmed during Port construction or operation. Failure to correct this oversight places these corals at an unacceptably heightened risk.

e. NMFS' incidental take statement does not provide adequate mitigation for impacts to corals listed in 2014

The Bi-Op estimates that nearly 22,523 colonies of 2014-listed corals would be killed during the construction phase of the Project. (Bi-Op at 129).³ To mitigate for this, the ITS allowed for the relocation of 1,563 corals, assuming that only 858 of these relocated colonies would survive. (*Id.*). The ITS and Bi-Op permits the death of the remaining 22,523 colonies. (*Id.*). NMFS appears to have allowed the loss of 96 percent of all listed coral colonies at least partially on the premise that all coral colonies below 40 cm have no reproductive value to these coral species. (*See, e.g.*, Bi-Op at 118). The Bi-Op reasons that smaller colonies do not sexually reproduce, so their loss will not affect the total number of corals reproducing *today*. (*Id.*).

NMFS's conclusion that the loss of 22,523 shorter coral colonies within the Project's impact area is negligible is incorrect. Contrary to the reasoning in the Bi-Op, eliminating entire generations of younger members of a species in a region will have decades, if not centuries-long, impacts to corals in this area.

The Bi-Op's reasoning that smaller coral colonies have no reproductive value is internally contradicted by the Bi-Op's discussion of coral reproduction. As the Bi-Op recognizes,

³ These values do not include population and relocation estimates for corals that were ultimately not listed.

coral colonies can both sexually and asexually reproduce. (Bi-Op at 46). Even smaller coral colonies may have pieces of coral break off, which can then become “coral propagules” capable of forming new colonies. (*Id.*). The Project’s coral mitigation is founded upon the growth and outplanting of coral propagules—often, small pieces of coral colonies that break off from “corals of opportunity,” or fragments from corals that “would have otherwise likely died without being collected.” (*Id.* at 128; EIS at 275). In fact, for some coral species, reproduction by breaking is the primary means by which colonies reproduce and expand their habitat. (*See id.* at 150; Raymond Highsmith, *Reproduction by Fragmentation in Corals*, 7 Marine Ecology 207, 207-08 (1982)). Thus, instead of no loss of reproductive colonies within the impact area, the EIS allows for a 96 percent loss of all such colonies.

To find that the death of 96 percent of threatened coral colonies would have a negligible impact on the survival of these coral species in the region cannot be the product of reasoned decisionmaking. (5 U.S.C. § 706(2)(A); *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. at 43). This must be corrected in order for the Bi-Op and EIS to be valid.

f. The EIS does not disclose the full extent of impacts to corals within the impact area

The EIS fails to fully account for the impacts to corals. Monitoring from the Port of Miami dredging project shows that the impacts extend beyond the 150-meter buffer area. (*See* Biscayne Bay Waterkeeper et al., Re: Port Everglades Expansion Feasibility Study and Final EIS, Broward County, Florida (2015) (these comments are incorporated here by reference)). Additionally, the EIS should have discussed the full impacts arising from the project, including the estimated recovery time for corals within the 150-meter impact zone. The EIS determined that siltation may temporarily affect nearby corals for two years. (EIS at v). It also concluded that it would take 35 years for the five-acre artificial reef site to reach near complete functionality. (EIS at 276). However, the EIS does not discuss how long it may take for coral reef communities within the impact area to recover, or if recovery is feasible at all. A presentation prepared by the Corps but not discussed in the EIS estimated it may take fifty years for these communities to recover, but this recovery may take longer depending on how the EIS defines “recovery.” (Agency Meeting: Port Everglades Harbor, Broward County, Florida, U.S. ARMY CORPS OF ENG’R slide 4 (2015)).

Without recovery information, the EIS inadequately describes the long-term impacts from the Project, making it difficult to fully understand how severely the Project will affect coral colonies in the Port area. (*California v. Block*, 690 F.3d at 761).

g. The EIS will create unsuitable habitat as mitigation for impacts to protected corals

The EIS proposed the creation of five acres of artificial reef as mitigation for impacts to corals within the Project's impact zone. (EIS at 276). These artificial reefs will consist of unconsolidated rocks blasted from the Port. (*Id.* at 82). Corals will be directly attached to these boulders. (*Id.* at 276).

The best evidence available to the Corps suggests that unconsolidated surfaces make unsuitable habitat for corals. (*See, e.g.*, Bi-Op at 98, 100). The Bi-Op determined that only "natural consolidated hardbottom" surfaces would be considered substrate of suitable quality for the outplanting of coral colonies. (*Id.* at 98). By contrast, unconsolidated surfaces, provide little, if any, useful habitat for coral species. (*Id.*). The Bi-Op specifically described rubble from dredging activities as fostering "lower recruitment rates" among protected corals. (*Id.* at 100). Thus, it is highly unlikely that the proposed artificial reef will provide even a fraction of the mitigation that the EIS claims it would.

h. The EIS discussed a worst-case dredge anchor cable configuration but did not forbid it

For cutterhead dredging the EIS mentions a "worst-case" anchor-cable setup, where each anchor would be placed 150 feet away from the current channel edge. (EIS at 232). If there are other practicable alternatives to this anchor-cable configuration, the Corps must not permit a contractor to employ the "worst-case" setup identified in the EIS. (40 C.F.R. § 230.10(a)).

i. The EIS should not have dismissed impacts to corals from blasting events

The EIS concluded that blasting would not impact corals because they do not have swim bladders. (EIS at 232-33). Contrary to this conclusion, scientists have accepted that blasting *does* have a serious impact on hard corals. (John McManus et al., *Effects of Some Destructive Fishing Methods on Coral Cover and Potential Rates of Recovery*, 21 ENVIRONMENTAL MANAGEMENT

69, 69 (1997); E. Wood & F. Dipper, *What Is the Future for Extensive Areas of Reef Impacted by Fish Blasting and Coral Bleaching and Now Dominated by Soft Corals? A case Study from Malaysia*, PROCEEDINGS OF THE 11TH INTERNATIONAL CORAL REEF SYMPOSIUM, FT.

LAUDERDALE, FLORIDA 403 (2008), *available at*

<http://nova.edu/ncri/11icrs/proceedings/files/m12-05.pdf>). Gorgonian corals are much less affected by blasting than scleractinian corals, but scleractinian corals can become damaged even with relatively low-weight blasting, such as that employed by some fishermen. (*Id.*).

The EIS's conclusion that blasting has no impact on hard corals is not supported by science. Thus, the EIS should be rewritten to incorporate the best available science and to accurately describe the effect of blasting on hard corals.

j. The Bi-Op sets an unreasonable timetable for elkhorn and staghorn coral mitigation

The Bi-Op states that “outplanting [of elkhorn and staghorn corals] is expected to be implemented several years before the project construction impacts would occur.” (Bi-Op at 125). However, the EIS set the Project “base year” as 2017. (EIS at 261). Even if outplanting started today, outplanting would not likely be completed by 2017, let alone completed for several years prior to the start of construction.

Another related issue is that the EIS is unacceptably vague regarding when exactly Project construction is set to start. As the Bi-Op and EIS make clear, Project timing is important because Project-related impacts and mitigation both have temporal components. (Bi-Op at 125). The EIS should have been clearer with its construction timeline.

6. The EIS must provide more mitigation for manatees

The EIS acknowledges that manatees use Port waters. (EIS at 76, figs.52-53). However, it does not (1) discuss cumulative impacts to these species, (2) acknowledge or assess the increased risk to manatees from the larger Panamax and Aframax ships, or (3) require additional mitigation for impacts to manatees during the operational phase of the Project.

First, several of the cumulative impacts affecting corals can also affect manatees. Ocean acidification, ocean warming, and sea level rise all affect seagrasses—one of manatees' primary food sources. Other documented impacts to seagrasses include “(1) dredging and filling, (2)

construction and shading from in-and over-water structures, (3) propeller scarring and anchor mooring, (4) trampling, (5) storms, and (6) siltation.” (Bi-Op at 71). Some or all of these impacts may be present at the Port and may cumulatively contribute to declines to seagrasses and other manatee food sources.

Next, the EIS assumes that the post-Project Port dimensions and operation would harm manatees less than the operation of the Port under the No Action Alternative. (EIS at 222). As with other species susceptible to ship strike, the EIS fails to compare the Recommended and National Economic Development plans to the 2012 environmental baseline. (*Id.*). The EIS thus masks all impacts to manatees arising from larger ships and higher traffic by assuming, without proof, that the Recommended and National Economic Development plans would be a boon to manatees, *compared to the No Action Alternative*. (*Id.*).

The EIS is written in a way to suggest that manatees will be better off with the Project. (EIS at 222). This is highly unlikely. As is the case with whales, larger ships pose a much greater danger to manatees than smaller ships. And higher Port traffic will almost certainly cause an increase in manatee injuries and deaths. It is unlikely that the Recommended and National Economic Development plans are more environmentally beneficial than the Port as it is operated today. Because of this, the EIS’s analysis of impacts to manatees is likely misleading.

This misleading analysis likely led the EIS to place no additional mitigation on the operation of the Port, despite the additional risks manatees face due to the Project. A busier Port with larger ships poses a lethal threat to manatees that use Port waters, so it follows that the Port Authority should be subject to more stringent mitigation measures, such as increased monitoring and additional operational procedures for when manatees are using Port waters.

7. The EIS did not discuss cumulative impacts to sea turtles

Many of the sources of cumulative environmental stress are similar between corals, manatees, and sea turtles. Two important impacts to sea turtles that deserve more in-depth discussion are (1) the effect of beach warming on hatchling sex ratios and (2) the increased occurrence of fibropapillomatosis (“FP”) in sea turtles.

Anthropogenic climate change is projected to lead to beach warming. (Fuentes et al., *Past, Current, and Future Thermal Profiles of Green Turtle Nesting Grounds: Implications from Climate Change*, 383 J. EXPERIMENTAL MARINE BIOLOGY & ECOLOGY 56, 56 (2009)). Sea turtle

hatchling gender is determined by nest warmth. (*Id.*). Fuentes et al. predict that “a near complete feminization of hatchling . . . population will occur by 2070 under an extreme scenario of climate change;” however even more moderate climate change predictions will likely alter sea turtle sex ratios. (*Id.*; Bi-Op at 27).

Additionally, fecal coliform, high nutrient loads, and ocean warming may contribute to an increase in algal blooms near the Port. (Thierry Work et al., *Immune Status of Free-Ranging Green Turtles with Fibropapillomatosis from Hawaii*, 37 J. WILDLIFE DISEASES 574 (2001); Kyle Van Houtan et al., *Eutrophication and the Dietary Promotion of Sea Turtle Tumors*, PeerJ (2014), at *1). This sewage carries a cocktail of viruses and bacteria, some of which may exacerbate FP in sea turtles. (*Id.*). Additionally, anthropogenic stressors including warming waters and increased nutrient levels from sewage and other runoff may increase the prevalence of macroalgae that promote FP tumors. (*Id.*).

The EIS makes no mention of the cumulative risks that sea turtle species face. In order to serve as a valid informational document, the EIS needs to talk about cumulative impacts to sea turtles. Failure to do so renders the EIS incomplete and invalid. (40 C.F.R. §§ 1508.8(a)-(b), 1508.7; *City of Oxford v. FAA*, 428 F.3d at 1353; *California v. Block*, 690 F.3d at 761).

8. The EIS does not provide an accurate analysis of air quality and greenhouse gas impacts

As discussed above, the EIS did not set a baseline for current Port GHG emissions. (*See* EIS at 161). This makes it impossible to meaningfully assess the GHG impacts from the Project compared to 2012 Port conditions. However, it is safe to assume that emissions from 5,067 vessels—many of which will be much larger and use substantially larger quantities of fuel than vessels that currently call at the Port—will result in much higher levels of GHG pollution.

This underlines a flaw in the EIS—it consistently avoids comparison to the baseline. Instead of correctly comparing Project impacts to the baseline, the EIS makes the Project appear more attractive by only comparing the Project to a hypothetical (and unfounded) no-Project scenario that would purportedly have 96 more vessels annually call to Port than the Project. (EIS at 248). This is misleading. Instead of comparing numeric GHG emissions to a 2012 baseline, the EIS repeats over a dozen times the mantra that “[t]he project allows for a shift from smaller, less efficient ships; to larger, more efficient ships.” (*See, e.g.*, EIS at 247, 251, 270). While this

“efficiency” argument may be economically true, it fails to pass muster as an adequate analysis of air quality impacts.

This logic can be likened to justification for public transportation. If commuters switch from driving cars to taking buses, cities may see decreased emissions, *but only if* this substantially reduces the number of cars on the road. Viewed in isolation, buses produce far more emissions than even the most polluting car. Thus, cities would experience gigantic *increases* in emissions if everyone switched from driving cars to driving buses.

The Project proposes to do just that. It will phase out the use of much smaller ships for a near-equal increase in the number of “Empire State Building”-sized ships. (See fig.4). The Project does *not* replace dozens of smaller ships with one large ship, as would be necessary to achieve any real reduction in emissions compared to the No Action Alternative. To see decreases in emissions similar to those desired by proponents of public transportation, the Project would need to see a massive *decrease* in the number of ships calling to the Port. Instead, there will apparently be a near-imperceptible difference in ship traffic between the No Action and Recommended Plan alternatives.

This all serves to underline why the EIS should have undertaken a systematic, quantified analysis of GHG and other pollutant levels under a 2012 baseline and No Action, Recommended Plan, etc. alternatives. (See Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts, COUNCIL ON ENVIRONMENTAL QUALITY 18 (2014) (recommending agencies quantify GHG emissions if project (construction and operation) emissions would exceed 25,000 metric tons of CO₂e)). Without calculating and quantitatively comparing different emissions scenarios (baseline emissions, No Action Alternative emissions, Recommended Plan emissions, etc.), it is impossible to understand air impacts between the 2012 baseline and the various alternatives before the decisionmaker.

To make things worse, it appears as though the EIS also attempts to make the Project appear more attractive by falsely attributing certain emissions improvements to the Project. (*Id.* at 251). Mandatory IMO fuel efficiency standards will apply across *all* transport vessels and have *nothing* to do with the implementation of the Project as compared to the No Action Alternative. (*Id.*). Vessels under the No Action Alternative will see similar decreases in harmful emissions. It is detrimental to the public and to an accurate understanding of the Project to imply

that these emissions improvements will be unique to the pro-Project alternatives, or that they are attributable in any way to the Project.

The EIS does not adequately disclose or discuss environmental impacts arising from GHG and other pollution emissions from increased Port use from larger ships. Because the EIS does not provide a helpful and accurate analysis of Port emissions, this document has failed to fulfill its purpose of informing the public and decisionmakers. (*Natural Resource Defense Council v. U.S. Forest Serv.*, 421 F.3d 797, 812 (9th Cir. 2005)).

9. The EIS did not consider upstream or downstream impacts related to the Project

The EIS ignores the fact that the Project will likely influence regional and international market trends. For instance, increasing the size of the Port can increase the production, import, and export of oil products because the Project would decrease the cost to transport these products. Anything that serves to increase market efficiencies will act as a market incentive to increase the sale and production of goods in U.S. and other global markets.

The EIS does not disclose or discuss the potential upstream and downstream effects from the Project. (*See* EIS at 161). Because these impacts are reasonably foreseeable, the EIS needed to discuss these impacts. (40 C.F.R. § 1502.22).

10. The EIS may need to consider indirect impacts from increased Port-related traffic

The EIS assumes that most cargo that enters and leaves the Port will be transported via rail. (EIS at 3). However, rail improvements are in still in the proposal stage and may never be realized. Even if these projects are realized, rail may not have the capacity to transport all of the cargo.

Either way, the Project would indirectly impact highway traffic either positively or negatively. The EIS should have discussed in more detail the indirect effects of the Project on highway traffic.

IV. Conclusion

The Center and Biscayne Bay Waterkeeper thank you for your time and consideration of our comments. If you have any questions, please feel free to contact us at the information provided, below.

Sincerely,

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RE: PORT EVERGLADES HARBOR NAVIGATION STUDY, FINAL
ENVIRONMENTAL IMPACT STATEMENT

**Re: Port Everglades Expansion Feasibility Study and Final EIS, Broward County,
Florida**

The purpose of this communication is to provide you with requisite information that the US Army Corps of Engineers (USACE) must consider prior to approving the Feasibility Study Report (Study) and Final Environmental Impact Statement (FEIS) and prior to issuing a Record of Decision (ROD), for the expansion of Port Everglades, Florida. These comments are provided pursuant to the National Environmental Policy Act (NEPA).

NEPA regulation 40 CFR §1502.9(c)(1)(ii) states as follows:

(c) Agencies:

(1) Shall prepare supplements to either draft or final environmental impact statements if:

...

(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

There are both significant new circumstances and relevant information regarding environmental concerns arising from the Miami Phase III Federal Channel Expansion Permit #0305721-001-BI (Port of Miami). These circumstances and information have a significant bearing on the level of environmental impact estimated in the FEIS, ***and the associated estimated project cost used for the Cost Benefit Analysis.***

Additionally, NEPA regulation 40 CFR §1502.22 states as follows:

§1502.22 Incomplete or unavailable information.

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

The costs of obtaining the incomplete information relevant to reasonably foreseeable significant adverse impacts as a result of the Port Everglades project will not be exorbitant, and this information is already currently being collected and will continue to be collected as part of the Port of Miami project. Therefore USACE should include this information in the EIS.

We strongly recommend that USACE prepare a Supplemental Environmental Impact Statement (SEIS) pursuant to 40 CFR §1502.9(c)(1)(ii), to reflect consideration of the significant new circumstances and relevant information that is currently being collected for the Port of Miami that establish reasonably foreseeable significant adverse pursuant to 40 CFR §1502.22. The associated estimated project cost and the associated Cost Benefit Analysis must also be revised.

The primary issues are summarized as follows:

1. Impacts from the dredging will exceed the 150 meter indirect impact area.
2. Coral mitigation is underestimated.
3. Seagrass mitigation is underestimated and unresolved.
4. The biological monitoring plan specific to this project has not yet been developed.
5. The coral surveys relied upon are no longer valid, and impacts have been underestimated.
6. Coastal Zone Management Act (CZMA) Consistency has not yet been obtained.
7. There is no Flooding and Flushing Model provided.
8. Coral dredge-related disease risks are not considered.
9. Storms and hurricanes are not an appropriate proxy for dredging-related impacts.
10. Turning notch cumulative impacts are not considered.
11. The plan to address leaking of dredged material disposal is inadequate.
12. Turbidity limits are too high to protect coral resources.
13. A new consultation under Section 7 of the Endangered Species Act is required.
14. Missing and mischaracterization of the ongoing impacts at the Port of Miami.

We are providing the following information to support our comments:

1. Turbidity and sedimentation impacts from the dredging will exceed the estimated 150 meter indirect impact area that is accounted for in the Study.

USACE has significantly underestimated the “indirect impact area,” and new information from the Port of Miami further supports that the evaluation of effects must be increased to account for turbidity and sedimentation impacts beyond 150 meters.

The FEIS states (page 194):

“USACE expects turbidity and sedimentation effects associated with the Port Everglades Navigation Project Recommended Plan to be similar to those seen at the ongoing Miami Harbor expansion project.”

and again (on page 199):

“The material disposed in the Port of Miami project is the same type of material being dredged at Port Everglades (hard limestone) and should result in similar conditions regarding associated sedimentation and turbidity generated by the material.”

Sedimentation and associated lethal impacts to corals is currently occurring beyond 150 meters of the expansion of the Port of Miami (Figure 1), despite pre-construction



Figure 1. An example of a *Diploria* coral ~250m north of the Port of Miami Channel showing signs of severe past and ongoing sediment impacts. Areas buried under sediment had dead skeleton underneath. 14 Jan 2015 (Photo: E. D'Alessandro)

assurances that sediment impacts would be minimal (NOAA 2011 Biological Opinion page 30). The extensive and uncontrolled sedimentation impacts currently occurring in the Port of Miami are the center of ongoing litigation,¹ state Water Quality Certification (WQC) violations², and documented impacts to listed coral species and Essential Fish Habitat.³ The Florida Department of Environmental Protection (FDEP), the Miami-Dade County Division of Environmental Resources Management (DERM) and the National Oceanic and Atmospheric

Administration (NOAA) each documented impacts well beyond 150 meters at Port Miami (Extent of sediment impacts noted by: FDEP >200m⁴, DERM ~450 m⁵, and NOAA >200m⁶). This is also supported by observations made by Biscayne Bay Waterkeeper and relayed to USACE and NMFS on 20 January 2015 and 16 February 2015.

The determination of 150m indirect impact zone used in the FEIS appears to be based on a 1980-1981 Port Everglades dredging project and a 2004 Key West dredging project. The Key West Project has already been discounted as an inadequate reference for open ocean conditions like the Port of Miami and Port Everglades.⁷ The erroneous comparison to dredging in Key West led to the utilization of an inappropriate sediment monitoring methodology in Miami (sediment blocks),⁸ and led to the sediment levels on the reef being largely unregulated-- resulting in litigation.

¹ *Biscayne Bay Waterkeeper et. al., v. U.S. Army Corps of Engineers*, Case No. 14-CV-23632-FAM (2014)

² U.S. Environmental Protection Agency. 12 December 2014. Letter to Eric Summa, Environmental Branch Chief, Jacksonville District Corps of Engineers. 2pp.

³ National Oceanic and Atmospheric Administration. 13 February 2014. "Port of Miami *Acropora cervicornis* Relocation Report, Final Report." 15pp.

⁴ Florida Department of Environmental Protection. 18 August 2014. "Field notes on impact assessment in Miami Phase III Federal Channel Expansion Permit #0305721-001-BL." 39pp.

⁵ Miami-Dade Department of Regulatory and Economic Resources, Division of Environmental Resources Management. July 2014. "US Army Corp [sic] of Engineer's Port of Miami Channel Deepening Project: Report on Opportunistic Hardbottom/Reef Inspections." 10pp.

⁶ National Oceanic and Atmospheric Administration. 13 February 2014. "Port of Miami *Acropora cervicornis* Relocation Report, Final Report." 15pp.

⁷ Miami Harbor Monthly Inter-Agency Coordination Meeting Minutes February 6, 2014, page 3.

⁸ Miami Harbor Monthly Inter-Agency Coordination Meeting Minutes February 6, 2014, page 3.

NOAA concurs that a 150m buffer zone is insufficient, and in a letter to the USACE on 12 August 2013 states (page 3),

“...indirect impacts to coral and hardbottom habitat would result within the 150 meter zone around the channel, [but] NMFS does not agree that sedimentation and turbidity impacts would be limited to this zone.”

The recent and ongoing dredging in the Port of Miami is a more accurate and recent reference for potential impact zones in Port Everglades. The “indirect impact area” should therefore be expanded to include the full extent of sediment impacts observed in the Port of Miami dredging project (up to 450m from the channel) when a comprehensive sediment delineation survey is completed, especially considering that the FEIS explicitly states that the Port of Miami dredging project was used as the basis for these estimations.⁹

Alternatively, the Port of Miami project should be used as the reference in an SEIS to estimate potential impacts and necessary mitigation and monitoring. A full survey to identify the scope of the sedimentation impacts beyond 150 meters and the magnitude of coral mortality should be conducted in the Port of Miami, ***and the cost associated with mitigation and monitoring for impacts beyond 150 meters need to be factored into the estimated project cost and the Cost Benefit Analysis for Port Everglades.***

2. Mitigation – Corals

Hundreds of thousands of corals are intended to be outplanted for mitigation purposes in Port Everglades (FEIS, Appendix E.5). While this is a positive change in the mitigation plan from the DEIS to the FEIS, outcomes in the Port of Miami must be acknowledged and appropriately analyzed in an EIS with respect to this plan. Without understanding the full range of potential sediment impacts, mistakes can easily be made. For example, in the Port of Miami, ESA-listed Acroporid corals that were relocated to an area thought to be outside the potential impact area (~250 meters from the channel), but were heavily impacted by sediments during dredging (See Figures 2A, 2B, 2C).^{10,11} It is imperative, therefore, to fully understand the potential extent of the sedimentation impacts to avoid damaging relocated corals thought to be safe in nearby “mitigation reef” areas.

Additionally, ESA-listed Acroporid coral thickets have been recently discovered near Port Everglades¹² and will potentially be jeopardized from dredging activities and the widespread nature of associated sedimentation impacts. Loss of these newly discovered

⁹ See Reinitiation of Consultation Letter USACE to NOAA; September 14, 2014 (page 3) “In summary, by this letter, we are requesting the following: (1) reinitiation of consultation with respect to additional relocation Acropora corals; (2) reinitiation of consultation with respect to Acropora corals potentially subject to project-related sedimentation between 100 ft. and 450 ft. both north and south of the channel.

¹⁰ Miami-Dade Department of Regulatory and Economic Resources, Division of Environmental Resources Management. July 2014. “US Army Corp [sic] of Engineer’s Port of Miami Channel Deepening Project: Report on Opportunistic Hardbottom/Reef Inspections.” 10pp.

¹¹ Biscayne Bay Waterkeeper. January 30th 2015. “Biscayne Bay Waterkeeper Survey Dive, Middle Reef, ~100-250m North of the Port of Miami Channel 1/30/15.” 48 slides.

¹² David Fleshler. 2 January 2015. “Forests of rare coral discovered off South Florida. Sun Sentinel.



Photo C-24c. *Acropora cervicornis* colony #24 immediately post-reattachment.

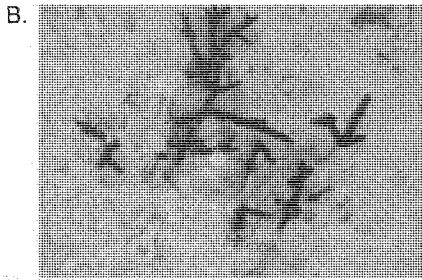
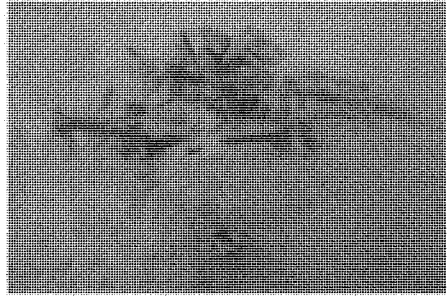


Photo C-34d. *Acropora cervicornis* colony #34 30 days post-reattachment. CSA 1/14

CSA 1/14/14

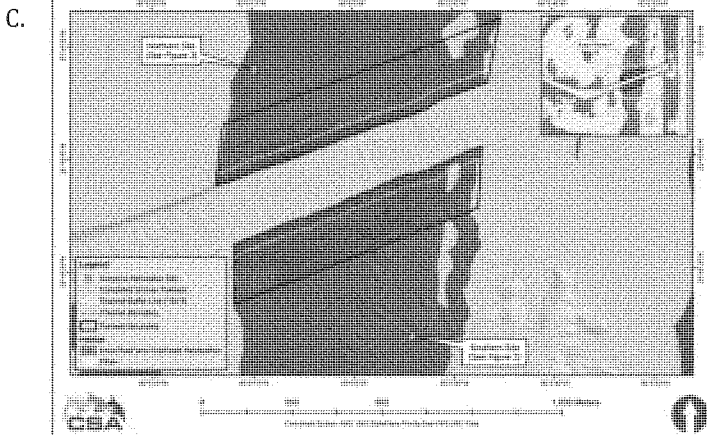
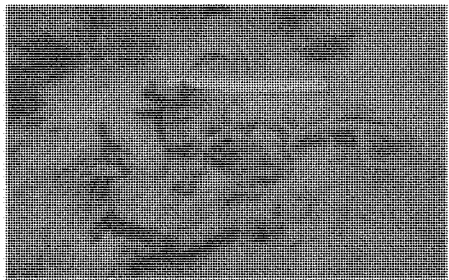


Figure 2A & B. *Acropora cervicornis* coral 24 and 34, relocated to the Northern Relocation Site, outside of the indirect impact zone (See Figure 2C for location), and then after one year, observed by Biscayne Bay Waterkeeper (BBWK).

Figure 2C. Port of Miami Middle reef. Northern Site shows location of corals in Figure 1 A, B, which are outside of the 150m indirect impact area (shown by a black box). (“CSA Final Report for the 30-Day Post-Relocation Monitoring Survey for *Acropora cervicornis* associated with the Miami Harbor Construction Dredging (Phase 3) Project”, 25 February 2014).

thickets would be devastating for our nation and the recovery of this ESA-listed species. The updated FEIS or an SEIS should account for the location of these thickets and should monitor them throughout the project.

The coral mitigation plan must account for all direct¹³ and indirect¹⁴ effects, in both the direct and indirect impact areas. Direct effects in the indirect impact area have far exceeded direct effects in the direct impact area for the Port of Miami. Thousands of corals in the indirect impact area (+150m north and south of the channel) in the Port of Miami have suffered near or total mortality. We would expect to see the same types of impacts in Port Everglades as supported by the FEIS (pages 194 and 199 quoted in #1 above). ***These types of direct effects in the indirect impact area have not been factored into the estimated project cost and the Cost Benefit Analysis for Port Everglades.***

Furthermore, NMFS notes in their comments in the DEIS (FEIS Appendix L, page 19),

“Coral reef communities in the channel would be directly impacted through (1) removal by the dredge; (2) coral fragments and dredged material, including rubble and sediments, moving downslope or down current and shearing coral reef organisms from the substrate; and (3) fractures in hardbottom and lithified coral propagating into the reef framework, thereby destabilizing attachment of coral reef organisms. The latter two impacts create an unstable coral reef environment resulting in lower coral abundance and fewer large coral colonies. The steeply sloped, eastward facing spur-and-groove reef habitats are particularly at risk from the downslope movement of sediment and rubble. Stabilizing the seafloor following the dredging at Port Everglades may be the most significant measure that could minimize post-injury impacts on the surrounding reef communities and newly established reef organisms on uncovered substrate (Dial Cordy and Associates 2006).”

The USACE response to this concern is that the USACE will mitigate for any below-dredge-depth impacts to not-previously-impacted hardbottom (FEIS Appendix L, page 19). However, stabilizing the hardbottom following dredging would *prevent* this damage and avoid future mitigation costs. Because it would constitute an avoidance and minimization measure, reducing potential environmental impacts to reefs, including ESA-listed corals, ***stabilization should be required as a part of the project scope and requirements.***

¹³ 40 CFR §1508.8(a) defines “direct effects” as those that “are caused by the action and occur at the same time and place.”

¹⁴ 40 CFR §1508.8(b) defines “indirect effects” as those that “are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, populations density or growth rate, and related effects on air and water and other natural systems, including ecosystems.”

3. Mitigation – Seagrasses

Seagrass mitigation must account for all areas that has contained seagrass during any survey:

The FEIS describes seagrass habitat as dynamic, fluctuating between areas that are continuously vegetated (“occupied”) and areas that are only intermittently vegetated (“unoccupied”). Because of the changeable nature of seagrass habitat, multiple surveys are required to fully understand the boundaries of a seagrass bed. Virnstein et al. 2009¹⁵ describes the ESA-listed Johnson’s seagrass as an “erratic, sparse, but persistent species...” best described by “pulsating patches’ in both space and time.”

FWC’s comments¹⁶ stress the importance of the dynamic nature of seagrass habitats, stating:

“...seagrass habitats include continuous vegetated beds as well as patchy environments with unvegetated areas between the patches. Distribution and abundance of all seagrass species naturally fluctuate temporally and spatially for a variety of reasons (e.g., changes in water quality, current flow, etc.), especially in patchy seagrass habitats. The absence of seagrass in a particular location during a single survey event does not indicate that the location is not viable seagrass habitat. (Page 10)”

In their August 12, 2013 letter¹⁷ concerning issues in the DEIS, NMFS states:

“The draft EIS does not describe impacts to areas historically mapped and previously ground-truthed to contain seagrass. These areas represent the available expansion habitat that will no longer be available after the project is constructed. NMFS believes USACE significantly underestimates the amount of seagrass that would be impacted. (page 10)”

NMFS’ concerns have not been addressed in the FEIS, and unoccupied seagrass habitat is still not included in the proposed FEIS seagrass mitigation plan.

While the USACE has conducted multiple documented surveys of the project footprint, they plan to rely only on the survey done immediately pre-construction to determine the proposed seagrass mitigation acreage. This will significantly underestimate the amount of seagrass that will be impacted by the project. The FEIS identifies 7.41 acres of seagrass habitat (occupied and unoccupied) within the project footprint. However, only areas occupied by seagrass when the pre-construction survey is conducted will be mitigated for (most recent survey estimated 4.21 acres). The FEIS states (FEIS Appendix E, Section 4.1, page 14):

¹⁵ Virnstein, R.W., Hayek, L.C., and Morris, L.J. 2009. Pulsating Patches: A model for the spatial and temporal dynamics of the threatened seagrass species *Halophilajohnsonii*. *Marine Ecology Progress Series* 385:97-109.

¹⁶ Letter from Mark Thomasson (FDEP) to Eric Summa (USACE). 12 June 2014. which includes an attachment to the Letter to Lauren Milligan (FDEP) from Scott Sanders (FWC) 7 August 2013.

¹⁷ Letter from Roy Crabtree (NMFS) to Col. Alan Dodd (USACE). 12 August 2013.

“...a total of 7.41 acres of seagrass habitat (occupied and unoccupied) falls in the project footprint. Of that, a total of 4.21 acres that comprises occupied seagrass habitat will require mitigation (see impact polygons in Appendix E1).”

The FEIS states (Appendix E 4.1 page 14),

“All credible scientific information regarding the functional value of ephemeral seagrass habitat will be considered at the time of construction to determine the amount of additional seagrass mitigation.”

Relying on the preconstruction survey to determine seagrass mitigation will provide only a single snapshot in time, and will omit areas found to be occupied by seagrass in prior USACE surveys. Therefore, the conservative approach would be to plan to mitigate for the total area of seagrass found to be occupied during at least one of the USACE seagrass surveys, as NMFS and FWC suggest in their comments, and the EPA echoes. Neither NMFS, not FWC, nor best available science supports the USACE policy to mitigate only for occupied seagrass habitat.

NMFS recommended mitigation for “no less than 8.45 acres of seagrass habitat impacts (FEIS Appendix L, page 28)”. The USACE responded, saying “The USACE will mitigate for only existing seagrass beds, not unvegetated sand.” This is an incomplete and inadequate response to NOAA’s scientifically-sound recommendation. The USACE policy to treat dormant seagrass beds as “sand” does not account for dynamic, and well-established biology of seagrass and ignores consideration of available, “high quality” scientific information is required by regulations 40 CFR 1500.1, 1502.24.

The EPA also noted that NMFS recommended more seagrass mitigation credits than the USACE (FEIS, Appendix L). The USACE responded to the EPA to explain the discrepancy, saying, “NMFS is considering seagrasses where there are no seagrasses. This is not consistent with regulatory policies of the State of Florida or USACE.” Again, this is inaccurate. The USACE assertion that they will not mitigate for unoccupied seagrass is not in agreement with established science, the advice of expert state and federal agencies, or Florida administrative court rulings, for example, *Flynn versus Florida Department of Environmental Protection* (Case No. 96-4737) found,

“Seagrass beds in general, and *Halophila johnsonii* in particular, move around. They may be in one spot one year and in another (close-by) location the next. Therefore, **although seagrass may not be presently growing in a particular area, that area may be a potential site for such growth.**”

In other states with Coastal Zone Management regulations specifying mitigation (e.g. New Jersey, N.J.A. 7:7E-3.6¹⁸) for unoccupied seagrass habitat, the USACE must consider

¹⁸ N.J.A.C. 7:7E Coastal Zone Management Rules 15 July 2013.

impacts to unoccupied seagrass beds. Therefore, there does not seem to be a nationwide USACE policy regarding mitigating for unoccupied seagrass habitat, as seems to be suggested in FEIS Appendix L responses from USACE.

Consideration of available, “high quality” scientific information is both required by regulations 40 CFR 1500.1, 1502.24 and section 7 of the ESA 16 U.S.C. 1536(a)(2) for use of “best available science”, which is also relevant to these seagrass areas due to the presence of Johnson’s seagrass. The USACE decision to only mitigating for seagrass beds occupied at a particular moment in time will almost certainly result in a net loss of available seagrass habitat.

The current uncertainty (FEIS Appendix E, page 14) pertaining to the area of seagrass requiring mitigation leaves the total cost of the seagrass mitigation plan in limbo. Accounting for the total acreage of seagrass mitigation in the FEIS is the kind of consideration that is crucial to be made at the planning stage, rather than immediately prior to starting construction. Failure to include the full area of potentially required seagrass mitigation in the FEIS will result in potential “surprises” in project costs when construction begins. ***Mitigating for all seagrass habitat (occupied and unoccupied) must also be factored into the estimated project cost and the Cost Benefit Analysis for Port Everglades.***

Issues with the West Lake Park seagrass mitigation site: limited space availability, questionable similarity of ecological function, and lack of legal mechanism:

The FEIS states that the USACE intends to obtain 2.5 seagrass functional units at West Lake Park. However, we have several concerns with this approach. NOAA rightly observed in their DEIS comments¹⁹ that *there is simply not enough space in this area for mitigation,*

“According to the ledger contained in this permit (Attachment 5), there are 2.2 seagrass credits available at West Lake Park. The USACE mitigation plan describes the need to use 2.4 seagrass credits. Using the 10 impact estimate that includes 8.45 acres of historically mapped and ground-truthed seagrass habitats and the Unified Mitigation Assessment Method (UMAM) scores applied by the USACE (which are in dispute per the section below), over 5 seagrass credits would be needed from West Lake Park. Thus, using either impact assessment, there are not enough seagrass credits available at West Lake Park. (page 10-11).”

The FEIS notes that now 2.9 credits will be utilized in West Lake Park (FEIS page 14), rather than 2.4 in the DEIS. However, NMFS’ estimation of 5 credits needed has not been addressed in the FEIS (see also above).

¹⁹ Letter from Roy Crabtree (NMFS) to Col. Alan Dodd (USACE). 12 August 2013.

The Florida Fish and Wildlife Conservation Commission commented in the draft EIS²⁰,

“A portion (one functional unit) of seagrass mitigation in West Lake Park is credited from establishing a manatee/seagrass protection area (MPA). The mitigating value of this MPA has been in question, and the FWC maintains that protecting existing seagrass resources does not replace the ecological functions of the seagrass resources permanently removed by the project (page 9)”

This issue has not been addressed in the FEIS, and USACE continues to rely on West Lake Park functional units that may not be able to be used and will significantly affect the cost of this project.

FWC further identifies its uncertainty as to the legal basis for the creation of this zone²¹, stating (page 9), “Additionally, the FWC is not clear by which legal mechanism this zone has been created.” The aforementioned comments on the DEIS have not been adequately addressed by the FEIS.

The seagrass present at West Lake Park do not provide equivalent critical ecological function as seagrass removed from Port Everglades, which is used as nursery habitat for federally managed, oceanic and estuarine spawners, such as the gray snapper, gag grouper, and blue striped grunt. FWC and NMFS addressed this issue in their DEIS comments and neither have been addressed adequately in the FEIS. For example, NMFS stated, and the EPA echoed their concerns, (page 11)²²

“The seagrass habitats at West Lake Park, which is located further away from the inlet and coral reefs, would not provide the same ecological services as the seagrass impacted through the expansion (page 11).”

The USACE response to this comment is that 1) there is no other available seagrass mitigation area, and 2) that fish ontogenetic migrations occur over years (FEIS Appendix L page 11) and therefore, presumably species will be able eventually to travel to the seagrass at West Lake Park. However, the fact that species’ migrations may take years is not evidence that species will use West Lake Park as an equivalent habitat, or that such migrations will ever occur (see numerous scientific studies cited by NMFS in DEIS comment letter²³). This response does not address issues at West Lake Park related to proximity to planktonic larvae flow, temperature variability, salinity variability, and generally sub-optimal physical conditions of the seagrass compared to Port Everglades. Furthermore, this response does not address NMFS concerns that the (page 12) “proposed port modifications would further isolate seagrass beds at West Lake Park from the inlet,

²⁰ Letter from Mark Thomasson (FDEP) to Eric Summa (USACE). 12 June 2014. which includes an attachment to the Letter to Lauren Milligan (FDEP) from Scott Sanders (FWC) 7 August 2013.

²¹ Letter from Mark Thomasson (FDEP) to Eric Summa (USACE). 12 June 2014. which includes an attachment to the Letter to Lauren Milligan (FDEP) from Scott Sanders (FWC) 7 August 2013.

²² Letter from Roy Crabtree (NMFS) to Col. Alan Dodd (USACE). 12 August 2013.

²³ Letter from Roy Crabtree (NMFS) to Col. Alan Dodd (USACE). 12 August 2013.

limiting their value in larval migrations and settlement”²⁴. If the value of seagrass nursery habitat was solely a function of migration time of juvenile fish, as the USACE seems to suggest, then other studies would not have linked species diversity and life history to proximity to an ocean inlet²⁵ (page 11 & 12). Secondly, the lack of alternative available mitigation area does not render these seagrass habitats ecological equivalent.

To support that point, NMFS believes that the UAMAM scores for West Lake Park should therefore be lower than what the USACE has provided (FEIS, Appendix L, page 25) as a result of this decreased ecological value. The USACE does not adequately address NMFS’ concern in the FEIS. Rather, the USACE responds only that NMFS should have commented on that concern during a different Clean Water Act process (FEIS Appendix L, page 25). The FEIS should therefore be updated to fully incorporate NMFS’ concerns regarded UAMAM scores in West Lake Park.

A complete mitigation plan for seagrass, including occupied and unoccupied seagrass beds, must be established, and the associated costs factored into the estimated project cost and the Cost Benefit Analysis for Port Everglades and the above issues must be addressed in the FEIS.

4. Monitoring

The biological monitoring plan for Port Everglades has not yet been developed, and estimated costs associated with such a plan have not been factored into estimated project costs or Cost Benefit analysis. The biological monitoring plan and associated costs that were factored into the estimated project cost and Cost Benefit Analysis are the same plan and the same cost that were used for the Port of Miami. The Port of Miami monitoring plan has proven to be completely ineffective with regard to detecting impacts,²⁶ and will have to be reconsidered as required by the NMFS biological opinion issued for the Port Everglades expansion.²⁷ For example, the sediment monitoring blocks did not accurately measure sediment, which the USACE acknowledged even before construction began, but, regardless, have been used ineffectively in the project to date.²⁸ Florida DEP acknowledged,

“The monitoring protocol for the Miami Harbor project was not designed to document possible impacts beyond the monitoring stations.”²⁹

Dial Cordy, the subcontractors for the Port of Miami expansion project, also

²⁴ Letter from Roy Crabtree (NMFS) to Col. Alan Dodd (USACE). 12 August 2013.

²⁵ Letter from Roy Crabtree (NMFS) to Col. Alan Dodd (USACE). 12 August 2013.

²⁶ Florida Department of Environmental Protection. 18 August 2014. “Field notes on impact assessment in Miami Harbor Phase III Federal Channel Expansion Permit #0305721-001-BI.” 39pp.

²⁷ National Marine Fisheries Service. “Biological Opinion: Port Everglades Expansion Project, Broward County, Florida.” 7 March 2014. 180pp.

²⁸ Miami Harbor Monthly Inter-Agency Coordination Meeting Minutes February 6, 2014, page 3

²⁹ Florida Department of Environmental Protection. 13 June 2014. “SAI #FL201306266640C- Department of the Army, Jacksonville District Corps of Engineers- Draft Feasibility Report and Environmental Impact Statement, Navigation Study for Port Everglades Harbor - Fort Lauderdale, Broward County, Florida” 3pp

acknowledged that the monitoring plan was insufficient, stating (on page 8),³⁰

“Since there are no baseline data for areas outside of the channel-side compliance and reference sites it is not possible to tie a cause of mortality or partial mortality (permanent impact) of any benthic organisms to any particular cause (dredging or otherwise). This is a lesson learned for future projects, detailed maps of the project surroundings and an appropriate study design are critical to assessing project effects in a during-project or post-project period.”

NMFS also commented on this issue in the DEIS, stating (FEIS Appendix L, page 25), “no basis for the determination about sediment effects to critical habitat.” The USACE responded that monitoring will document these effects. However, because the detailed monitoring plan described in the FEIS, these concerns have not adequately been addressed.

We support the development of a new biological monitoring plan in the FEIS as required by the NMFS Biological Opinion. ***Because a new biological monitoring plan will have to be significantly modified to detect impacts, it should be made available for public comment through an SEIS.*** The FEIS also did not identify that additional funding would be necessary for this more robust biological monitoring plan, and these costs have not been factored into the estimated project cost or the Cost Benefit Analysis for Port Everglades. ***We recommend that a new biological monitoring plan be developed and provided to the public through an SEIS, and correct estimated costs be factored into the estimated project cost and the Cost Benefit Analysis.***

5. Surveying

Surveys referenced in the FEIS are outdated and can no longer be relied on for an accurate analysis of risk to resources. The 2011 Battelle³¹ Independent External Peer Review (IEPR), commissioned by the USACE, stated (page ii):

“Moreover, since the Environmental Baseline Study is more than 10 years old, it contains outdated information and is not well integrated with the more updated reports.”

The Environmental Baseline included in the FEIS is still from 2001, and has not been updated. (This 2011 Peer Review is also not referenced in the Chief’s Report.)

Surveys from Port of Miami show that even environmental surveys from 2010 were no longer accurate when the project commenced in 2013. The listed coral surveys for Port of

³⁰ Dial Cordy and Associates. “Monthly delineation of potential sedimentation effect area within nearshore hardbottom (October 2014). Port of Miami Phase III Federal Channel Expansion Project FDEP Permit Number #0305721-001-BL.” 19 December 2014. 16 pp.

³¹ Battelle Memorial Institute. 2011. Science Reports for the Port Everglades Harbor, Florida, Feasibility Study and Environmental Impact Statement. Prepared for Department of the Army U.S. Army Corps of Engineers Ecosystem Restoration Planning Center of Expertise Rock Island District.

Miami and Port Everglades were conducted by the same contractor, using the same methodology, just a few months apart (in 2010). Then, in the preconstruction survey in Miami in 2013, the listed coral species survey³² was found to have severely underestimated the amount of listed coral species present by almost ten times and led to litigation. As noted by the contractors surveying the Port of Miami indirect impact area in 2013, just before construction began (page 2),

“Results from the survey indicated the coral abundance was more than 10 times that identified during the 2010 survey, greatly exceeding the anticipated coral colony numbers.”³³

Whether due to different methodologies or a “bloom” of staghorn corals in the last few years, as the USACE asserts,³⁴ the inaccuracy³⁵ of the 2010 Dial Cordy staghorn survey for the Port of Miami warrants an updated survey of staghorn corals adjacent to Port Everglades. ***The listed coral survey for Port Everglades must be redone based on new information from Port of Miami to comply with to comply with NEPA regulation 40 CFR §1502.9(c)(1)(ii).*** The FEIS finding (page 144 the FEIS), states that surveys found no threatened corals within 150m of the channel. This must be reevaluated, and, if present, mitigation for these corals must be updated prior to approval of the FEIS.

This survey should also be expanded beyond the 150m indirect impact area, and should extend to the full sediment-impacted area observed at the Port of Miami (i.e. locate the number of threatened corals potentially impacted out to 450m or more).

Similarly, the number of non-Acropora scleractinian corals is also likely underestimated. The FEIS states (page 47) that “up to 12,235 corals” will be relocated. NMFS states, in their 12 August 2013 letter to the USACE, “Additionally NMFS does not support limiting the amount of relocation to 12,235 coral colonies.” There should be no upper limit on the number of corals to be relocated, and costs should assume that corals in the indirect impact zone may also require relocation and that *all* corals over 10cm should be relocated from the direct impact area.

FWC also identified multiple colonies of the exceedingly-rare *Dendrogyra cylindrus* (pillar) coral close to Port Everglades.³⁶

³² Dial Cordy & Associates, Inc. 2010. Miami Harbor *Acropora* Survey Report. Final Report May 2010. Prepared for the U.S. Army Corps of Engineers. 13 pp.

³³ CSA Final Report for the 30-Day Post-Relocation Monitoring Survey for *Acropora cervicornis* Associated with the Miami Harbor Construction Dredging (Phase 3) Project, 25 February 2014).

³⁴ National Oceanic and Atmospheric Administration 14 September 2014, “Revised Section 7a(2)/7d Evaluation/Supplemental Biological Assessment for Miami Harbor Navigation Project (deepening to 50 ft)” 19pp.

³⁵ CSA Ocean Sciences Inc. 25 February 2014. “Final Report for the 30-Day Post-Relocation Monitoring Survey for *Acropora cervicornis* Associated with the Miami Harbor Construction Dredging (Phase 3) Project.” 64pp.

³⁶ McDewitt et al. (2013) A species action plan for the pillar coral, *Dendrogyra cylindrus*, FWC.

We recommend that the ESA-listed coral survey in Port Everglades³⁷ be updated to avoid the same underestimation of the number of listed species and avoid “take.” This study should also be updated to include the six additional coral species listed in 2014 to appropriately account for additional mitigation and monitoring costs. These additional costs should be factored into the estimated project cost and the Cost Benefit Analysis for the Port Everglades Feasibility Study.

6. Coastal Zone Management Act (CZMA) Consistency

The Draft Environmental Impact Statement only received a conditional consistency determination by the State of Florida for the Coastal Zone Management Act consistency review, and the State deferred a final consistency determination until such time as the WQC was obtained. *The Final Feasibility Report, including the Final Environmental Impact Statement (FEIS), has not yet been deemed to be consistent with Florida’s Coastal Management Program.* The conditions that were established by the State of Florida for the Port Everglades FEIS to be consistent with Florida’s Coastal Management Program are as follows:³⁸

- 1. Flooding and Flushing Model – Demonstration that the project will not cause flooding of properties within the confined interior water body. [§ 373.414(1), F.S.]*
- 2. Hardbottom Impacts – Data in sufficient detail to perform a Uniform Mitigation Assessment Method (UMAM) analysis. [§ 373.414(1), F.S.]*
- 3. Mangrove/Seagrass Impacts – Identification of any potential secondary impact areas where mangroves and seagrasses are in close proximity to the project boundaries. [§ 373.414(1), F.S.] Furthermore, a single seagrass survey is not sufficient to capture the dynamic nature of seagrass expansion and contraction. In addition, mitigation for seagrass habitat that is not currently inhabited with seagrass is a necessity, as seagrass may expand into these areas seasonally.*
- 4. Monitoring and Mitigation Plans – Mitigation plans that quantify and adequately offset both the direct and secondary impacts from construction and resulting sedimentation and within seagrass, hardbottom and mangrove resource areas adjacent to the proposed work sites. [§§ 373.414(1) and 161.041(4), F.S.]*
- 5. John U. Lloyd Beach State Park Impacts – Details on avoidance and minimization, offset any impacts to the park and necessary authorization to use state lands. [§§ 253.03, 253.034 and 253.04, F.S.]³⁹*

These are conditions that, if met, could identify significant adverse effects that would need to be considered in an SEIS. In order to meet these conditions, there are also

³⁷ Dial Cordy & Associates, Inc. 2010. Port Everglades Feasibility study *Acropora* Coral Survey Report. Final Report October 2010. Prepared for the U.S. Army Corps of Engineers. 13 pp.

³⁸ Florida Department of Environmental Protection. 13 June 2014. “SAI #FL201306266640C- Department of the Army, Jacksonville District Corps of Engineers- Draft Feasibility Report and Environmental Impact Statement, Navigation Study for Port Everglades Harbor - Fort Lauderdale, Broward County, Florida” 3pp

³⁹ Florida Department of Environmental Protection. 13 June 2014. *Letter to Eric Summa, U.S. Army Corps of Engineers, Environmental Branch Chief, Jacksonville District* “SAI #FL201306266640C- Department of the Army, Jacksonville District Corps of Engineers- Draft Feasibility Report and Environmental Impact Statement, Navigation Study for Port Everglades Harbor - Fort Lauderdale, Broward County, Florida” 3pp

associated costs, which should be factored into the estimated project cost and the Cost Benefit Analysis.

7. Flooding and Flushing Model

There is no Flooding and Flushing Model in the FEIS. An accurate model of the alteration in hydrodynamics is crucial for this project, especially in light of the fact that this region of South Florida faces imminent threats from sea level rise. Furthermore, in their 12 August 2013 letter, NMFS recommended that “the USACE provide a detailed hydrographic assessment.” However, the FEIS refers to a 2010 study only, indicating that this updated hydrographic assessment was not completed. The CZMA comments from the Florida Department of Environmental Protection also called for this study to be performed as a condition of CZMA consistency. *This is an outstanding concern from State of Florida’s comments on the Draft EIS (13 June 2014) that has not been adequately remedied, and as identified above, would have associated costs that should be factored into the estimated project cost and the Cost Benefit Analysis.*

8. Coral Disease

Dredging-related disease impacts on corals have not been considered in the FEIS. The impact of disease on corals adjacent to dredging must be considered in the Final EIS. Recently, Pollock et al. 2014⁴⁰ showed that corals exposed to chronic dredging sediments are twice as likely to develop diseases. Although this study was conducted in Australia, the dominant coral genera in the study (*Acropora*) is the same genera as South Florida’s threatened staghorn and elkhorn coral. It is common practice in Caribbean coral reef ecology to draw conclusions from studies conducted on Pacific corals. Pollock et al. 2014’s findings are particularly relevant for staghorn corals, which are highly susceptible to disease; disease outbreaks largely led to over 95% declines in staghorn corals since the 1970’s. In the Port of Miami, outbreaks of white plague disease have been observed recently near the Port channel. The Weekly Offshore Coral Stress and Sediment Report from Port of Miami (Weeks 69 & 70) states:

“The recently high levels of scleractinian coral mortality attributed to the white plague disease event have created a confounding factor when examining total coral stress and sediment stress data from compliance monitoring sites. As a result, the confounding effect of coral mortality was limited to a small proportion of all coral stress data. With the emergence of the white plague disease event, as many as 12 tagged colonies per compliance monitoring site have experienced total colony mortality.”

While dredging cannot be conclusively determined to be the cause of this disease outbreak, this is deeply concerning and could indicate a widespread and long lasting impact to coral reefs that have not been previously accounted for. Furthermore, turbidity from sediment plumes can also shade corals, making it difficult for them to obtain energy

⁴⁰ Pollock, F. J., Lamb, J. S., Field, S. N., Fleron, S. F., Schaffelke, S., Shedrawi, G., & Willis, B. L., (2014). Sediment and turbidity associated with offshore dredging increase coral disease prevalence on nearby reefs. PLoS ONE, 9(7), e102498.

from sunlight via their symbiotic algae, leading to sublethal effects such as greater disease risk.⁴¹

9. Storms and hurricanes are not an appropriate estimation of dredging-related impacts.

The Final EIS (page 192) states, “The reefs in the vicinity of Port Everglades ... are regularly subjected to variable and often high levels of turbidity and sedimentation... due to stochastic events such as hurricanes and tropical storms.” It is inappropriate to compare the impacts of hurricanes and storms to potential impacts from dredging. Hurricane and storm impacts last only hours to days, whereas dredging impacts are chronic. Chronic impacts from sedimentation and turbidity are far more damaging to corals, despite a potentially greater total volume of sediment being disturbed at one time during a storm⁴². Furthermore, hurricanes and storms suspend coarse, natural sediments already residing on reefscapes, while dredging is contributing more volume overall, and finer, sediments to the system. While coarse sediments have interstitial spaces to allow for oxygen flow through the sediment, dredging-related sediments are typically fine in nature and therefore compact and generate anoxic sediments.

Naturally occurring, intermittent weather events should never be used as evidence that corals are adapted or somehow better able to withstand dredging impacts, or as a proxy for potential impacts for dredging (See also Figures FEIS 77, 78, and 79). Continual references to the impacts of Hurricane Sandy and Andrew, for example (see pages 193 and 194) are erroneous and should not be used in this or any other USACE EIS.

10. Turning notch cumulative impacts must be considered.

Although the local sponsor is now completing the deepening of the Turning Notch, the cumulative environmental impacts from this expansion should be considered in the overall analysis of the feasibility of this project (40 C.F.R. §§ 1508.25, 1508.7). The Final EIS states (page 41), “This component of the project was removed from the federal project for economic reasons.” These reasons should be spelled out clearly in the Final EIS, and environmental tradeoffs investigated while taking this portion of the construction into account. NMFS commented on the draft EIS (FEIs Appendix L page 26,

“NMFS believes the impacts of the proposed project, along with project components that have been removed from the federal project but are still being pursued by the Port (i.e., dredging 8.4 acres of mangrove to expand a turning notch), result in more adverse impacts to EFH than what are described in the draft EIS, questioning USACE’s conclusion that the project’s cumulative impacts are negligible.”

⁴¹ Erftemeijer, P.L.A., Riegl, B., Hoeksema, B.W., Todd, P.A. (2012) Environmental Impacts of dredging and other sediment disturbances on corals: A review. *Marine Pollution Bulletin*. 64:1731-1765.

⁴² Pollock et al 2014, and the International Association of Dredging Companies (2011) Facts about Dredging Around Coral Reefs. Information Update.

USACE responded that this comment was addressed in the negotiated blended mitigation plan, but it is still not clear in the revised mitigation plan that the Turning Notch area is being incorporated into the cumulative impacts. The mitigation and monitoring needs must be evaluated to include this Turning Notch and to address our concerns and NOAA's. Furthermore, because the area will also be dredged and just under nine acres of mangrove will be destroyed, the removal Turning Notch area cannot, therefore, be accounted for as a "significant reduction... of impacts" and should not be described in this Final EIS as an effort to "preserve important ... mangrove wetland" or as a component of a reduction of up to 98% of impacts" (page 45, Final EIS).

11. Inadequate plan to address leaking of dredged material disposal

The failure to regulate the leaking of transport barges has been a major issue for the Port of Miami project. The EPA recently denied⁴³ the USACE request for a two year extension of permission to dispose of dredge materials in the Miami ODMDS due to chronic violations of disposal regulations (See Figure 3). To date, contractors have proved incapable of controlling leaking sediments from hopper barges. This Final EIS contains no discussion of provisions to regulate leaking hopper barges or methods to prevent and stop leaking hopper barges. Furthermore, the FEIS does not consider the cumulative impacts of the expansion of the ODMDS, which also must be examined.

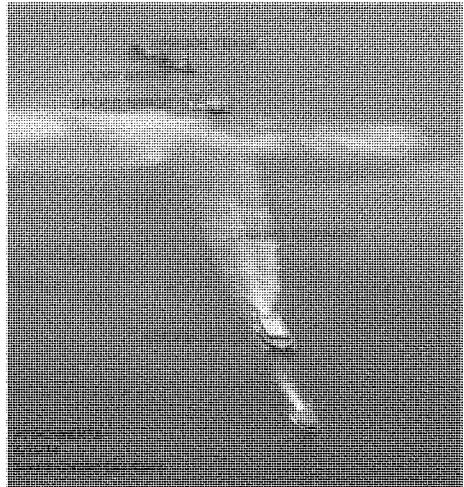


Figure 3. 25 June 2014 image showing leaking sediment at Port of Miami expansion project (Photo: D. Kipnis)

The 19 December 2014 letter from the EPA to USACE states,

"Per the information provided in your revised Report, the USACE has identified forty-nine instances of non-compliance related to disposal operations at the Miami ODMDS. We understand that many of these instances violated sections 3.4.2.1, 3.4.2.2, 3.4.2.3 and 3.4.9 of the Contract Specifications. Violations include misplaced materials, excessive leakage from disposal vessels and leaving disposal doors open following departure from the ODMDS. A majority of the non-compliance events involve excessive leakage from the disposal vessel. The EPA is concerned about these violations in consideration of the valuable live bottom resources in the vicinity, including federally-listed species protected under the Endangered Species Act."

⁴³ Letter from EPA to Eric Summa, USACE 19 December 2014.

12. Turbidity limits are too high

The Final EIS requires a turbidity limit of 29 NTUs. This high turbidity limit proved ineffective in the Port of Miami to protect adjacent reefs from dredging impacts. Because the USACE claims that there have only been a handful of turbidity violations in the Miami project, the observed sediment damage must have occurred within this 29 NTU limit. Observations of both massive turbidity plumes (measured at 1500m at times from satellite images) and corals buried under 14cm of fine, dredging-related sediments⁴⁴ were made in the Port of Miami. Because these corals were buried in sediment that fell out of suspension in a turbidity plume, these observations are related. Allowing another project to take place near fragile reefs with this 29 NTU turbidity limit is not prudent, and nor is it following NEPA regulation 40 CFR §1502.9(c)(1)(ii) to consider “*significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.*”

NOAA pointed out in their 12 August 2013 letter to the USACE that a 29 NTU limit is “not conservative and should be reevaluated (page 3).” However, the USACE does not respond to the comment in the FEIS (FEIS Appendix L, page 20), inexplicably deeming it “No Response Required”.

The USACE continues to assert that there is no proven relationship between turbidity plumes and sedimentation. However, this is not the case. The turbidity plumes act like a tracer through which the trajectory of the sedimentation can be followed via satellite images. (See Figure 4 for a visual depiction of sedimentation plumes in the Port of Miami). The USACE has declined to act on NOAA’s suggestion that a correlation study of the connection between turbidity plumes and sedimentation be carried out.⁴⁵ Despite the absence of a peer reviewed publication documenting the link between

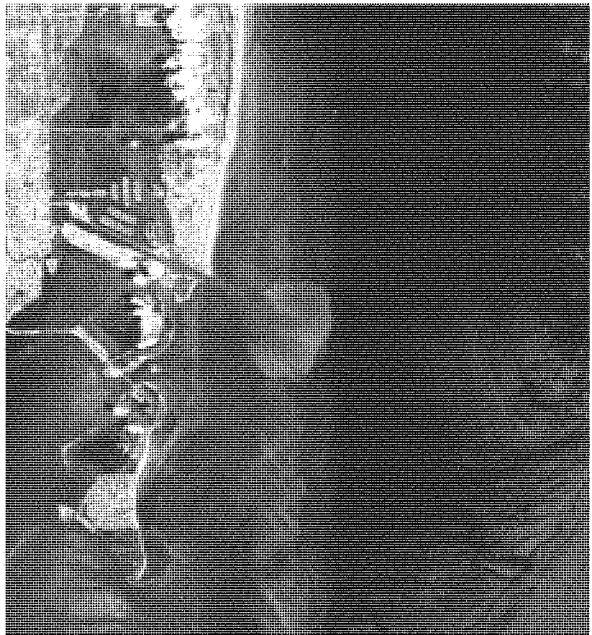


Figure 4. Landsat image accessed April 24, 2014 showing an immense plume of turbidity at the Port of Miami.

⁴⁴ Florida Department of Environmental Protection. 18 August 2014. “Field notes on impact assessment in Miami Harbor Phase III Federal Channel Expansion Permit #0305721-001-BI.” 39pp.

⁴⁵ Email Pace Wilber (NOAA) to Jocelyn Karaszia (NOAA), July 31, 2014.

turbidity plumes and sedimentation, abundant anecdotal evidence exists that the fine sediments causing turbidity plumes fall out of suspension onto hardbottom habitat, as observed with the corals in the Port of Miami.⁴⁶ Such evidence should be considered in the FEIS.

Newly-discovered staghorn coral reefs were identified in close proximity to Port Everglades. These new thickets of *Acropora cervicornis* corals are exceedingly rare. Although these corals reside outside the currently designated 150m impact area, a consideration of possible impacts to this species must be included in this EIS. Miami-Dade County DERM observed “signs of coral stress and excessive sedimentation at the ‘Port of Miami Natural Transplant Area’” mitigation reef location approximately 450m away from the dredging site dredging.⁴⁷

Turbidity from sediment plumes can also shade corals, making it difficult for them to obtain energy from sunlight via their symbiotic algae. This results in decreased energy stores for corals, leading to slower growth, reduced reproduction, and greater disease risk. Atlantic *Acropora*, specifically, are known to be reliant on access to sunlight for fulfilling their energetic needs, as they are poor feeders, and are therefore unlikely to be able to compensate for a loss of energy from shading. Staghorn corals are known to be among the most susceptible species to turbidity stress.⁴⁸ Estimating a similar range of sediment impacts and size of turbidity plume in Port Everglades, these newly discovered staghorn reefs could be at risk and must be included in the FEIS.

Due to the vulnerability of these corals to turbidity stress, the connection between turbidity and sedimentation should be further studied and the impacts incorporated into an SEIS.

13. New information from the Port of Miami expansion triggers the need for a re-initiation of consultation for Port Everglades under Section 7 of the Endangered Species Act.

USACE must reinitiate formal consultation “[i]f new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered.” 50 C.F.R. § 402.16. Here, NOAA’s biological opinion completed in March 2014 is no longer valid in light of the vast underestimation of: 1) threatened resources in the 2010 Dial Cordy survey in Miami, and 2) the geographic range of sediment impacts from dredging.

14. Missing and Mischaracterization of the Ongoing Impacts at the Port of Miami

The Final EIS states, “USACE expects turbidity and sedimentation effects associated with

⁴⁶ Florida Department of Environmental Protection. 18 August 2014. “Field notes on impact assessment in Miami Harbor Phase III Federal Channel Expansion Permit #0305721-001-BI.” 39pp.

⁴⁷ Miami-Dade Department of Regulatory and Economic Resources, Division of Environmental Resources Management. July 2014. “US Army Corp [sic] of Engineer’s Port of Miami Channel Deepening Project: Report on Opportunistic Hardbottom/Reef Inspections.” 10pp.

⁴⁸ Rogers, C.S. 1990. Responses of coral reefs and reef organisms to sedimentation. *Marine Ecology Progress Series* 62:185-202.

the Port Everglades Navigation Project Recommended Plan to be similar to those seen at the ongoing Miami Harbor expansion project (page 194).” Because of the similarity between these projects, it is important to accurately account for the damage incurred in Miami. However, the Final EIS either omits or inaccurately describes the condition of the sediment impacts in the ongoing Port of Miami project, as detailed in Section 1. For example, it states,

“Based on monitoring data from the ongoing Miami Harbor dredging project, after the dredging is complete in an area adjacent to reef habitats, the deposited material begins to be worked into the system’s existing sediment budget and is no longer discernible from the background sediment; it abates in a short period of time (page 196).”

This statement is not factually based, and is not consistent with observations of the signatories to this letter, the USACE, USACE contractors, or NOAA⁴⁹. (See also the Biscayne Bay Waterkeeper letter to DEP about the shortcomings of the sediment delineation surveys at the Port of Miami, attached).

Specifically, the NOAA report (from October-November 2014 observations) states,

“At 200 meters north of the channel, there was no change in observations on the effects the sedimentation was having on the corals (i.e., multiple centimeters of fine and clay-like standing sediments, recent mortality, sediment dusting of sessile reef organisms with fine and clay-like material, and associated mortality) demonstrating that the sediment accumulation was continuous and sedimentation effects continued beyond 200 meters to the north of the channel (page 7).”⁵⁰

USACE subcontractors stated,

“After months of implementing adaptive management strategies for the dredging operations, corals at channel-side sites were still exhibiting “stress above normal” according to project monitoring results.”⁵¹

Furthermore, the Final EIS relies on prior, and now invalidated, Biological Opinion Section 7 Consultations (see page 199, 201, 236 Final EIS) from 2011 and 2009 and 2008 in Miami-Dade County. The FEIS uses these prior Biological Opinions as evidence that NMFS considers sedimentation impacts “insignificant.” However, these past Biological Opinions have been deemed inaccurate, and have required a reinitiation of consultation. In the case of the 2011 Biological Opinion in for the Miami project, the reinitiation of consultation on the Biological Opinion was specifically due to an underestimation of

⁴⁹ National Oceanic and Atmospheric Administration. 13 February 2014. “Port of Miami *Acropora cervicornis* Relocation Report, Final Report.” 15pp.

⁵¹ Sediment Delineation Report, Dial Cordy, December 19, 2014

sediment impacts on corals by the USACE. Reinitiation of the 2011 Biological Opinion has been the center of ongoing litigation as well. NOAA has also changed its position on the relevance of sediment impacts since the 2011 Biological Opinion, also in a 2013 letter to the USACE, stated (page 3):

“While NMFS and Dr. Walker estimate 111.87 acres of indirect impacts to coral and hardbottom habitat would result within the 150 meter zone around the channel, NMFS does not agree that sedimentation and turbidity impacts would be limited to this zone.”

In fact, USACE has also acknowledged that the scale of the sedimentation impacts has exceeded the projections for the Port of Miami and as such, has requested reinitiation of consultation for listed coral species in a letter dated 14 September 2014 (page 2-3):

“In response to the recent information highlighted in the project weekly hard bottom and coral health reports, demonstrating a larger geographical extent of project-related sedimentation than originally anticipated...In summary, by this letter, we are requesting the following: (1) reinitiation of consultation with respect to additional relocation *Acropora* corals; (2) reinitiation of consultation with respect to *Acropora* corals potentially subject to project-related sedimentation between 100 ft. and 450 ft. both north and south of the channel.”

The reinitiation of consultation on the Biological Opinion occurred just after NOAA issued an emergency relocation request for threatened *Acropora* corals being impacted by uncontrolled sedimentation, stating:

“NMFS has determined, based on monitoring reports submitted by the USACE, that there is clearly sediment impact affecting coral colonies, including ESA-listed *Acropora cervicornis* and possibly newly-listed corals, in the project area.”⁵²

Therefore, the 2011 Biological Opinion for the Port of Miami can no longer be relied on as evidence of NMFS’ understanding of the potential for impacts of sedimentation on corals. Statements referencing conclusions from the 2011 Biological Opinion must therefore be removed from the FEIS. The continued reliance on outdated and inaccurate Biological Opinions is misleading with respect to NOAA’s opinions on potential impacts.

Much of the information from the current Port of Miami project was not available to USACE at the time that the draft EIS was considered. However, impacts from the Port of Miami dredging project are significant new information and such information must therefore be incorporated in the EIS to avoid for similar potential impacts in Port Everglades and to comply with NEPA regulation 40 CFR §1502.9(c)(1)(ii).

⁵² Port of Miami Emergency Remediation Recommendations from NMFS PRD. September 10, 2014.

Failing to consider highly relevant information from the Port of Miami project will lead to environmental and economic hardships. To prevent excessive damage to corals and the environment, relevant information related to deleterious environmental impacts from the Port of Miami dredging project must be addressed and considered in the Port Everglades EIS. As a first step, comprehensive impact studies must be conducted in Miami immediately. Delays in doing a “post mortem” survey on Miami’s reefs will obfuscate important data that is critical for decision making in Port Everglades.

Thank you for your consideration of these issues. We request that potential negative environmental impacts are accurately identified and properly mitigated for, and that new and significant information arising from the Port of Miami project be considered in the FEIS in compliance with NEPA regulation 40 CFR §1502.9(c)(1)(ii). An accurate accounting and assessment of potential impacts in Port Everglades through the lens of the impacts observed in Miami, and a comprehensive plan to monitor and mitigate for those impacts in Port Everglades has not been considered in the FEIS, and furthermore is simply not possible with the current level of funding reflected in the Feasibility Study. An updated Feasibility Study (including a newly calculated Cost Benefit Analysis, Estimated Project Cost, and a new analysis of the FEIS), as well as a Supplemental EIS for Port Everglades would avoid the unplanned damage to environmental resources, compliance issues, surprise cost increases, and similar litigation to that that is currently taking place 30 miles away in the Port of Miami expansion project.

We are available to discuss any of the above-mentioned issues in further detail at your convenience. Please keep us informed about any available information regarding this project in the future.

Sincerely,

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Comments on Draft EIS

Source no.	Comment No.	Agency/ Affiliation	Commentor	Doc/ Section	Comment	Code	USACE Response
						CC	Concur, change made in complete agreement with comment.
						PC	Partial concurrence, partial change/ update made.
						NC	No change made, see response for justification.
						NR	No response required.
USEPA	1	USEPA		4.5.1 0.2.1, p. 208	...address the discrepancy between National Marine Fishery Service and USACE's findings regarding the occurrence of A. cervicornis within the study area.	NC	The figure in the EIS is correct. Please see Biological Opinion, mitigation plan and EFH consultation documents in EIS appendices for further clarification.
USEPA	2	USEPA			addresses NMFS findings the USACE estimates are too low, by approximately 8.16 acres	PC	This is resolved in the recent EFH consultation documents
USEPA	3	USEPA			use the appropriate mapping scale to determine impacts associated with the proposed outer entrance channel deepening and widening	NC	Based on comments received on the Draft EIS, the bathymetry was updating using the 2013 LADS data provided by Broward County all of the impacts recalculated using the 2013 LADS.
USEPA	4	USEPA			The County appears to have demonstrated the importance of these coral resources by expending the necessary resources to appropriately characterize impacts	NR	USACE agrees that the coral resources offshore of Broward County are important, and based on that belief, USACE has expended hundreds of thousands of dollars on data gathering at Port Everglades since 1999 for this project.
USEPA	5	USEPA			The proposed action represents a significant impact to the County/State's coral resources	NR	Yes, hence this EIS was undertaken pursuant to NEPA regulations.
USEPA	6	USEPA			several apparent hardbottom features were not depicted in the original 2004 NSU maps made from the 2001 lidar survey data	CC	All reef/hardbottom maps have been updated based on the 2013 LIDAR data. See EPA#3
USEPA	7	USEPA			offshore reefs within the proposed action's footprint be mapped at a finer scale	PC	All reef/hardbottom maps have been updated based on the 2013 LIDAR data. See EPA#3
USEPA	8	USEPA				PC	Not in agreement, but USACE will mitigate for 10% of expected, any others will be mitigated after post-dredge surveys. See revised mitigation plan.
USEPA	9	USEPA			it is reasonably foreseeable for the confined blasting to fracture the hardbottom, existing corals and their substrate. The ultimate likely result is an unstable reef substrate.	NC	This is true for only the targeted area. Any unforeseen impacts will be detected and compensated via mitigation.

USEPA	10	USEPA			address NMFS concern regarding the draft's underestimation of cutterhead-dredge impacts within the outer entrance channel. NMFS estimates 19.31 acres of potential impacts compared to USACE's 17.31 acres	NC	Please see BO mitigation plan and EFH consultation documents; additional detail regarding calculations is provided.
USEPA	11	USEPA			EPA recommends the final EIS provide coral/hard bottom impact information associated with the use of explosives and a mechanical excavator which is lacking in the draft	NC	That has always been included in all drafts. Please see Section 4.4.2; 4.5.10.2.2 Direct Impacts. Mechanical backhoe and clamshell are types of mechanical. Rock pre-treatment IS blasting, please see that section.
USEPA	12	USEPA	4.3.2, p. 173		recommends the final EIS add a column to Table 13	NC	Below-dredge-depth impacts are accounted for in the EIS and mitigation plan. Please see coral reef impact subsection in Section 4.0. USACE identifies 10% contingency for below-depth impacts. See Section 4.5.1 0.2.2. Section 4.4.2.2, Section 2.9.1, Section 4.5.10.2.3
USEPA	13	USEPA			the final EIS discuss the appropriateness of using cutter head dredge, with its associated anchoring and cable operation in a sensitive coral reef area	NC	USACE cannot dictate types of dredging equipment that a contractor may use (per the Competition in Contracting Act), so the potential remains for all of the potential contractors to propose to use a cutter head dredge with the traditional anchor cable configuration. USACE can only request the selected contractor implement an anchoring and vessel operation plan to effectively minimize anchor and cable impacts to hardbottom habitat through its Request for Proposal process, which will include incentives to encourage potential contractors to avoid reef impacts (Appendix E.2, Section 4.5.1, p. 12, Section 4.5.1 0.2.2, p. 211). Anchor and cable impacts are thoroughly discussed.
USEPA	14	USEPA	3.3, p. 87		the final EIS discuss potential reef impacts associated with dredge equipment when the 5-7 year dredging period is interrupted by storms	NC	When dredging is interrupted by storms, direct and indirect impacts to habitats and species will likewise be temporarily interrupted. Equipment is removed and will not damage reefs.
USEPA	15	USEPA			address NMFS concern for the proposed action's potential to create a gap or vacuum of sufficient dimension that prohibits floating coral fragments and larvae's ability to cross and land in suitable habitat to grow and reproduce	NC	See EFH correspondence, 4.5.10.2.2, "deepening of the entrance channel, etc." Based on analysis of existing population, USACE finds no likely effect. No literature indicates an issue related to this assumption. Not cited as issue in the BO

USEPA	16	USEPA			the proposed deep and narrow channel may sweep larva out into the deeper waters or into the harbor, ultimately reducing the existing designated critical coral habitat's resiliency.	NC	see above. Not noted as an issue in the BO. Slower speeds in channel may result in more settlement.
USEPA	17	USEPA			EPA finds this characterization [0.006% removal of FLDCH for Acropora] does not adequately reflect the nature of the complex reef dynamics, these reefs exist near the northern limit of reef growth, nor appropriately characterize their value, both economically and ecologically. Moreover, it is inconsistent with the impact determinations and associated mitigation protocol.	NR	
USEPA	18	USEPA		P. iv, Section 4.4.2.2, p. 177. Section 4.5.1, p. 12. Section 6.1, p. 22, Table 6, p. 33, and Table II, p. 37.	The Executive Summary indicates 15.23 acres. 40 Direct dredging impacts are indicated to total 16.64 acres. 41 Appendix E-2 refers to 16.64 acres. 42 While Appendix E refers to 15.17, 43 it is unclear where these numbers come from. It was stated without any discussion or explanation, the revised lower number of 15.17 resulted from engineering modifications and better mapping.	PC	The document and tables have been revised.
USEPA	19	USEPA		Appendix E-2, Section 4.5.1, p. 12.	The discussion of impact scenario 2 is very confusing	CC	Mitigation plan has been revised
USEPA	20	USEPA		Appendix E, Section 1.0, p. iv, Section 3.6.2, p. iii.	no mapping protocols were provided to describe how the mapping was performed	CC	They have been provided.
USEPA	21	USEPA		3.7.2.13, p. 137 and p. 140	Figure 59 cites the habitat maps but no discussion was provided to explain how the polygons were drawn, their criteria, or purpose	CC	It has now been provided.

USEPA	22	USEPA	Appendix E, Section 6.3.5, p. 34, and Table 10, p. 35	Appendix E is unclear whether the calculations were for a 57 or 59 foot depth	CC	The text has been updated.
USEPA	23	USEPA	Appendix E-2, Section 4.5.1.1, pp. 13-15	EPA recommends the final EIS discuss how it derived its Species specific impact as depicted in Tables 2-5	NC	Please see the benthic and fish study included in Appendix D
USEPA	24	USEPA	Section 4.5.1 0.2.2, p. 211	change the word "buffer" to different word because it is boring to reference the outerhead dredge anchor placement	CC	The text has been updated.
USEPA	25	USEPA	Appendix E-2, Section 4.6, pp. 17-21	clarify the draft's position the USACE revised the reef impact amount based upon refined engineering analysis, higher resolution habitat maps, refined construction timelines to modified the project's duration, and indirect effects associated with vessel movements as a result of the economic analysis	NC	Correct. See Section 2.5 of the EIS
USEPA	26	USEPA	4.3.2, Table 18, p 173	clarify the draft's seagrass impacts identified as 4.01 acres when it is our understanding the cumulative impacts associated with the Tentatively Selected Plan is approximately 9.492 acres	NC	9.492 is not correct. See EFH coordination and mitigation plan
USEPA	27	USEPA	4.3.2, Table 18, p 173, 3.6.1.1, Figure 49, p. 101.	clarify why the draft does not include: • The 1.06 acre of seagrass, and corresponding mitigation, National Marine Fisheries Service's identified in the outer entrance channel in its assessment area number 157 • The 2.071 acres of seagrass, and corresponding mitigation, NMFS' identified in the harbor in its assessment area number 2	NC	We have updated the SAV map for offshore in the FEIS. SAV in Area 2 is outside the impact footprint.

USEPA	28	USEPA			EPA further recommends the seagrass impacts be re-considered consistent with NFMIS determinations as supported by the corresponding State agency. EPA recognizes these entities to be the appropriate expertise in the science of fisheries and their associated habitats, i.e., seagrasses	NC	See EFH coordination and mitigation plan. USACE will not compensate for non-existing seagrasses. A new survey will be performed prior to construction.
USEPA	29	USEPA			seagrass impacts be re-considered consistent with NFMIS determinations as supported by the corresponding State agency, clarify why the USACE's snapshot approach to assessing seagrass impacts is based upon the best available science and should be used over NFMIS' cumulative cover approach, which NFMIS' maintains is best supported by the available science.	NC	See EFH coordination and mitigation plan. USACE does not plan to mitigate for un-regulated areas. As agreed to during development of the mitigation plan with NFMIS, a new survey will be performed prior to construction and the gross coverage at that time shall determine the final amount of seagrass mitigation required for the project.
USEPA	30	USEPA		8.11, p. 135; FS	how impact acres to mangrove and reef/hardbottom habitat were determined	CC	This is now included in the relevant impact sections (Section 4.0)
USEPA	31	USEPA		4.7.1, p. 221; 2.7.1, p. 44.	clarify the draft's statement the USACE has determined that although no filling of jurisdictional wetlands will occur as a part of the proposed action. The draft EIS indicates the proposed installation of environmentally friendly bulkheads will impact jurisdictional wetlands	NC	Some wetland areas and seagrass habitats will be dredged, but they will not filled. The bulkhead will be installed to protect any sloughing of wetland soils and promote recruitment in the landward side.

USEPA	32	USEPA			address its independent technical review panel concerns the draft does not address all the requirements of the Endangered Species Act, National Environmental Policy Act, and Water Resources Development Act.	NC	<p>The IEPR report provided with the EIS was a review of the baseline science reports in 2011. This independent review was not tasked to address NEPA, the Clean Water Act or the Endangered Species Act. In the response to comments and concurrence sections of the final report, each comment was reviewed with the IEPR reviewer and it was conveyed that the baseline science reports were not designed to serve as in the role of the EIS under NEPA, nor were they designed to serve as documents for compliance with either the Clean Water Act nor the Endangered Species Act. Beginning on page 52 of the final report, each comment was addressed and the reviewer's determination regarding concurrence with USACE's response is provided. Specifically the responses detailed that these were baseline science reports and were designed to tell project planners what significant resources are in the project area, and then with that knowledge, the planner can develop a project that avoids, minimizes and mitigates for those resources. Each of the comments was deemed closed for this report after the review was provided with the USACE response. A separate IEPR was conducted on the complete Feasibility Study and EIS in August 2013 and the report and NEPA document were determined to be complete and compliant with USACE policy and regulation, as well as federal law including NEPA, the CWA and the ESA.</p>
USEPA	33	USEPA			discuss port and beach renourishment projects located in the two adjoining coastal counties as part of the cumulative impact analysis.	PC	Please see Section 4.29.2 in the DEIS
USEPA	34	USEPA			discuss the sponsor's dredging of the turning notch and the Dania Canal Cutoff, which outside sources report started in July of 2013 as part of the cumulative impact analysis, including impacts upon the proposed mitigation bank, West Park Lake.	PC	The DCC south of the Port was not dredged by the port. The area which was dredged was south-west of the port and was dredged by the Florida Inland Navigation District. The Port's 20 year master plan does not include any proposed deepening or widening for the DCC. It appears that the article of EPA's information was a news article which did not provide sufficient detail for EPA to glean that this work was not part of the port. This dredging and the port's upcoming construction of the turning notch are included in the Cumulative Impact Assessment of the EIS
USEPA	35	USEPA		5.2.3, P. 260	"recommends the USACE further address the National Marine Fisheries Service's mitigation coral nursery proposal"	PC	USACE and NMFS have collaborated in preparing a hybrid mitigation plan, that is now the proposed mitigation action for the project and detailed in the mitigation plan in Appendix E.
USEPA	36	USEPA		Section 3.6.2, p. 108.	the question remains as to whether the proposed action's impacts to coral reefs will ever be appropriately mitigated	NC	USACE has concurrence on the mitigation plan from all agencies
USEPA	37	USEPA			"a number of studies refute the effectiveness of the proposed mitigation and its purported equivalency to natural habitat"	NC	USACE disputes that these studies exist. Please cite. NMFS has agreed that 5 acres of boulder reef will be created

USEPA	38	USEPA		PERG doc Section 7.6, p. 25	"PERG's recommendation appears to be for a minimum advisable size of 12-15 cm colonies. However the draft indicated states one notable recommendation of PERG that will be implemented is the transplantation of corals larger than 25 cm in diameter/ height to the mitigation site."	CC	Based on the lesson learned from the ongoing Miami Harbor project, USACE has modified the proposed project to include relocation of stony corals larger than 10 cm.
USEPA	39	USEPA			"...the transplanting of corals should be consistent with NIMS determinations as supported by the corresponding State agency. EPA recognizes these entities to be the appropriate expertise for addressing coral mitigation."	PC	The mitigation plan has been revised based on collaboration with NMFS to ensure that impacts to hardbottom and reef resources are sufficiently mitigated.
USEPA	40	USEPA			"address...[the] assumption they [boulder reef(s)] will reach 100 percent equivalency with natural coral reefs in 30 years."	PC	See revised HEA and mitigation plan.
USEPA	41	USEPA		Appendix E, Section 1.0, p. iv.	"the referenced OMB Circular [A-94] specifically exempts from its scope water resource projects. It does not prohibit the proposed action from the use of discount rates greater than "0." Nor does the guidance for the exempted water resource projects prohibit the use of discount rates.... [EPA] recommends some discount rate greater than 0 percent be used...."	NC	Under Corps Regulations (ER 1105-2-100, Appendix E, Pg E-154), any mitigation plan developed for the Port Everglades Feasibility Study will be evaluated using a Cost Effectiveness/Incremental Cost Analysis (CE/ICA). The regulations for CE/ICA require that the models utilized to determine benefits (or habitat recovery when assessing mitigation) not utilize a discount rate to be in compliance with the OMB guidance documents previously presented. The regulations for CE/ICA require that the models utilized to determine benefits (or habitat recovery when assessing mitigation) not value the same quality habitat less in the future than in the present. While the NOAA HEA utilizes a 3% discount rate to abide by the OMB guidance for Federal water resources development projects and Corp's regulations for CE/ICA, the modified HEA prepared by the Corps does not utilize a discount rate and for the comparison, 0% will be used and will be retained to as the modified HEA. The mitigation needs analysis performed by the Corps utilized the Visual HEA software package (Koller and Dodge, 2006) method utilizing a 0% discount rate.

USEPA	42	USEPA		Section 5.2.2, p. 259	"The draft EIS indicates, without supporting data or studies, [the interval required to reach substantial functional productivity of this alternative is estimated to be 30-50 years. And also states without supporting data or studies, its proposed mitigation will shorten this interval to 23-30 years. See: Section 5.2.2, p. 259."	NC	Supporting data and studies are cited in the appendices to the mitigation plan.
USEPA	43	USEPA			"... recommends the discount rate should be re-considered consistent with NMFS determinations as supported by the corresponding State agency. EPA recognizes these entities to be the appropriate expertise for calculating the appropriate HEA."	NC	USACE must comply with national requirements regarding the use of discount rates as previously discussed in comment #41.
USEPA	44	USEPA			"USACE's underestimation of impact acreage to corals and hardbottom"	PC	USACE has included additional contingencies. See mitigation plan.
USEPA	45	USEPA			"discuss how the HEA input parameters were selected and whether agreed to by all parties. No justification has been provided in the draft to justify the actual parameters used."	NC	See revised HEA and mitigation plan. Details provided. HEA document discusses the history of input parameter inclusion.
USEPA	46	USEPA		Appendix E, Section 6.3.4, p. 34, and draft EIS, Section 5.2.2, p. 258	"recommends the final EIS identify appropriate compensatory mitigation for the 'best buy' mitigation plan as proposed should the transplant survival rate be lower than the performance criteria value for the transplantation of stony coral colonies to boulder reefs or alternate locations."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
USEPA	47	USEPA		5.2.2, p. 259	"provide a scientific basis for the drafts' statement the transplantation of corals onto mitigation reefs will reduce the time to substantial functional productivity by as much as 20 years"	NC	See HEA, concurred by NMFS

USEPA	48	USEPA	Appendix E2	<p>"clarify the drafts' apparent double counting of mitigation credits for one action. According to the draft EIS, the total number of corals to be dredged is 100,744. Its cost estimate indicates the relocation of up to 12,235 corals outside of the impact area to boulder-reef recovery areas, a 12% reduction in impact. EPA recommends this impact minimization measure be reflected in a corresponding reduction in compensatory mitigation requirements. It would be appropriate to also grant compensatory mitigation credit to the boulder reef recovery areas receiving the coral transplants [Compensatory Mitigation for Loss of Primary Resources, Final Rule, 40 CFR Part 230 (2008)]. The effect is getting credited twice for the same action."</p>	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
USEPA	49	USEPA		<p>"clarify...how it will be determined that 100% equivalency of natural reef habitat has been achieved when it is expected take decades after boulder reef construction to achieve 100 percent"</p>	PC	See HEA and revised mitigation plan, concurred by NMFS
USEPA	50	USEPA	Appendix E-5, Monitoring Plan, p. 19.	<p>"EPA believes it is unlikely in five years to achieve 7.5% of species found in the impact site shall be present in the mitigation site by the time of the completion of the monitoring period, and percent cover by the major groups of organisms in the mitigation site shall be no less than it was in the impact site."</p>	NC	See HEA, concurred by NMFS; see Port of Miami, showed greater than 75%

USEPA	51	USEPA	<p>Sec 1.6, p. 16 - FS.; Sec 2.7.1, p. 44; Sec 2.7.1, p. 44.; Sec 2.5.5, p. 40 and Figure 9, p. 40.; Sec 2.2.2, Figure 5, p. 20</p>	<p>"explain how these wetlands [in the TN]...impacts will be avoided when the sponsor will likely have destroyed them prior to the proposed action's initiation."</p>	NC	<p>The Port has indicated that the TN project is isolated from the Federal project, and not a secondary effect of it. Their plans for that area would be engaged regardless of the Port Everglades Navigation Improvements project, as they need that area for additional berthing and transfer capabilities.</p>
USEPA	52	USEPA	<p>Sec 3.5.2, p. 93</p>	<p>"EPA notes the draft EIS describes these mangroves to be removed as: [t]his mangrove area is mitigation for previous wetland impacts associated with the Turning Notch Project (DC & A, 2001)."</p>	NR	<p>Correct.</p>
USEPA	53	USEPA	<p>Sec 2.5.5, p. 40; Sec 4.29.2, Table 36, p. 249; Sec 2.7.1, Table 7, p. 45; Sec 1.4.6, p. 10 - FS</p>	<p>"USACE also takes credit for avoiding significant impacts to mature red and black mangrove wetlands, by dropping the Dania Cut-off Canal component for economic reasons...dredging commenced in July of 2013. The draft EIS did not discuss USACE's approval of the sponsor's permit for this project, for which dredging commenced in July of 2013. The draft EIS did not discuss USACE's approval of the sponsor's permit for this project." EPA notes the dredged material is being disposed of in a landfill instead of offshore dredged material disposal site."</p>	FC	<p>The DCC south of the Port was not dredged by the port. The area which was dredged was south-west of the port and was dredged by the Florida Inland Navigation District. The Port's 20 year master plan does not include any proposed deepening or widening for the DCC. It appears that the source of EPA's information was a news article which did not provide sufficient detail for EPA to glean that this work was not part of the port."</p>
USEPA	54	USEPA	<p>Section 4.29.2, Table 36, p. 249</p>	<p>"the proposed mitigation for removing these [TN] 8.6 acres by the sponsor remain undetermined"</p>	PC	<p>This impact is included in the Cumulative Impact Analysis</p>

USEPA	55	USEPA	Section 7.2.1, p. 122- FS	"clarify the draft's claim [t]he tentatively selected plan now proposes to impact only approximately 1.16 acres of mangroves. The project will impact an additional 8.59 acres. And the Dania Cutoff Canal project impacted an additional 18.49 acres for a total 28.4 acres of mangrove impacts for which mitigation is only being proposed for 1.16 acres"	NC	NC	That statement is accurate. Other projects constructed by other parties are separately permitted and mitigation is their responsibility. As previously stated, no dredging of the DCC is planned by either USACE or the Port
USEPA	56	USEPA	Section 3.5.2, p. 95	"clarify whether the proposed action's mangrove impacts will affect habitat created by the Port as mitigation for previous impacts to native areas of mangrove"	NC	Yes.	
USEPA	57	USEPA	Section 5.0, p. 260	draft states mitigation to offset impacts to 4.01 acres of seagrass will occur at West Lake Park. EPA understands seagrass impacts may exceed 9 acres	PC		Please see revised text explaining contingency mitigation in Section 5.0
USEPA	58	USEPA		"clarify how West Lake Park creates sufficient seagrass mitigation credit to offset 4.01 to 9.49 acres of seagrass impacts"	PC		Please see revised text explaining contingency mitigation in Section 5.0
USEPA	59	USEPA		"clarify how the best available science and scientific literature supports mitigation of seagrasses at the West Lake Park and is consistent with the federal mitigation rule's requirements" Compensation Mitigation for Losses of Aquatic Resources, Final Rule, 40 CFR Part 230 (2008).	NC		It qualifies because it is in the same basin. It is the only available SAV restoration option in the area, except for some minor opportunities behind bulkheads north of the TN. The site has already undergone federal permitting, including EPA's option to comment under CWA Section 404.
USEPA	60	USEPA		"address the National Marine Fishery Services' concern regarding Port Everglades seagrasses habitat value to two federally managed species: the grey snapper and bluntnose grunt, which is a function of distance from the ocean and inlet which West Lake Park cannot adequately compensate"	NC		Appeldoorn et al (2009) noted that ontogenetic migrations occur over years in their paper, "Movement of fishes (Grunts, Haemulidae) across the coral reef seascape: A review of scales, patterns and processes." Grunts and certainly snappers, would not be inhibited, via moving along the new EFBs, which will actually encourage use of the shoreline habitats post-construction.

USEPA	61	USEPA		Section 5.3, p. 260	"USACE permit SAJ-2002-0072 has authorized only 2.22 seagrass credits". "NMFS has identified 9,492 acres of seagrass impacts requiring 5.25 seagrass credits"	NC	NMFS is considering seagrasses where there are no seagrasses. This is not consistent with regulatory policies of the State of Florida or USACE.
USEPA	62	USEPA			"Identify and discuss alternative mitigation plans should West Lake Park provide insufficient mitigation to offset proposed action's impacts"	PC	This is included in Section 5.0.
USEPA	63	USEPA		Appendix E, Table 2, p. 10	explain how the seagrass UMAM scores were determined	NC	Details on UMAM is available from the FUDEP and is discussed in the Florida Administrative Code. Scores for West Lake Park restoration efforts were assessed by USACE-RD and SFWMO as part of the issuance of the Parks permit. The impact scores were assessed in June 2005 at an interagency meeting and are were included in the EIS as well as the EFH consultation and used FAC to guide determination.
USEPA	64	USEPA		Section 2.7.1, Table 7, p. 25	"clarify the draft EIS' claim it avoided 0.66 acres of seagrasses associated with dropping the Dania Canal Cutoff component since the sponsor currently is dredging this canal"	NC	See comment EPA #63. EPA is in error that the DCC was dredged by the port
USEPA	65	USEPA		Appendix E, Section 3.0, p. 7-8	"clarify the Port Everglades Navigation Project Mitigation Plan will be in compliance with the Federal Compensatory Mitigation Rule, dated April 2008" [Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, 40 CFR Part 230 (2008).]	CC	It will. The WLP/ USACE extension was issued Feb 3, 2011, so that to be in concurrence with 2008 mitigation rule, 2016 is new deadline. EPA would have been a reviewer.
USEPA	66	USEPA		Batelle/ IEPF August 17, 2011	address its peer review panel concerns, as the draft did not, regarding the adequacy of the draft's discussion on avoidance, minimization, and mitigation measures for unavoidable impacts to identified resources and ESA-listed species such as the federally threatened Johnson's seagrass (<i>Halophila johnsonii</i>)	NC	See response to #32 above.

USEPA	67	USEPA	Section 2.3, p. 22 - FS, Re: CWA Sect 404(b) (1) Guidelines	"discuss additional avoidance and minimization measures in accordance to the Clean Water Act because the mangroves, sea grass and coral/hardbottom communities in the area are aquatic resources of national importance"	NC	This is handled in the 404 b analysis appendix and in the EIS (Section 2.5).
USEPA	68	USEPA	Section 7.2.3, p. 124- FS, Table 35	"significant doubt exists regarding the proposed mitigation's adequacy"	NR	
USEPA	69	USEPA	Section 4.7.2, p.222; Section 4.7.2, p.221.	conclusion no substantial impacts to water supplies is expected does not appear to have been supported by a ground water study	NC	A summary of ground water conditions is included 3.9.2. There were no indications that a study was necessary.
USEPA	70	USEPA	Section 2.9.2, p. 48; Section 2.9.3.2.1, p. 67; Section 2.9.3, p. 65; Section 4.0, p. 235; Section 2.9.3.2.2, p. 67.	blasting may facilitate increased porosity and transmissivity of seawater into ground-water dependent public water supplies, particularly during storm events and high tides by fracturing associated with the proposed blasting	NC	Section 3.9.2 indicates that Vugge limestone is already too porous to allow for ground water use close to coast.
USEPA	71	USEPA		describe the proposed action's construction impacts to the surficial-aquifer system. The draft does not provide information on how the proposed action will cumulatively affect previous harbor dredging impacts to the surficial aquifer. Nor does it provide any rock-removal volume estimates.	NC	No change expected. See 4.7.2

USEPA	72	USEPA		Section 3.9 p. 147-148	"provide environmental information regarding the proposed action's impacts to nutrient concentrations of the coastal waters. As the existing deepest channel in the vicinity, the Port Everglades Inlet represents the largest source of potential pollutant loads from inlets to the coastal ocean in Southeast Florida."	NC	The change in flux will not increase the overall amount of "materials" leaving the inlet as the inlet channel, being within yards of the open ocean, experiences a complete flushing during the tidal cycle. Unlike riverine ports (Savannah and Jacksonville), there is not a steady freshwater "stream" passing through the Port and out of the inlet that will be impacted by a change in channel dimension. Inflows into Port Everglades are a function of upstream freshwater releases and vary annually and seasonally bring in variable levels of nutrients and contaminants. Deepening will only change the rate at which materials are evacuated, but will not increase or decrease the overall amount (which is a function of upstream variables not controlled by project features) since the proximity of the inlet channels to the open ocean results in complete (rather than partial) flushing. Nutrients and contaminants will likely flush free of the inlet at a faster rate, but at a slower velocity and over a lesser extent (due to the lower velocities).
USEPA	73	USEPA		Section 3.9 p. 147-148	address those studies indicating the water in the inner entrance channel contains higher concentrations of nutrients compared to levels typically seen in the coastal ocean. Enlargement of the channel may potentially increase the flux of these substances out of the inlet and into the coastal ocean.	NC	See response to EPA #72 above.
USEPA	74	USEPA		Section 4.4.3.2, p. 184., Section 4.29.5, p. 252.	evaluate the potential turbidity effects to water quality during the estimated five-seven years of dredging and blasting. Without information to support its conclusions, the draft states water quality impacts are expected to be inconsequential, temporary, and no foreseeable future actions resulting in a cumulative effect	NC	Based on the ongoing project at Miami, there have been very few turbidity exceedances at Miami Harbor (less than 10 in more than a year of dredging)
USEPA	75	USEPA			evaluate the long-term turbidity effects associated with larger ships using a deeper navigational channel. Larger ships are expected to create larger wakes, potentially increasing shoreline erosion effects, and potentially disturbing and re-suspending bottom sediments.	NC	Most of the shoreline is bulkheaded. Post-panamax ships already call at Port. Slightly lower ships will call; changes in suspended sediments are not anticipated. The same bottom clearances relative to drafts, is anticipated, but actually, in effect, the bottom clearance may be greater with project. See Table 36; a decrease in vessel calls may yield less turbidity. And lower ships will actually come close to bottom depth—as they will have greater underkeel clearance, actually resulting in LESS turbidity in many areas.

USEPA	76	USEPA				deepening may expose more surface area of unconsolidated sediments to erosion	NC	See EPA #75	
USEPA	77	USEPA				consider avoidance and minimization techniques to reduce these potential environmental consequences and identify appropriate mitigation to address this concern.	NC	Section 2.7 provides a summary of avoidance and minimization efforts completed for the project. Avoidance and Minimization has been undertaken to the maximum extent practicable, while still addressing project objectives. Any further avoidance would jeopardize meeting project objectives.	
USEPA	78	USEPA			Section 4, 7.1, p. 221	the draft implies the dredged material to be disposed offshore is suitable for ocean disposal without further analysis, study, or testing, which is not a factual determination.	PC	The material will be tested under the MPRS4 103 process during the PED phase of the project, however based on historic data (as recent as 2013), USACE doesn't expect any change in material quality; a higher proportion of rock is anticipated than with previous dredging, and that may equate to less sediments bound to anthropogenic materials. This has been clarified.	
USEPA	79	USEPA			Section 2.9.4, p. 80	discuss the impacts to the proposed action should a significant volume of dredged material be unable to meet the required ocean dumping criteria,	PC	Use of upland site; section 2.9.4 has been updated.	
USEPA	80	USEPA			Section 3.1.	which appears to imply the material associated with the proposed action has been tested and found in compliance with the ocean disposal criteria. The sediments tested in 2004 were the maintenance material dredged and disposed of in 2006, which is no longer in the basin. Additionally, the harbor has been maintenance dredged at least twice since 2004	PC	See response to EPA #78 above.	
USEPA	81	USEPA			Appendix B, Section 3.10, p. 151.	clarify the draft's inconsistent statements. It states, [i]n [o] sources of pollutants or contaminants have been identified within the construction or disposal areas. However, it also states, [a]lthough industrial facilities exist in the area that may have a potential for releases of toxic materials, the materials most likely to be discharged are petroleum hydrocarbons, small, undocumented chemical spills, and stormwater runoff from large container and freight yards	PC	A Phase 1 analysis is included with the Final EIS in Appendix J.	

USEPA	82	USEPA		Section 3.1	provide the Tier I analysis Appendix J. The draft indicates it has been performed and is in Appendix 1, which it is not. Moreover, Appendix J does not address the requirements of the MPRSA or follow any national or regional guidance for performing a Tier I evaluation	PC	Language has been revised regarding sediment testing. Appendix J is the Phase 1 noted above.
USEPA	83	USEPA		Appendix B	clarify it is Section 103, not Section 102 of the MPRSA authorizing the USACE to designate a one-time use of a disposal site.	CC	Clarification has been made
USEPA	84	USEPA		Appendix B	describe the proposed artificial mitigation site	NC	Only conceptual sites are shown. They will be identified during PED phase during discussions with the interagency cooperation team.
USEPA	85	USEPA		Section 1.8.	clarify the decision not to incorporate the site designation into this draft Port Everglades EIS was a joint EPA/US ACE, not solely EPA's	CC	Clarification has been made
USEPA	86	USEPA		Section 2.9.4.	clarify the ocean dumping criteria are based on a suite of tests including chemical and biological tests, not just chemical testing as implied in the draft	NC	No reference to chemical testing is included in Section 2.9.4
USEPA	87	USEPA		Appendix B	clarify the dredged material disposed at the ODMDS is not regulated under the Clean Water Act and therefore the CWA's Section 404(b) (1) evaluation guidelines are inapplicable to the ODMDS' use.	CC	Clarification has been made
USEPA	88	USEPA		Section 2.9.3.2, p. 97.	define what part of the approximately six million cubic yards is expected to be rock removed (i.e., from the surficial aquifer). The draft indicates a significant quantity of rock will require blasting; approximately 40-50% of the material in the main, south, and north turning basins	NC	For the OEC, approximately only 10% of the total material to be dredged is classified as "hard." For the IEC, it's 5%, MTB is 40%, NTB and STB will not be dredged.

USEPA	89	USEPA			discuss the effects of anticipated sea-level rise over the 50-year project life in context of the need to construct the proposed action to the proposed depth to accommodate the design vessels	NC	2 to 10 mm/yr. Not enough to compensate for project need, and client cannot wait for 50 years to achieve RSL benefit which is small. See Feasibility Study, Eng Appendix 1.1.1, and EIS 4.28.3
USEPA	90	USEPA			discuss how the proposed action will incorporate any revisions to the USACE's existing guidance, which expires on September 30, 2013	CC	The guidance has been converted to ER, so it does not expire.
USEPA	91	USEPA			discuss how the storm-surge impact analysis was performed, the assumptions made, and confidence in any model derived results	NC	See Appendix A of the Feasibility Study for more data on hurricanes and storm surge.
USEPA	92	USEPA			discuss the effects of a deepened channel allowing a greater volume of seawater to penetrate the harbor upon the surrounding areas including environmental justice communities, public water supply facilities, wastewater treatment facilities, and other public infrastructure	NC	EJ communities, public water supplies, WWT facilities and sensitive infrastructure are not in the project area.
USEPA	93	USEPA	Section 4.9.5, p. 226.		explore with the applicant additional measures to reduce fossil-fuel use during construction. Additionally, the USACE and applicant should consider mitigative measures for port operations, such as additional repower/ electrification of container handling equipment, improved logistics related to container movement, port locomotive idle and shut-off policies, use of biodiesel blends, etc	NC	See 4.9.10. Community and local efforts are noted.
USEPA	94	USEPA			Identify any sensitive receptors within 1,500 feet (approximately 500 meters) from air toxics emission sources because the draft EIS did not address air toxics	NC	None were found at NEPAassistMapping.gov or found based on internet searches and other maps of the area. See section 3.11

USEPA	95	USEPA		Section 6.23, p. 265-266	provide more information on how it meets Executive Order 12898	NC	USACE reviewed EPA's NEPAassist system to determine the demographic makeup of the area. With the exception of the Harbor Beach community immediately north of the port on Fort Lauderdale beach, the Inner Harbor (Inner Entrance channel, turning basins and SAC) are surrounded by urban port infrastructure, a state park, a university, Coast Guard station and Naval facility.
USEPA	96	USEPA			include demographic information and maps to support its statements made regarding the lack of minority and low-income population in the study area and surrounding community	CC	Maps have been included. The per capita income of the Harbor Beach community is listed as \$72,000+/year and the minority population of this community are shown as 0-10%. This confirms this area is a high income, low minority community. This data can be accessed via the NEPAassist tool at http://neepasistool.epa.gov .
USEPA	97	USEPA			any potential environmental and human health impacts should be identified along with any efforts to avoid, minimize or mitigate the effects.	NC	None are known to be related to this work.
USEPA	98	USEPA			impacts to children pursuant to Executive Order 13045	NC	As noted in the EIS, the area surrounding the port is mainly industrial port property. The closest school to the port is 1.7 miles northwest of the project area. The only possibility of children being impacted during the project is during construction activities at/near John U Lloyd State park. However, work will be offshore, and proper construction zones and exclusions zones to protect all park visitors will be required by both the park and the project specifications. No impacts specific to children are expected. Section 6.26
USEPA	99	USEPA			include an analysis of impacts to children if there is a possibility of disproportionate impacts related to the proposed action	NC	See EPA #98
NOAA	1	NOAA		n/a	Attachment 1 is the detailed review NMFS provided USACE on July 7, 2011. In lieu of repeating the same comments in this letter, NMFS will focus on the major issues that have not been adequately addressed in the draft EIS...	NR	

NOAA	2	NOAA	Reef Charzm	<p>Coral reef communities in the channel would be directly impacted through (1) removal by the dredge; (2) coral fragments and dredged material, including rubble and sediments, moving downslope or down current and shearing coral reef organisms from the substrate; and (3) fractures in hardbottom and lithified coral propagating into the reef framework, thereby destabilizing attachment of coral reef organisms. The latter two impacts create an unstable coral reef environment resulting in lower coral abundance and fewer large coral colonies. The steeply sloped, eastward facing spur-and-groove reef habitats are particularly at risk from the downslope movement of sediment and rubble. Stabilizing the seafloor following the dredging at Port Everglades may be the most significant measure that could minimize post-injury impacts on the surrounding reef communities and newly established reef organisms on uncovered substrate (Dial Cordy and Associates 2006); however, such stabilization is not proposed in the draft EIS.</p>	NC	<p>Correct: stabilization is not proposed. However, USACE will mitigate for any below-dredge-depth impacts to not-previously-impacted hardbottom habitats that occur incidentally during or following construction.</p>
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NOAA	3	NOAA	Reef Charzn	<p>The USACE mitigation plan estimates the anchors would result in approximately 17.13 acres of additional impacts to coral reef and hardbottom habitats. NMFS believes this estimate is too low because the draft EIS uses maps created at a coarse regional scale to calculate the impacts. Brian Walker, Ph.D., of Nova Southeastern University, the cartographer of the maps used by the USACE in the draft EIS, provided NMFS updated acreage calculations based on finer scale maps more suitable for impact assessment at Port Everglades (Attachment 3). NMFS concurs with Dr. Walker's assessment that 19.31 acres (i.e., 2.18 acres more than USACE estimates) of coral reef and hardbottom habitats would be impacted by dredge anchors if this construction strategy is used.</p>	NC	<p>Walker was not using the most recent 2008 depth data. USACE has used that coverage to calculate revised impact acreages, but found that our previous data matched his, but for some not-previously mapped areas that we have also not included.</p>
NOAA	4	NOAA	Reef Charzn	<p>The draft EIS neither describes how this estimate was developed nor the severity of the impacts expected</p>	CC	<p>Technical approach information has been added to the document for mangrove, seagrass, and reef impact sections.</p>
NOAA	5	NOAA	Reef Charzn	<p>NMFS continues to recommend a more conservative turbidity standard for the Port Everglades project</p>	NR	
NOAA	6	NOAA	Reef Charzn	<p>The discussion of indirect impacts in the final EIS should provide a more thorough discussion of impacts from blasting that may occur outside the channel, including the size of material produced, amount of material produced, and locations of areas that may require blasting</p>	NC	<p>No blasting will occur outside the channel. Additional geotech information will be available during PED phase. This additional geotech analysis will allow for the areas requiring blasting to be specifically identified beyond the information provided in the EIS.</p>
NOAA	7	NOAA	Reef Charzn	<p>As stated in subappendix C, RMA-2 is a depth-averaged 2D model and will not resolve the vertical features of the channel water column. These features, however, may be important when considering impacts within the vicinity of the inlet.</p>	NC	<p>Agree that RMA-2 does not resolve the vertical water column. However in the case of Port Everglades, where due to the proximity of the Port to the open ocean, salinity within the port is essentially the same as the open ocean (contingent upon unpredictable upland freshwater releases), a full 3-D modeling effort was not required. RMA-2 was employed to determine the relative change in salinity between the with and without project conditions. Model results indicated no discernable change. Had a significant change been indicated a more detailed 3-D modeling effort would have been required to fully examine and quantify</p>

NOAA	8	NOAA	Reef Mit	The HEA presented in the draft EIS assumes 100 percent equivalency between the coral reefs that would be impacted and the boulder piles created for mitigation....A pile of boulders is not a coral reef and will not become a coral reef over time	PC	Comment has been superseded by events; please see revised mitigation plan.
NOAA	9	NOAA	Reef Mit	Battelle (2011) also concludes that some of the assumptions made for the HEA, especially regarding recovery service levels, have not been clearly presented or justified. (Recovery service level and % of services rendered)	NC	Comment has been superseded by events; please see revised mitigation plan.
NOAA	10	NOAA	Reef Mit	The USACE subtracted 20 years from the recovery rate as credit for the coral relocation to the boulder reefs. NMFS acknowledges the Port Everglades Reef Group (2004) discussed allowing a 10-year discount for relocated corals; however, this estimate does not reflect the amount of corals to be relocated by the USACE as project minimization, and this discussion occurred prior to the publication of the USACE and U.S. Environmental Protection Agency's (EPA) Mitigation Rule in 2008	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	11	NOAA	Reef Mit	According to the draft EIS Appendix E2, the total number of corals to be dredged is 100,744. The draft EIS cost estimate indicates up to 12,235 corals would be removed. This would represent a 12 percent reduction in impact and therefore it is not appropriate to credit the boulder reef recovery by 20 years.	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	12	NOAA	Reef Mit	NMFS does not support crediting the recovery of boulder reefs that have coral transplants, because the transplants are a project minimization measure, not a compensatory mitigation measure	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	13	NOAA	Reef Mit	Additionally NMFS does not support limiting the amount of relocation to 12,235 coral colonies.	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.

NOAA	14	NOAA		Reef Mit	... numerous coral species would have a recovery period in excess of 50 years....	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	15	NOAA		Reef Mit	HEA is an economic model and is not designed to be used with a zero discount rate.	NC	That is not accurate.
NOAA	16	NOAA		Reef Mit	The draft EIS acknowledges some coral reef habitat will only achieve 15 percent of natural reef services but the draft EIS stops the calculation clock at 50 years.	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	17	NOAA		Reef Mit	USACE Guidance Documents available for FY12 appear to indicate the USACE should use a discount rate of 4 percent for planning projects	NC	USACEHQ publishes guidance on discounting to the Districts each fiscal year. The cover page of this document states: "The PAG states discounting is to be used to convert future monetary values to present values."
NOAA	18	NOAA		Reef Mit	NMFS agrees with Dr. Dodge's assessment (Appendix 4) that the \$1.2M estimate per acre is a more appropriate cost.	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	19	NOAA		Reef Mit	NMFS further notes that the HEA inputs and results in Appendix E2 of the draft EIS are not the same as those of the Cost Analysis.	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	20	NOAA		Reef Mit	the draft EIS does not explain how the boulder reef mitigation plan would compensate for loss of [Acropora] critical habitat. NMFS does not believe that a boulder reef would satisfactorily address the lost functions and values of critical habitat within the project area over the lifetime of the project.	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan and NMFS Biological Opinion
NOAA	21	NOAA		Reef Mit	Because boulder reefs would not adequately offset the functions and values of the reef system which will be impacted as part of the Port expansion project, NMFS recommends this alternative approach using propagation. Furthermore, the NMFS recommended mitigation program is more cost efficient than the USACE "best buy" based on the replicated HEA performed by Dr. Dodge and validated by NMFS.	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.

NOAA	22	NOAA		End & Thr Spp DCH	NMFS recommends the analysis address three key issues in this assessment: 1) the direct and indirect impacts to coral reef habitat containing the essential feature, 2) hydrographic changes from the project and their effect on coral reproduction, and 3) beneficial impacts, if any, of the selected mitigation plan to the extent the mitigation plan is included in the USACE's proposed action.	NR	See Section 7 consultation documents in Appendix F
NOAA	23	NOAA		End & Thr Spp DCH	assessing the amount of "substrate of suitable quality and availability" is a basic benthic type characterization which NMFS believes does not require any additional protocol. Even though these direct and indirect impacts lend themselves to expression as areas, the assessment of critical habitat impacts should not be limited to simple area comparisons of the percentage of the entire critical habitat unit being impacted.	NR	See Section 7 consultation documents in Appendix F
NOAA	24	NOAA		End & Thr Spp DCH	NMFS believes that a deeper, narrower "break" would produce a higher velocity current perpendicular to the natural south-north transport of larvae -- and possibly fragment -- transport resulting in the larvae/fragments being washed out of the natural transport pathway, preventing them from landing on suitable substrate...NMFS recommends the USACE provide a detailed hydrographic assessment of the predicted current flow changes post-construction.	NR	This does not appear to be consistent with basic hydrographic principles. A larger channel prism may actually slow tidal flows, allowing for potentially increased settlement. Line 4 of table 2 in sub-appendix C of the entrance channel states that the flux through the channel will be reduced by 0.4%.
NOAA	25	NOAA		End & Thr Spp DCH	The NMFS recommended mitigation of coral nurseries with outplanting, however, could have significant beneficial impacts on the function of critical habitat.	CC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.

NOAA	26	NOAA		SAV mps	The draft EIS does not describe impacts to areas historically mapped and previously ground-truthed to contain seagrass. These areas represent the available expansion habitat that will no longer be available after the project is constructed. NMFS believes the project is constructed. NMFS believes USACE significantly underestimates the amount of seagrass that would be impacted..... NMFS recommended the draft EIS clearly describe where seagrass impacts would occur and the amount of seagrass habitat present in these areas	NC	The dynamics of SAV in the area are described in the seagrass section of Section 3.0. USACE will resurvey for seagrasses prior to construction
NOAA	27	NOAA		SAV mit	using either impact assessment, there are not enough seagrass credits available at West Lake Park	NC	Final seagrass impact assessment shall be determined in the PED. Phase with a pre-construction seagrass survey. SAV impacts will be offset by additional means if WLP credits are not sufficient.
NOAA	28	NOAA		SAV mit	USACE UMAM scores on this project were done separately from those submitted by the applicant in conjunction with South Florida Water Management District. Future scoring should be done in line with those values which can be found in the file "In July 2011 (Attachment 1). NMFS requested the functional assessments. The draft EIS does not contain the UMAM score sheets for the impacts or the mitigation so NMFS cannot verify the scoring was done in accordance with the permit.	NC	UMAM scores from the 2005 interagency meeting. Scores are included in the Mitigation Plan in Appendix E
NOAA	29	NOAA		SAV mit	EIS does not contain the UMAM score sheets for the impacts or the mitigation	NC	UMAM scores from the 2005 interagency meeting. Scores are included in the Mitigation Plan in Appendix E
NOAA	30	NOAA		SAV mit	These scores do not reflect NMFS field observations.	NR	
NOAA	31	NOAA		SAV mit	The seagrass habitats at West Lake Park, which is located further away from the inlet and coral reefs, would not provide the same ecological services as the seagrass impacted through the expansion	NC	There is no evidence of that, as most ontogenetic shifts occur over years, certainly long enough for individuals to make their way to SAV at WLP, as well as the through the new habitat at the EFBs.

NOAA	32	NOAA		SAV mit	NMFS believes the UMAM scores for the West Lake Park seagrass should be lower than what the USACE has provided	NC	Those scores are already permitted; NMFS has had an opportunity to comment on those scores when WLP project was permitted under CWA 404.
NOAA	33	NOAA		Cumultv Imps	Equaling the project impacts to a percent gives the appearance that impacts would be much less.... Walker et al. (2012) published a peer-reviewed paper on the estimated historical losses of port and shipping activities in southeast Florida. They estimated that Port Everglades has historically dredged 56.5 acres of hardbottom and buried 178 acres of Outer Reef due to improper dumping of spoil material.	PC	Dr Walker's referred to this as Walker 2013, however the analysis has been referenced and included in the Cumulative Impact analysis
NOAA	34	NOAA		Cumultv Imps	The draft EIS does not describe any cumulative impacts for hardbottom	NC	Please see 4.29.6
NOAA	35	NOAA		Cumultv Imps	Enlargement of the channel brings the possibility of increasing the flux of these substances out of the inlet and into the coastal ocean.	NC	Enlargement of the channel would not increase tidal velocity or flux.
NOAA	36	NOAA		Section 7 Consultn	no basis for the determination about sediment effects to critical habitat. To evaluate that effect, the USACE would need to provide documentation regarding the duration of sediment residence (dependent on grain size and physical oceanography of the area) on adjacent hardbottoms (i.e., the essential feature) to be able to say the effect is insignificant for designated critical habitat.	PC	Monitoring will document effects. Please see revised sections on indirect impacts as well as the mitigation plan.
NOAA	37	NOAA		Section 7 Consultn	reference for "hardbottom communities exist in a dynamic environment... may be periodically covered and uncovered by sands," and the periodicity that is being referred to	NC	These are nearshore hardbottoms.

NOAA	38	NOAA	EFH Consult	NMFS believes the impacts of the proposed project, along with project components that have been removed from the federal project but are still being pursued by the Port (i.e., dredging 8.4 acres of mangrove to expand a turning notch), result in more adverse impacts to EFH than what are described in the draft EIS, questioning USACE's conclusion that the project's cumulative impacts are negligible	NR	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	39	NOAA	EFH Recs	USACE shall provide a mitigation plan that assumes no less than 21.66 acres of direct impacts to coral reef and hardbottom habitats	NC	Impact analysis has been updated to incorporate the 2013 LADS data.
NOAA	40	NOAA	EFH Recs	USACE shall provide a mitigation plan that assumes no less than 19.31 acres of anchor impacts, in the case that the dredge equipment selected requires anchoring outside the federal channel	NC	Impact analysis has been updated to incorporate the 2013 LADS data.
NOAA	41	NOAA	EFH Recs	provide a monitoring plan to evaluate physical and biological impacts that may occur outside the channel. This plan shall reflect substantial input by NMFS	NC	Monitoring plan is included in Appendix E.
NOAA	42	NOAA	EFH Recs	USACE shall provide a mitigation plan that reflects no less than 111.87 acres of indirect impacts that would occur in the 150 meter zone surrounding the federal channel. The final EIS should clearly describe how the amounts of indirect impacts to coral reefs are determined.	NC	Impact analysis has been updated to incorporate the 2013 LADS data.
NOAA	43	NOAA	EFH Recs	Substantial input from NMFS shall be reflected in the final blasting monitoring plan	NC	Monitoring plan is included in Appendix E.
NOAA	44	NOAA	EFH Recs	USACE shall update the HEA with scientifically defensible inputs on equivalency of natural coral reefs and boulder piles, recovery rates of dredged coral reef habitat, recovery rates of boulder piles, and discount rates. The final HEA shall reflect actual costs of boulder piles with substantial input from NMFS	PC	HEA has been updated in concert with NMFS during the development of the hybrid mitigation plan

NOAA	45	NOAA		EFH Recs	USACE shall adopt a compensatory mitigation plan that is the most technically sound approach to offsetting the loss of coral, coral reef, and hardbottom habitat. The final coral reef mitigation plan shall not take credit twice for coral relocation. The final coral reef mitigation plan shall reflect input from NMFS	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	46	NOAA		EFH Recs	As a project minimization measure, the USACE shall relocate all corals in accordance to Table 2 in the draft EIS Appendix E-4. Coral relocation shall occur in expansion areas and previously dredged areas.	PC	Comment has been superseded by development of the hybrid mitigation plan between USACE and NMFS; please see revised mitigation plan.
NOAA	47	NOAA		EFH Recs	update the EIS to evaluate the potential for the deepening and widening of the OEC to create a "sink" or trench whereby coral fragments and larvae moving northward or southward along the reef line fall into the channel and become no longer viable. This update to the EIS shall reflect significant input from NMFS	NC	the deepening and widening project at Port Everglades will decrease not increase the velocity of currents perpendicular to the reef line. Secondly the idea that larvae will be "washed out" of the natural transport pathway is scientifically unlikely as the scale of the physical oceanographic forcing functions at play are much larger than the localized effect of the Port channel on surrounding ocean currents (Lee and Williams 1988; Friehter and Moores 2003; Sponaugle et al. 2005). This includes the daily, weekly, monthly, seasonal, and annual variations in the position of the Florida Current (Martínez-Pedraja et al. 2004). At a local scale, Wanninkhof et al. (2005) showed that in Sulfur Hexafluoride tracer plume studies from the Hollywood ocean outfall that northward flow directly over the Port Everglades channel revealed only minor changes to the movement and concentration of the plume resulting from the break. Additionally, an analysis of this concern is included in the EIS in Section 4.5.10.2.2 and NMFS did not include this as an effect of the project in the Biological Opinion prepared for the project.

NOAA	47	NOAA	EFH Recs	[continued response]	NC	Clearly some larvae (of whatever species) can become entrained in the east-west tidal flow associated with the channel break. On incoming tides, these larvae move onshore and can be retained in local coastal eddies and delivered to on-shore estuaries. The result of this process actually enhances local recruitment by retaining larvae in the inshore system (see Lea et al. 1992, Limouzy-Paris et al. 1997, Porch 1998, D'Alessandro et al. 2007) – directly contrary to the NMFS comment above. On outgoing tides the offshore flow quickly diminishes in deeper water as shown by the Futch et al. (2011) pollutant discharge study (see also Stamates et al. 2013). Thus, the south-to-north larval conveyor belt of the Florida Current (Gulf Stream) is essentially unaffected by these breaks. Finally, there is no discernible difference in benthic or fish community types, species richness or abundance on the reefs north or south of the present-day, made-made breaks in the reef line, including Port Miami (which cuts through the 3rd reef), and the Port Everglades channel - further confirmation that these breaks do not interrupt larval transport at any observable ecological scale.
NOAA	48	NOAA	EFH Recs	USACE shall update the EIS to describe no less than 8.45 acres of seagrass habitat impacts	NC	USACE will mitigate for only existing seagrass beds, not unvegetated sand.
NOAA	49	NOAA	EFH Recs	USACE shall update the EIS to describe indirect impacts to seagrass habitat. This update shall reflect input from NMFS. Specifically, NMFS requests USACE update the EIS to identify each seagrass impact polygon on a map and provide a narrative that explains how the impact area was calculated for each seagrass impact area.	NC	Polygons are already uniquely identified. Impacts comprise total removal. Please see final responses to EFH recommendations dated 14 August 2014

NOAA	50	NOAA		EFH Recs	USACE shall develop supplementary compensatory mitigation for seagrass impacts to account for the loss of all seagrass habitat that has been historically mapped and ground-truthed and will become unavailable as habitat after the dredging occurs. The additional mitigation shall appropriately address seagrass impacts that occur closer to or within the inlet. The plan shall address how the site selection for mitigation locations is supported by the best available literature. This plan should include clearly defined performance standards, monitoring protocols, and schedule. The mitigation amounts shall be based on a functional assessment that reflects NMFS and other resource trustee input.	NC	USACE will mitigate for only existing seagrass beds, not unvegetated sand. Please see final responses to EFH recommendations dated 14 August 2014
NOAA	51	NOAA		EFH Recs	USACE shall update the cumulative impacts section and description of cumulative impacts to coral reefs and water quality. The EIS should be updated to acknowledge the findings of Walker et al. (2012) that Port Everglades has historically dredged 59.5 acres of hardbottom and buried 178 acres of Outer Reef as dredged material disposal, which resulted in the loss of over six million corals and approximately 180 acres of live coral tissue area	PC	Dr Walker's refers to his analysis as being 2013, however it has been referenced and included in the Cumulative Impact analysis

NOAA	52	NOAA		EFH Rees	USACE shall require use of best management practices (BMP) to avoid and minimize the degradation of water quality and minimize impacts to hardbottoms and seagrass habitat, including the use of staked turbidity curtains around the work areas, marking of seagrass and hardbottom habitat to facilitate avoidance during construction, and prohibiting staging, anchoring, mooring, and spudding of work barges and other associated vessels over seagrass and hardbottom.	NR	USACE already requires the use of BMPs during construction and will continue to do so for the Port Everglades project
USDOL	n/a	U.S. Dept of Interior			[no comments]	NR	
USFWS	1	USFWS		Reef impacts and mitigation	"Based on the discrepancies outlined above, the Service recommends the Corps mitigate in concert with the NOAA Fisheries' preferred reef mitigation alternative plan, if the plan is found to be legally sufficient, in order to resolve these issues and provide maximum protection of all fish and wildlife resources."	PC	USACE and NOAA have jointly developed a "blended" mitigation plan utilizing elements of a few of the other plans as the preferred mitigation alternative for the project
USFWS	2	USFWS		Protected species: American crocodiles	"...the Service concurs with the Corps' determination as it relates to adults, hatchlings, and/or juveniles of the American crocodile during dredging or blasting operations adjacent to WLP"	NR	
USFWS	3	USFWS		Protected species: sea turtles	"The Service previously concurred with the Corps' determination for sea turtles (March 31, 2005) because no adverse direct or indirect impacts to sea turtle nesting habitat due to dredging operations are anticipated for the TSP"	NR	

USFWS	4	USFWS		Protected species: manatees	"The Service concurred on March 31, 2005, with the Corps' determination for the West Indian manatee because the Corps agreed to incorporate and implement the following:" [1. Standard Manatee Conditions for In-water Work (FWC 2011), 2. blasting protection measures a la Miami Harbor Phase III, and 3. blasting window, i.e., not blasting Nov. 15-Mar. 15]	NR	
USFWS	5	USFWS		Protected species: manatees	provide details concerning the wildlife protection measures to be implemented in the test blast program and how these measures may vary compare to all other CU blasting activities	NC	These are included in the EIS in Section 2.9.3.2.3
BC	1	Broward Co.			The diameter threshold for coral relocation should be 10cm in accordance with typical permitting criteria. The EIS alternately states the diameter threshold for coral relocation is 10 cm or 25 cm. It is recommended that all corals 10 cm in diameter or greater be relocated in accordance with typical permitting criteria.	CC	The correct threshold value for coral relocations is 10cm. The reference to 25 cm in Section 2.7.1 was in error.
BC	2a	Broward Co.			Downslope reef impacts should be included in the EIS if clamshell dredging is an option for the third reef. The EIS does not account for downslope reef impacts that may occur during dredging of the upper part of the reef. Discussions with USACE staff indicate that downslope reef impacts were initially considered; they were ultimately excluded from the EIS analysis based on monitoring reports from the Miami dredging project demonstrating no downslope impacts from the use of a suction dredge. However, the EIS provides for clamshell dredging as a possible construction methodology; therefore, the potential for downslope reef impacts should be addressed unless the EIS is revised to specify the use of a suction dredge.	CC	Downslope impacts have now been estimated and upfront mitigation has been included for 10% of the potential impact, with the remaining 90% assessed through monitoring during the project.

BC	2b	Broward Co.				<p>Other federal agencies and/or local regulatory/resource agencies may disagree with USACE's analysis of the extent of hard bottom/reef habitats (Section 4.4.2.2 of the Draft EIS), and which impacts could result in additional compensatory mitigation (possibly, rock/rubble habitat within the existing federal channel). There may be large rock/rubble features within the existing channel that are colonized by corals, discernible via sidescan sonar or other means. The loss of these hard bottom habitats should be accounted for, and if they are impacted, mitigation should be provided.</p>	NC	<p>The Corps recognizes that there may be disagreement with the analysis conducted for impacts, however, previously dredged channel bottom, and rocks/rubble in the channel that may have colonized with some hard corals, soft corals or sponges is expected to recolonize after the dredging is complete. This assumption is based on the known recolonization of the bottom of the Miami Harbor channel from the 1991 dredging to a survey conducted in 2010. Resources that have recolonized a federal channel after dredging are not mitigated for, based on a policy determination by USACE South Atlantic Division, as these resources are deemed not significant due to their location in a maintained federal channel.</p>
BC	2c	Broward Co.				<p>Broward County Natural Resources Planning and Management Division conducted an independent review of the project's reef impact assessment based on the GIS habitat classification mapping and anticipated project impact area. The outcome of this review essentially verified the project impacts are consistent with what is shown and discussed in the Feasibility Study and DEIS. However, as discussed above the potential for downscope reef impacts was apparently discounted by the USACE in the DE IS and needs to be discussed in the development of the final EIS document.</p>	CC	<p>The Corps appreciates the independent verification of the Corps's impact assessment. Downscope impacts have not been estimated and upfront mitigation has been included for 10% of the potential impact with the remaining 90% assessed through monitoring during the project.</p>

BC	3	Broward Co.	<p>Direct and indirect impacts that may occur from turbidity/sedimentation as a result of construction practices are not fully accounted for in the EIS. The use of best management practices is mandated in the EIS to ensure proper control of turbidity/sedimentation and the USACE definition of environmental success for this project is for indirect impacts to be both minimal and indiscernible (July 23, 2013 1:00pm public meeting). However, historic long-shore currents in the project vicinity and tidal changes at the inlet will make sediment and turbidity control difficult. Staff recommends that a contingent mitigation plan be developed to help ensure mitigation requirements that may result from unintentional impacts are accounted for, and budgeted, in the planning phases of the project.</p>	NC	<p>The Corps disagrees with this determination that the assessment of indirect effects of project construction are understated. Sections 4.4.2 and 4.5.10.2.3 includes a detailed analysis of the effects of turbidity and sedimentation on hardbottom and reef habitats. Upfront mitigation for indirect effects of turbidity and sedimentation were included in the impact assessment and required mitigation (Appendix E2 of the EIS). Post-construction monitoring will also be conducted, in order to ensure that any impacts are accounted for and mitigated.</p>
BC	4	Broward Co.	<p>A detailed pre-construction seagrass survey should be performed to ensure that seagrass impacts are properly identified and mitigated. The EIS includes assumptions regarding impacts to seagrasses based on seagrass surveys performed by various entities from 1969 to 2009. These historic surveys may not be representative of current conditions as it is common for seagrass beds to change shape and size over time. We encourage an updated survey be completed so that the precise extent of impacts, and resulting potential mitigation burden on the ongoing West Lake Park (WLP) habitat improvement project, can be determined prior to construction. A contingency plan for mitigation should also be provided in case WLP cannot accommodate all of the required seagrass mitigation.</p>	NC	<p>the Corps has committed to conduct a final pre-construction survey to ensure that seagrass impacts are mapped prior to construction to ensure that the necessary amount of mitigation is available in West Lake Park. Should the final seagrass survey show greater seagrass density at the time of final survey than any previous survey, the Corps will work with the resource agencies, including the county and Port to obtain additional mitigation credits from the West Lake Park restoration project.</p>

BC	5	Broward Co.	<p>The estimates for mitigation acreages are based on assumptions and the methodology is not fully documented in the EIS. Required mitigation acreage tables for seagrass & mangrove impacts do not include the necessary Uniform Mitigation Assessment Method (UMAM) worksheets. Discussion with USACE staff at the July 23 public meeting indicated that the preliminary estimates were based on historic knowledge from permitting agencies and that a detailed analysis with UMAM worksheets and backup documentation would be performed in a later phase. The wetland delineation for the mangrove habitats in the impact area and adjacent areas (Section 3.5.6 in the Draft EIS) is out-of-date. Broward County recommends these areas be delineated as soon as possible in order to better determine the precise extent of impacts, and resulting potential mitigation burden on the ongoing WLP habitat improvement project.</p>	NC	<p>the UMAM numbers for the mangrove and seagrass impact scores were developed at a joint agency meeting in June 2005. The agencies did not prepare UMAM sheets during this meeting, but the scores that were agreed to were documented. Final UMAM sheets have been prepared and are included in Appendix E. The wetland delineation (specifically mangroves) has been re-verified annually through aerial photography and discussions with FLDEP John U Lloyd park staff. The cited section (3.5.6) of the EIS does not exist. The mangrove wetland section is 3.5.2 of the EIS. Many of the areas in the assessment were historic project components and have now been removed.</p>
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BC	6	Broward Co.	<p>The cost estimates for coral mitigation are not consistent with costs incurred by the County for similar projects. The mitigation plan (Table 8, page 33) lists the cost for artificial reef creation without coral transplantation, as \$588,524 per acre. In 2003, Broward County implemented a shallow water reef creation project without coral transplantation at a cost of \$675,000/acre. Staff recommends consulting with local marine contractors to obtain a more accurate estimate to help ensure mitigation requirements may be properly accounted for, and budgeted, in the planning phases of the project. A more likely range of per acre mitigation costs is between \$800,000 and \$1 million. Staff is aware of a project currently underway in St. Lucie County where the unit cost is approximately \$833,000/acre.</p>	CC	<p>Costs have been re-evaluated in conjunction with NMFS and data from local contractors.</p>
BC	7	Broward Co.	<p>The HEA input parameters are inconsistent with typical resource recovery. The HEA inputs assume that the damaged reef will recover to a 15% level of service in 50 years and the artificial boulder mitigation will recover to a 100% level of service. However, the proposed dredging project will remove the reef framework and in the case of the outer reef, create rubble bottom, therefore making full recovery unlikely. In addition, mature artificial reefs do not provide the same services as a natural reef. Therefore, staff recommends changing recovery time inputs for outer reef impacts from 50 years to "in perpetuity" and adjusting recovery service level inputs for boulder mitigation to less than 100%.</p>	PC	<p>HEA assumptions and parameters have been re-evaluated in conjunction with NMFS, and new calculations have been completed.</p>

BC	9	Broward Co.				<p>The EIS uses a Discount Rate of 0% rather than the previously agreed upon 3%. The Draft Comprehensive Mitigation Plan (Appendix E-2, page 23, section 4.6.3) uses a discount rate of 0% with the explanation that no discounting should occur on a federal water resources project as indicated in OMB circulars A-4 and A-94. Staffs review of the referenced circulars and "Economic and Environmental Principles and Guidelines," found no mention of the required 0% discount rate. Rather, 3% and 7% were used often as examples of acceptable discount rates. The National Oceanic and Atmospheric Administration (NOAA) (1989) Discounting and the Treatment of Uncertainty in Natural Resource Damage Assessment.</p>	NC	<p>Federal water resource development projects covered under the "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" (P&G), are limited by the statement "monetary or NED outputs are discounted". This means environmental outputs from HEA are not authorized to be discounted for any project covered by the P&G (published through the Council on Environmental Quality/Office of the White House), pg E-154 c(1) [CE/ICA procedures] of the Engineering Regulations 1105-2-100 - "Ecosystem restoration outputs are not discounted, but should be computed on an average annual basis, taking into consideration that the outputs achieved are likely to vary over time." Specifically OMB Circular A-94 states "Specifically exempted from the scope of this Circular are decisions concerning water resource projects (guidance for which is the approved Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies These requirements prevent USACE from discounting the HEA.</p>
BC	9cont.	Broward Co.				<p>Damage Assessment and Restoration Program, Damage Assessment Center, Resource Valuation Branch, Technical Paper 99-1, Silver Spring, MD, February) uses a discount rate of 3%. This represents the public's preference toward having a restoration project in the present year, rather than waiting until next year. In meetings for previous drafts of the EIS, the USACE agreed that 3% was appropriate while some agency staff argued for 6%.</p>	NC	<p>Although USACE originally submitted the HEA with a 3%, during model review and HQ policy review, it was determined that the use of a 3% discount rate was not compliant with USACE and OMB policy as the HEA was deemed to be an ecosystem model because the outputs from the model were not monetary, per the previously referenced documents a 0% discount rate must be used. Additionally, USACE-H120HQ publishes guidance on discounting to the Districts each fiscal year. The cover page of this document states: "The P&G states discounting is to be use to convert future monetary values to present values."</p>

BC	10	Broward Co.			<p>Recommendation for Hard bottom/Reef Mitigation. The USACE preferred type of mitigation proposed for impacts to hard bottom and reef habitats may not be the preferred option by other federal agencies or local regulatory/resource agencies (Section 6.2 Item 6 of the CMP/ICM). The type and amount offered by USACE appears to have the best benefit-to-cost ratio but this evaluation may be based on an underestimate of the costs for mitigation per acre as outlined in comment #6 above. Broward County, as the lead project sponsor, may be liable for any costs beyond those of the "Best" option if another option is selected, including that presented by NOAA/NMFS in the DEIS.</p>	PC	<p>Costs have been re-evaluated in conjunction with NMFS and data from local contractors, and mitigation options have been re-evaluated using the new costs.</p>
BC	10 cont.	Broward Co.			<p>It is Broward County's opinion that portions of the presented NOAA/NMFS mitigation plan in the DEIS may not be considered appropriate in-kind project mitigation; however, some of the concepts could be considered in the final mitigation plan wherein various mitigation options are considered. It is our recommendation that the final selected coral mitigation strategy include a blend of various mitigation options, such as, artificial reef creation using rock/boulder and modules along with coral transplants, artificial reef placement on the existing "live reef", the potential restoration of historic grounding sites using coral transplants, and the possibility of including a test site for coral propagation from in-water and land-based nurseries.</p>	PC	<p>USACE and NOAA have jointly developed a "blended" mitigation plan utilizing elements of a few of the other plans. This alternative is now the preferred mitigation alternative for the project.</p>
1	n/a	City Deerfield Beach	K. Klopp	n/a	(General in favor of project)	NR	n/a

2	n/a	Broward Co. Commission District 9	D. Holness	n/a	[General in favor of project]	NR	n/a
3	n/a	Downtown Development Authority Fort Lauderdale	C. Wren/ E. Van Zandt	n/a	[General in favor of project]	NR	n/a
4	n/a	Merrill Lynch	N.J. Demos	n/a	[General in favor of project]	NR	n/a
5	n/a	Centerpoint Construction Corp.	C. Willard	n/a	[General in favor of project]	NR	n/a
6	n/a	Keith and Associates, Inc.	S. High	n/a	[General in favor of project]	NR	n/a
7	n/a	MVM Development Services, Inc.	M. Vorder Meulen	n/a	[General in favor of project]	NR	n/a
8	n/a	Castle Group	J. Donnelly	n/a	[General in favor of project]	NR	n/a
9	n/a	Keith and Associates, Inc.	N. Lazowick	n/a	[General in favor of project]	NR	n/a
10	n/a	Apricot Office Interiors	D. Langel	n/a	[General in favor of project]	NR	n/a
11	n/a	Greater Fort Lauderdale Alliance	B. Bernard	n/a	[General in favor of project]	NR	n/a
12	n/a	Keith and Associates, Inc.	E. Keith	n/a	[General in favor of project]	NR	n/a
13	n/a	Keith and Associates, Inc.	J. Messick	n/a	[General in favor of project]	NR	n/a
14	n/a	Keith and Associates, Inc.	P. Shaffer	n/a	[General in favor of project]	NR	n/a
15	1	Dept of Port Everglades/ David Miller and Associates/ Dial Cordy and Associates	J. Evert	List of Tables	The List of Tables of the DEIS requires re-formatting so that it is easier to read page numbers.	CC	Completed

15	2	Dept of Port Everglades/ David Miller and Associates/ Diel Cordy and Associates	J. Evert	1.0	Does Figure 1 comprise the actual existing project area, or does the figure require updating?	NC	No changes necessary.
15	3	Dept of Port Everglades/ David Miller and Associates/ Diel Cordy and Associates	J. Evert	1.0	Figure 2 (Port Everglades Authorized Depths) should include notation for existing overdepths/squat for each of the federal reaches.	NC	Squat and other depth issues are discussed in the FS/main report.
15	4	Dept of Port Everglades/ David Miller and Associates/ Diel Cordy and Associates	J. Evert	1.0	Figure 3 should be replaced if a figure with better resolution could be found/created.	CC	It has been enlarged to see text easier
15	5	Dept of Port Everglades/ David Miller and Associates/ Diel Cordy and Associates	J. Evert	3.5.6	The wetland delineation for the mangrove habitats in the impact area and adjacent areas (Section 3.5.6 in the Draft EIS) is very out-of-date. These areas should be delineated again in order to better determine the precise extent of impacts, and resulting mitigation burden on the ongoing West Lake Park habitat improvement project.	NC	Mangrove impacts were updated based on new aerial photography and an assessment conducted by staff of J.U.L. park
15	6	Dept of Port Everglades/ David Miller and Associates/ Diel Cordy and Associates	J. Evert	4.4.2.2	National Marine Fisheries Service (NMFS) may disagree with USACE's analysis of the extent of hardbottom/ reef habitats (Section 4.4.2.2 of the Draft EIS), and which impacts should result in additional compensatory mitigation (possibly, rock/rubble habitat within the existing federal channel).	NR	

15	7	Dept of Port Everglades/ David Miller and Associates/ Diel Cordy and Associates	J. Evert	CMP/ICA Section 4.1	NMFS may also disagree with the amount of mitigation provided for seagrass impacts (Section 4.1 of the Draft Comprehensive Mitigation Plan and Incremental Cost Analysis, or "CMP/ICA"). They may contend that any area where there has ever been seagrasses since initial surveys were conducted in the late 1990's should be considered impact areas if within the footprint, even if no seagrass is currently known from such areas.	NR	
15	8	Dept of Port Everglades/ David Miller and Associates/ Diel Cordy and Associates	J. Evert	CMP/ICA Section 6.2	The USACE-preferred type of mitigation proposed for impacts to hardbottom and reef habitats may not be preferred by other federal agencies or local regulatory/resource agencies (Section 6.2, Item 8, of the CMP/ICA). The type and amount offered by USACE appears to be have the best benefit to cost ratio; the local sponsor may be liable for any costs beyond those of the Best Buy option if another option is selected, including the option designed by NMFS.	NC	Mitigation plan has been revised into a hybrid plan with NOAA.
16	n/a		J. Carter	n/a	[General in favor of project]	NR	n/a
17	n/a	Danielle H. Bratak, Esq. LLC	D. Bratak	n/a	[General in favor of project]	NR	n/a
18	n/a	Stiles Property Management	K. Sherman	n/a	[General in favor of project]	NR	n/a
19	n/a	Rick Case Automotive Group	R. Case	n/a	[General in favor of project]	NR	n/a
20	n/a	DPPS Company Ltd	D. Carter	n/a	[General in favor of project]	NR	n/a
21	n/a	First Southeast Mortgage Corporation	S. Roberts	n/a	[General in favor of project]	NR	n/a
22	n/a	Mahoney & Associates	B. Mahoney	n/a	[General in favor of project]	NR	n/a
23	n/a	Seafreight Agencies (USA) Inc.	C. Robble	n/a	[General in favor of project]	NR	n/a
24	n/a		R. Mallins- Smith	n/a	[General in favor of project]	NR	n/a

25	1	Stiles Property Management	J. Lis	n/a	Support project and proposed approach by NOAA to use funds to grow and replace corals "up and down the Broward coastline".	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
26	1	Florida East Coast Railway	R. Jones	n/a	Support project and proposed approach by NOAA to use funds to grow and replace corals "up and down the Broward coastline".	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
27	n/a	Phoenix Real Estate Group	K. Spicer	n/a	[General in favor of project]	NR	n/a
28	n/a	Allied Steel Buildings Inc.	M. Lassner	n/a	[General in favor of project]	NR	n/a
29	n/a		M. Kurtz	n/a	[General in favor of project]	NR	n/a
30	n/a	Coral Springs Economic Development Foundation	P. Cawley	n/a	[General in favor of project]	NR	n/a
31	n/a	Mink & Mink, Inc.	D. Mink	n/a	[General in favor of project]	NR	n/a
32	n/a		M. Butters	n/a	[General in favor of project]	NR	n/a
33	n/a	DeVry University	J. Pedron	n/a	[General in favor of project]	NR	n/a
34	n/a		D. Siegel	n/a	[General in favor of project]	NR	n/a
35	n/a	Balfour Beatty US	C. Glass	n/a	[General in favor of project]	NR	n/a
36	n/a	Holland America Line	E. Curtiss	n/a	Support project and noted burning of additional fuel while ships wait for tides/borhts.	NR	With implementation of the TSP, burning of additional fuels by ships waiting for appropriate tides to enter the harbor will be reduced
37	n/a	Family Central, Inc.	R. Pratlano	n/a	[General in favor of project]	NR	n/a
38	n/a	Universal Travel	J. Carlie	n/a	[General in favor of project]	NR	n/a
39	n/a		B. Sheridan	n/a	[General in favor of project]	NR	n/a
40	n/a		R. Oestreich	n/a	[General in favor of project]	NR	n/a
41	n/a		L. Oestreich	n/a	[General in favor of project]	NR	n/a
42	n/a		J. Tidwell	n/a	[General in favor of project]	NR	n/a
43	n/a		D. O'Shea	n/a	[General in favor of project]	NR	n/a

44	n/a	Harbor Beach Marriott Resort and Spa	J. Marsella	n/a	(General in favor of project)	NR	n/a
45	n/a		M. Ylanillos	n/a	(General in favor of project)	NR	n/a
46	n/a	Nova Southeastern University	A. Fischer	n/a	(General in favor of project)	NR	n/a
47	n/a	City Furniture	K. Koenig	n/a	(General in favor of project)	NR	n/a
48	n/a	Advanced Roofing, Inc.	R. Kornahren	n/a	(General in favor of project)	NR	n/a
49	n/a	The Abdo Companies	J. Abdo	n/a	(General in favor of project)	NR	n/a
50	1		J. Carlson	n/a	"John U. Lloyd State Park and points south—not shown—have been sand starved as a result. If you want a deep water port, you then have the obligation to by-pass the natural littoral sand flow to the southern shores. Pushing it offshore or into the inlet is also an unnatural consequence of inaction. A by-pass mechanism should be installed concurrently with a dredging of the inlet for these reasons." [Photos attached]	NC	Port Everglades and its jetties are a barrier to littoral transport, but this impact occurred in 1927 when the inlet was blasted and the jetties were constructed. Deepening the Outer Entrance Channel (OEC) and Inner Entrance Channel (IEC) has no impact on the current littoral transport rates; therefore no mitigation measures are appropriate. However, the County is presently investigating sand bypassing alternatives independent of this project.
51	1	Broward Workshop	R. Kornahren	n/a	"I strongly recommend the Port widening and deepening project should be approved with the input NOAA has put in front of you as well as from Dr. Dick Dodge from Nova University's recommendations."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
52	n/a	Broward Legislative Delegation	E. Sobel	n/a	(General in favor of project)	NR	n/a
53	n/a	Marcus & Millichap	K. Felici	n/a	(General in favor of project)	NR	n/a
54	n/a	Florida International Terminal, LLC	L. Phochat	n/a	(General in favor of project)	NR	n/a
55	n/a	DeRose Design Consultants, Inc.	L. DeRose	n/a	(General in favor of project)	NR	n/a

56	n/a	Stiles Property Management	P. Marco	n/a	[Requested public meeting information]	NR	Website link was provided via email
57	n/a	Paradise Bank	P. McNally	n/a	[General in favor of project]	NR	n/a
58	n/a	Peterson Fuel Delivery	E. Rahn	n/a	General in favor of project, and "supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation"	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
59	n/a		L. Apicella	n/a	[General in favor of project]	NR	n/a
60	n/a	Jones Lang LaSalle	J. Cahlin	n/a	[General in favor of project]	NR	n/a
61	n/a	Flashback Diner	T. Amanna	n/a	[General in favor of project]	NR	n/a
62	n/a	Transworld Business Advisors, LLC	A. Cagnetta	n/a	[General in favor of project]	NR	n/a
63	n/a		R. Ramos	n/a	[General in favor of project]	NR	n/a
64	n/a	Greater Hollywood Chamber of Commerce	A. Hotte	n/a	[General in favor of project]	NR	n/a
65	n/a		G. Jiovenetta	n/a	[General in favor of project]	NR	n/a
66	n/a		S. Martin	n/a	[General in favor of project]	NR	n/a
67	n/a		J. Valentine	n/a	[General in favor of project]	NR	n/a
68	n/a	Broward Workforce Development Board, The Workforce One Council of Elected Officials and Workforce One Employment Solution	R. Parilla	n/a	[General in favor of project]	NR	n/a
69	n/a		K. Turner	n/a	[General in favor of project]	NR	n/a

70	n/a	Specialty Care Center & Clinica de Lusa Americas	A. Campbell	n/a	[General in favor of project]	NR	n/a
71	n/a		D. Weinstock	n/a	[General in favor of project]	NR	n/a
72	n/a	Right Management	R. Shea	n/a	[General in favor of project]	NR	n/a
73	n/a		G. Mente	n/a	[General in favor of project]	NR	n/a
74	n/a	Strategic Philanthropy Inc.	K. Vitale	n/a	[General in favor of project]	NR	n/a
75	n/a		T. Jennings	n/a	[General in favor of project]	NR	n/a
76	n/a		F. Herhold	n/a	[General in favor of project]	NR	n/a
77	n/a	City of Sunrise	A. Cohen	n/a	[General in favor of project]	NR	n/a
78	n/a		A. Taubman	n/a	[General in favor of project]	NR	n/a
79	n/a	Post Hasto Travel	S. Berman	n/a	[General in favor of project]	NR	n/a
80	n/a	Miller Construction Co.	H. Miller	n/a	[General in favor of project]	NR	n/a
81	n/a	Marcus & Millicrap	R. Shaw	n/a	[General in favor of project]	NR	n/a
82	n/a		M. Long	n/a	[General in favor of project]	NR	n/a
83	n/a		S. Taylor	n/a	[General in favor of project]	NR	n/a
84	n/a		J. Neff	n/a	[General in favor of project]	NR	n/a
85	n/a		R. Rogers	n/a	[General in favor of project]	NR	n/a
86	n/a		J. Hansen	n/a	[General in favor of project]	NR	n/a
87	n/a		A. Soule	n/a	[General in favor of project]	NR	n/a
88	n/a		A. Zalkind	n/a	[General in favor of project]	NR	n/a
89	n/a		B. Somerstein	n/a	[General in favor of project]	NR	n/a
90	n/a	Stamark	L. Linero	n/a	[General in favor of project]	NR	n/a
91	n/a		D. Eagon	n/a	[General in favor of project]	NR	n/a
92	n/a	Greater Fort Lauderdale Alliance	R. Drew	n/a	[General in favor of project]	NR	n/a
93	n/a		D. Coyle	n/a	[General in favor of project]	NR	n/a
94	n/a		K. Bighof	n/a	[General in favor of project]	NR	n/a

95	n/a		M. Gunther	n/a	[General in favor of project]	NR	n/a
96	n/a	City of Sunrise	L. Sandora	n/a	[General in favor of project]	NR	n/a
97	n/a	Florida Wetlands Bank	G. Platt	n/a	[General in favor of project]	NR	n/a
98	n/a		T. Perrodin	n/a	[General in favor of project]	NR	n/a
99	n/a	United Way of Broward County	D. Wallace	n/a	[General in favor of project]	NR	n/a
100	n/a		M. Myers	n/a	[General in favor of project]	NR	n/a
101	n/a		P. Baraya	n/a	[General in favor of project]	NR	n/a
102	n/a		N. Adams	n/a	[General in favor of project]	NR	n/a
103	n/a		R. Karlin	n/a	[General in favor of project]	NR	n/a
104	n/a		S. Palmer	n/a	[General in favor of project]	NR	n/a
105	n/a		Anonymous 1	n/a	[General in favor of project]	NR	n/a
106	n/a	Greater Fort Lauderdale Alliance	D. Coddiglo	n/a	[General in favor of project]	NR	n/a
107	n/a		R. Camug	n/a	[General in favor of project]	NR	n/a
108	n/a		T. Moore	n/a	[General in favor of project]	NR	n/a
109	n/a		L. Pinochet	n/a	[General in favor of project]	NR	n/a
110	n/a		K. Stiles	n/a	[General in favor of project]	NR	n/a
111	n/a		J. McDonoug	n/a	[General in favor of project]	NR	n/a
112	n/a		D. Chanon	n/a	[General in favor of project]	NR	n/a
113	n/a		R. Ferrera	n/a	[General in favor of project]	NR	n/a
114	n/a		L. Jackson	n/a	[General in favor of project]	NR	n/a
115	n/a		B. Kutain	n/a	[General in favor of project]	NR	n/a
116	n/a		B. Ridgway	n/a	[General in favor of project]	NR	n/a
117	n/a	Gray Robinson	G. Cooper	n/a	[General in favor of project]	NR	n/a
118	n/a		B. Boies	n/a	[General in favor of project]	NR	n/a
119	n/a		M. Dicosimo	n/a	[General in favor of project]	NR	n/a
120	n/a	Stamark	P. Nordsen	n/a	[General in favor of project]	NR	n/a
121	n/a		L. Cothen-Anderson	n/a	[General in favor of project]	NR	n/a

122	1		D. Barbour		Concerns regarding sand bypass	NC	Port Everglades and its jeties are a barrier to littoral transport, but this impact occurred in 1927 when the inlet was blasted and the jeties were constructed. Deepening the Outer Entrance Channel (OEC) and Inner Entrance Channel (IEC) has no impact on the current littoral transport rates, therefore no mitigation measures are appropriate. However, the County is presently investigating sand bypassing alternatives independent of this project.
123	n/a	W. Anderson		n/a	[General in favor of project]	NR	n/a
124	n/a	M. Roca		n/a	[General in favor of project]	NR	n/a
125	n/a	P. Daltner		n/a	[General in favor of project]	NR	n/a
126	n/a	B. Circe		n/a	[General in favor of project]	NR	n/a
127	n/a	J. Henthett		n/a	[General in favor of project]	NR	n/a
128	n/a	G. Bove		n/a	[General in favor of project]	NR	n/a
129	n/a	Broward Workforce One	B. Chen	n/a	[General in favor of project]	NR	n/a
130	BLANK						
131	n/a	Kaufman Rossin	M. Moore	n/a	[General in favor of project]	NR	n/a
132	1		S. Clark	n/a	Loss of sea fans due to Aspergillus: overall decline of reefs	NC	USACE recognizes that many bacterial contaminants are delivered through the inlet to the reefs, but it has no authority to stop the flow of water from south Florida agricultural lands and urban areas to the open ocean. However, regarding actions under the jurisdiction of the USACE, it proposes to perform mitigation actions that will compensate for the loss of any reef function due to direct and indirect effects of the proposed action.
133	1		H. Benedict	n/a	Concerns regarding blasting and structural effects	NC	Blasting methods being employed today have been proven to have few to no impacts to surrounding areas. Specific blasting methods will be at the discretion of the contractor. However, factors including potential environmental and structural impacts will be evaluated and safeguards applied during the development of the construction contract to which the contractor must adhere.
134	n/a	Broward County	S. McDonald	n/a	[General in favor of project]	NR	n/a
135	n/a		E. Rosenblatt	n/a	[General in favor of project]	NR	n/a
136	n/a	Research Triangle at Florida Atlantic University	A. Duffell	n/a	[General in favor of project]	NR	n/a

137	n/a	Bank of America	M. Fortin	n/a	[General in favor of project]	NR	n/a
138	n/a		R. Vitale	n/a	[General in favor of project]	NR	n/a
139	n/a	Port Everglades Pilots Association	D. McAuliffe	n/a	[General in favor of project]	NR	n/a
140	n/a	Port Everglades Advocacy Team	T. Stiles	n/a	[General in favor of project]	NR	n/a
141	n/a		M. McLeroy	n/a	[General in favor of project]	NR	n/a
142	n/a	Premier Beverage	B. Dinon	n/a	[General in favor of project]	NR	n/a
143	n/a	Greenspoon Marder	G. Greenspoon	n/a	[General in favor of project]	NR	n/a
144	n/a	Boward County	S. Tinsley	n/a	[General in favor of project]	NR	n/a
145	n/a	Bradford Maine	G. Douglas	n/a	[General in favor of project]	NR	n/a
146	n/a		D. Watt	n/a	[General in favor of project]	NR	n/a
147	n/a		E. Granger	n/a	[General in favor of project]	NR	n/a
148	n/a		B. Hanley	n/a	[General in favor of project]	NR	n/a
149	n/a	Robin Law	S. Robin	n/a	[General in favor of project]	NR	n/a
150	n/a	Princess Cruises	S. Nielsen	n/a	[General in favor of project]	NR	n/a
151	n/a	Beach Vacation Rentals	E. Fitzgerald	n/a	[General in favor of project]	NR	n/a
152	n/a		T. Levy	n/a	[General in favor of project]	NR	n/a
153	n/a		G. White	n/a	[General in favor of project]	NR	n/a
154	n/a	Miami Association of Realtors	J. Dohm	n/a	[General in favor of project]	NR	n/a
155	n/a		J. Rodrigues	n/a	[General in favor of project]	NR	n/a
156	n/a	Florida International Terminal, LLC	J. Diaz	n/a	[General in favor of project]	NR	n/a
157	n/a		J. Livingway	n/a	[General in favor of project]	NR	n/a
158	n/a		M. Firm	n/a	[General in favor of project]	NR	n/a
159	n/a		P. Webb	n/a	[General in favor of project]	NR	n/a
160	n/a		S. Kane	n/a	[General in favor of project]	NR	n/a

161	n/a	U.I. Southeast Florida/Caribbean	C. Coleman	n/a	[General in favor of project]	NR	n/a
162	1	Florida Wetlands Bank	G. Platt	n/a	[General in favor of project] and "supporting the NOAA plan to grow and replace corals up and down the coastline in Broward County..."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
163	n/a	Jones Lang LaSalle Americas, Inc.	S. Anderson	n/a	[General in favor of project]	NR	n/a
164	n/a	City of Miami	N. Gebys	n/a	[General in favor of project]	NR	n/a
165	n/a		L. Goetz	n/a	[General in favor of project]	NR	n/a
166	n/a		M. Falarid	n/a	[General in favor of project]	NR	n/a
167	n/a	ComRes Inc.	M. Welin	n/a	[General in favor of project]	NR	n/a
168	1		J. Cunningham		Please consider utilizing a blend of mitigation options	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
169	n/a		G. Lago	n/a	[General in favor of project]	NR	n/a
170	1	Greater Fort Lauderdale Alliance	B. Swindell	n/a	[General in favor of project]; and "We ask that you consider utilizing a blend of mitigation options..."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
171	n/a	Museum of Discovery and Science	P. Flynn	n/a	"the mitigation options are reasonable and practical. At the Museum of Discovery and Science, we have one of the largest indoor Coral Reef exhibits in the world. A major feature of this exhibit is an artificial coral reef, which we have built with concrete building blocks and upon which a thriving coral reef has developed, largely from transplanted corals. Clearly that can be replicated in the ocean..."	NR	n/a
172	n/a		G. Bous	n/a	[General in favor of project]	NR	n/a
173	n/a		R. Cruz	n/a	[General in favor of project]	NR	n/a
174	n/a		T. Kates	n/a	[General in favor of project]	NR	n/a
175	n/a		T. Wyoming	n/a	[General in favor of project]	NR	n/a
176	n/a		B. Boles	n/a	[General in favor of project]	NR	n/a
177	n/a	Greater Fort Lauderdale Alliance	G. Bullfin	n/a	[General in favor of project]	NR	n/a
178	n/a		T. Morris	n/a	[General in favor of project]	NR	n/a

179	n/a	Lifestyle Magazine Group	A. Brown	n/a	[General in favor of project]	NR	n/a
180	n/a		G. Press	n/a	[General in favor of project]	NR	n/a
181	n/a	Jones Lang LaSalle	A. Jackson	n/a	[General in favor of project]	NR	n/a
182	n/a		R. Stein	n/a	[General in favor of project]	NR	n/a
183	n/a	ANF Group	N. Fernandez	n/a	[General in favor of project]	NR	n/a
184	1	Point of America Condo Association	C. Ashley	n/a	"We strongly recommend that a thorough study be conducted on the impact that blasting may have on local residents including the stresses to building foundations as well as to well and piping systems."	NC	Please see response to Source 133, Comment 1 above.
184	2	Point of America Condo Association	C. Ashley	n/a	"a.) Operations to achieve the proposed enlargement of the Port, i.e., the time periods involved and the effect to residents' right to the peaceful enjoyment of their properties"	NC	As dredging will occur in existing Port channels and basins, which already experience heavy vessel traffic, and construction elements will occur in the southern portion of the Port away from private homes, there should be no significant change to residents' current enjoyment of their properties.
184	3	Point of America Condo Association	C. Ashley	n/a	"c.) the impact to private and public beaches from dirt, debris and other problems associated with such operations."	NC	Dredging will occur in existing Port channels and basins. Guidelines regarding potential impacts will be established as part of the contracting process at a later phase of the project. As periodic maintenance dredging of the Port in these same areas has not resulted in such adverse impacts to public beaches, it is not expected that any adverse impacts will occur due to the proposed project.
184	4	Point of America Condo Association	C. Ashley	n/a	"d.) the impact to swimming and other recreational activities, such as sailing, fishing and other water sports."	NC	The proposed action will not have any effects on swimming, sailing, fishing, and other water sports, as these activities (except sailing) are not permitted within the federal channel. Movements of vessels such as sailboats and recreational vessels will be subject to local and state regulations, but may be subject to delays, but these are not expected to be much longer than delays would be during maintenance dredging activities in the inner harbor.
184	5	Point of America Condo Association	C. Ashley	n/a	"e.) air quality impacts from such operations."	NC	Air quality impacts have been fully evaluated in Section 4.0 of the EIS
184	6	Point of America Condo Association	C. Ashley	n/a	"f.) the impact to local residents that may occur because of the destruction of coral reef formations that tend to minimize the strength and intensity of storms and hurricanes."	NC	The depth of reef systems determines whether they influence storm wave magnitude. Shallow reefs can cause large waves to break before reaching shore, resulting in lesser wave conditions. It is only the shallow reefs that have a significant impact. At Port Everglades the two relic reefs nearest to shore (shallowest) will not be altered enough to impact hurricane waves. The third relic reef (outermost) is at a depth of approximately 45ft. A reef at -45ft will allow waves as great as 36 feet to pass over without breaking.

184	7	Point of America Condo Association	C. Ashley	n/a	"g.) the potential obstruction to local residents' views of the harbor and waterways due to the use and quantity of heavy equipment."	NC	Please see response to Source 184, Comment 2 above.
184	8	Point of America Condo Association	C. Ashley	n/a	"propose reasonable responses and effective relief from any damage caused by the Port enlargement operations. To this point, we would suggest the appropriate authorities bond their operations or create a fund to compensate affected property owners and residents"	NC	It is unclear what "damage" is being referred to. Damage to private residences is not expected as dredging will occur in established channels and construction elements will occur well away from private residences. Potential Environmental and structural impacts will be evaluated and safeguarded against as part of the contracting process. Damage caused directly by a contractor will be the responsibility of that contractor.
185	n/a	City of Lauderdale	E. Wooten	n/a	[General in favor of project]	NR	n/a
186	n/a		C. Webster	n/a	[General in favor of project]	NR	n/a
187	n/a	Right Management	T. Shea	n/a	[General in favor of project]	NR	n/a
188	n/a		R. Wessel	n/a	[General in favor of project]	NR	n/a
189	n/a		J.	n/a	[General in favor of project]	NR	n/a
190	n/a		J. Currin	n/a	[General in favor of project]	NR	n/a
191	n/a	WorkForce One	J. Bennings	n/a	[General in favor of project]	NR	n/a
192	n/a		P. Figg	n/a	[General in favor of project]	NR	n/a
193	n/a	Marcus & Milichap	C. Everett	n/a	[General in favor of project]	NR	n/a
194	n/a		K. Jones	n/a	[General in favor of project]	NR	n/a
195	n/a		S. Guerin	n/a	[General in favor of project]	NR	n/a
196	n/a	Starmark	P.	n/a	[General in favor of project]	NR	n/a
197	n/a		Nordeen	n/a	[General in favor of project]	NR	n/a
198	n/a		B. Calhoun	n/a	[General in favor of project]	NR	n/a
199	1	Nova Southeastern University	G. Hanbury	n/a	[General in favor of project] and "I recommend the NOAA proposed mitigation plan that is an integral part of the Draft Environmental Impact Statement. NOAA's program involves replacing lost three-dimensional and growing and replacing corals on damaged and degraded reefs. The Corps should afford NOAA leadership and responsibility in mitigation design and implementation."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
200	n/a		J. Altman	n/a	[General in favor of project]	NR	n/a
201	n/a		F. Kaub	n/a	[General in favor of project]	NR	n/a
202	n/a		A. Lynch	n/a	[General in favor of project]	NR	n/a

203	n/a		J. Farrell	n/a	[General in favor of project]	NR	n/a	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
204	1	Stiles Property Management	G. Kimmelman	n/a	[General in favor of project] and "Please consider utilizing a blend of mitigation..."	PC		
205	n/a		R. Dressler	n/a	[General in favor of project]	NR	n/a	
206	n/a	Broward County Commission	C. LaMarca	n/a	[General in favor of project]	NR	n/a	
207	n/a		D. Slater	n/a	[General in favor of project]	NR	n/a	
208	n/a		B. Ridgway	n/a	[General in favor of project]	NR	n/a	
209	1	Everglades House Condominiums	N. Weber	n/a	"We strongly recommend that a thorough study be conducted on the impact that blasting may have on local residents including the structures to building foundations and infrastructure."	NC		Please see response to Source 133, Comment 1 above.
209	2	Everglades House Condominiums	N. Weber	n/a	"the impact to private and public beaches from dirt, debris and other problems associated with such operations."	NC		Please see response to Source 184, Comment 3 above.
209	3	Everglades House Condominiums	N. Weber	n/a	"the impact to swimming and other recreational activities, such as sailing, fishing and other water sports."	NC		Dredging and construction will occur in or directly adjacent to existing Port channels. Constraints on swimming and other recreational activities will not be different than those that already exist at an active, heavily trafficked Port.
209	4	Everglades House Condominiums	N. Weber	n/a	"air quality impacts from such operations."	NC		Air quality during dredging and construction operations is not expected to differ from air quality normally associated with daily Port activities.
209	5	Everglades House Condominiums	N. Weber	n/a	"the impact to local residents that may occur because of the destruction of coral reef formations that tend to minimize the strength and intensity of storms and hurricanes."	NC		Please see response to Source 184, Comment 6 above.
209	6	Everglades House Condominiums	N. Weber	n/a	"propose reasonable responses and effective relief from any damage caused by the Port enlargement operations. To this point, we would suggest the appropriate authorities bond their operations or create a fund to compensate affected property owners and residents"	NC		Please see response to Source 184, Comment 8 above.

210	n/a	R. Jackson	n/a	(General in favor of project)	NR	n/a
211	1	City of Hollywood C. Swanson-Rivenbark		"Port Everglades is a complete barrier to littoral transport, both studies fail to recognize this condition as an environmental impact"	NC	See response to Source 50, Comment 1 above.
211	2	City of Hollywood C. Swanson-Rivenbark		"Both studies fail to acknowledge the historic lack of effective sand bypassing or propose future alternatives to mitigate impacts to the downdrift shoreline"	NC	See response to Source 50, Comment 1 above.
211	3	City of Hollywood C. Swanson-Rivenbark		"The study does not specifically address the potential for beneficial use of beach-compatible dredge spoil to mitigate downdrift impacts"	NC	Only a fraction of the dredged material is expected to comprise beach-quality sand (based on geotechnical analysis) that could be used for replenishment of beach-drift beaches, and separation of that material for use is not practicable.
211	4	City of Hollywood C. Swanson-Rivenbark		"changes to the inlet system will have potential adverse environmental and economic impacts to downdrift communities. Beaches are buffers from storm protection and serve as the basis of tourism revenues for beachfront communities south of the inlet. The costs for maintaining a healthy beach system and the burdens of those costs on the downdrift communities must be evaluated as part of the process."	NC	See response to Source 50, Comment 1 above.
211	5	City of Hollywood C. Swanson-Rivenbark	pg iv.	"The study did not include consideration of impacts to downdrift beaches."	NC	See response to Source 50, Comment 1 above.
211	6	City of Hollywood C. Swanson-Rivenbark	2.9.4	"Section fails to consider potential beneficial use of beach compatible sand"	NC	See response to Source 211, Comment 3 above.
211	7	City of Hollywood C. Swanson-Rivenbark	3. 7.2.3	"Section fails to state impact of inlet (erosion) of downdrift turtle nesting habitat."	PC	

211	8	City of Hollywood	C. Swanson-Rivenbark	4.5.5.2	"Section states "USACE has reviewed all of the potential effects of the project on turtles protected under the ESA. This study did not consider impacts to adjacent turtle nesting habitat or the potential for beneficial use of compatible dredge spoil to minimize impacts."	PC		
211	9	City of Hollywood	C. Swanson-Rivenbark	4.29.2	"Section fails to identify lack of sand bypassing within past, present and future actions."	NC	See responses to Source 50, Comment 1 above.	
211	10	City of Hollywood	C. Swanson-Rivenbark	4.29.2	"Section fails to identify lack of beneficial use of compatible dredge spoil to mitigate inlet impacts within past, present and future actions."	NC	Only a fraction of the dredged material is expected to comprise beach quality sand (based on geotechnical analysis) that could be used for replenishment of down-drift beaches, and separation of that material for beach quality sand, beach disposal will become a viable alternative.	
211	11	City of Hollywood	C. Swanson-Rivenbark	4.29.5 Resources Not Likely Affected Geology and Sediments	"The statement that "there would be no cumulative adverse effect on the geology or coastal sediment budget transfer for the area" is incorrect. The current plan prescribes the disposal of all material including future maintenance material within the ODMDS. This will permanently remove sand from the coastal system and is a cumulative effect."	NC	Should future maintenance material contain beach quality sand, beach placement will become a viable alternative, as has been done previously in 2005 and 2013. However, for feasibility study purposes, ODMDS disposal costs must be addressed should maintenance material not adhere to FDEP beach quality specifications.	
211	12	City of Hollywood	C. Swanson-Rivenbark	4.29.5 Resources Not Likely Affected Properties	"Document states that "it is not likely that any additional impacts to adjacent properties will occur within the foreseeable future projects." This statement is incorrect. Placement of all material within the ODMDS with no bypassing of material will permanently remove sand from the coastal system and is a cumulative effect."	NC	Presently there is no natural sand bypassing of material to be impacted. Manual bypassing exists only if maintenance dredging produces materials that meet strict beach quality standards. If future maintenance materials meet beach quality standards then beach placement is the preferred disposal option. However, for feasibility study purposes, ODMDS disposal costs must be addressed should maintenance material not adhere to FDEP beach quality specifications.	
211	13	City of Hollywood	C. Swanson-Rivenbark	Florida Coastal Zone Consistent with y. 1, Ch 161.	"this plan is contrary to specific provisions of Florida Statute 161, the adopted Inlet Management Plan, and the Strategic Beach Management Plan (SBMP)"	NC	The current study plan is compliant with all applicable provisions.	
212	n/a	Broward County	K. George	n/a	[General in favor of project]	NR	n/a	
213	n/a		R. Landers	n/a	[General in favor of project]	NR	n/a	

214	1	Becker & Polakoff	J. Diaz	n/a	[General in favor of project] and "recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation"	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
215	1	Shutte & Bowen LLP	B. Barry	n/a	[General in favor of project] and "recommend supporting the NOAA plan to grow and replace corals up and down Broward County's Coastline and NOAA should take a leadership role in mitigation design and implementation"	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
216	1		D. Gilliam		"This [NOAA] plan needs to be incorporated as part of the total project mitigation, and NOAA needs to be the lead federal agency implementing the mitigation efforts."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
216	2		D. Gilliam		"This information [location of nearest A. cervicornis colonies] is not correct and is actually contradicted in the very next paragraph where the Gilliam and Walker (2011) survey is cited. The nearest A. cervicornis colonies to the project area are approximately 150m..."	NC	Over 150 m away from the footprint is correct: we cannot locate the error as stated.
216	3		D. Gilliam	Figure 61	"Figure 61 is not from a USACE sponsored survey!"	CC	Thank you for the correction.
216	4		D. Gilliam		"many of the references cited are older version of monitoring reports"	NC	The newer survey results did not change the conclusions in the EIS; the citations are still valid.
216	5		D. Gilliam		"Many of the citations in the reference section are incorrect"	NC	Without additional information, it is difficult to make corrections.
216	6		D. Gilliam		"To include reef habitat below the targeted -57 ft in the direct impact area seems like such a reasonable approach it is extremely difficult to understand how reasonable professionals would do otherwise."	PC	Impacts below -57 are included in the rubble movement assessment of the impacts analyzed in Section 4.0
216	7		D. Gilliam		"Why is there a limit to the number of colonies proposed to be relocated? How was this maximum number of colonies to be relocated determined?"	PC	The determination of the number of corals to be relocated is detailed in the hardbottom mitigation requirements analysis and the mitigation plan.

216	8	D. Gilliam			<p>"...colonies greater than 5cm should be evaluated [for relocation] especially for rarer species or those potentially listed under ESA"</p>	NC	<p>There is a limit to the practicability of removal of corals down to 5 cm. Additionally, coordination with coral relocation specialists confirm that corals between 5-10cm in size are more easily broken and thus killed during movement. Additionally, in Florida, where corals are subject to much higher stress levels (thermal, light, sedimentation), survival levels drops off considerably as the corals get smaller in size. Just the simple fact that the colony is smaller and with a potentially lower vertical profile increases the risk it can be buried by sediment for longer periods of time than a larger coral, if attached in areas subject to sediment deposition. Also, the number of corals less than 10 cm in diameter is significantly higher than the larger corals as demonstrated in USACE 2009) confirms that a large percentage of the smaller corals never reach adulthood. The goal of a coral relocation plan is to move the reproductive adults to ensure no loss in reproductive capacity of the existing reproductive colonies.</p>
216	9	D. Gilliam			<p>"I find it extremely difficult to understand how any reasonable professional would believe that there will be no indirect impacts associated with this project."</p>	NC	<p>The Draft EIS and Final EIS both provide description of and mitigation for indirect effects associated with the project. Section 4.4.2.2 - Incidental Impacts from Significant rubble movement (Direct Impact Component 5); Indirect Impacts; Incidental direct impacts from equipment (Direct Impact Component 2) in addition to the Direct effects analysis.</p>
216	10	D. Gilliam			<p>"This DEIS does not provide the information necessary to evaluate whether an appropriate plan is proposed."</p>	NC	<p>USACE cannot respond as it does not know what information the commenter would seek to perform an evaluation.</p>
216	11	D. Gilliam			<p>"...deployed artificial reef boulders are not natural reefs and will never be 'indistinguishable from natural reef'. This is a terrible statement and should be removed."</p>	NR	
216	12	D. Gilliam			<p>"There is no appropriate scientific support (or any other type of adequate support) that only deploying artificial reef boulders will compensate for the 'full complement of services' lost. This strongly argues for the inclusion of the NOAA alternative in the mitigation plan."</p>	PC	<p>USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.</p>
216	13	D. Gilliam			<p>"There is no scientific support for artificial boulder reefs providing 100% of loss services especially in a recovery period of only 30 years."</p>	PC	<p>USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.</p>
216	14	D. Gilliam			<p>"Utilizing old Borrow Areas is not an appropriate location to replace lost Middle Reef and Outer reef habitats."</p>	PC	<p>USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.</p>

216	15	D. Gilliam		"Five years is not sufficient time to determine the success of artificial boulder reefs as mitigation."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
216	16	D. Gilliam		"How were the mitigation success criteria developed (section 6.6)? Why are 75% 'species similarity' and 80% similarity in percent cover after 5 years used as indication of success?"	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
217	n/a	City of Hollywood	n/a	[General in favor of project]	NR	n/a
218	1	B. Walker		"Use the impact areas calculated here in the HEA to calculate mitigation (see enclosed)."	CC	New USACE impact analyses include areas you have identified as not previously mapped hardbottom/rock/rubble, as well as calculation of areas that may be impacted incidentally immediately down-drift from new dredging areas.
218	2	B. Walker		"Consider all habitats in the channel as being directly impacted by the dredging."	NC	previously dredged channel bottom, and rocks/rubble in the channel that may have colonized with some hard corals, soft corals or sponges is expected to recolonize after the dredging is complete. This assumption is based on the known recolonization of the bottom of the Miami Harbor channel from the 1981 dredging to a survey conducted in 2010. Resources that have recolonized a federal channel after dredging are not mitigated for, based on a policy determination by USACE South Atlantic Division, as these resources are deemed not significant due to their location in a maintained federal channel.
218	3	B. Walker		"Do not use different discount rates in the economic model for feasibility and the HEA model for mitigation."	NC	Federal water resource development projects covered under the "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" (P&G), are limited by the statement "monetary or NED outputs are discounted". This means environmental outputs from HEA are not authorized to be discounted for any project covered by the P&G (published through the Council on Environmental Quality/Office of the White House) 68 E-154 c(1) [CE/ICA procedures] of the Engineering Regulations 1105-2-100 - "Ecosystem restoration outputs are not discounted, but should be computed on an average annual basis taking into consideration that the outputs achieved are likely to vary over time." Specifically OMB Circular A-94 states "Specifically exempted from the scope of this Circular are decisions concerning water resource projects (guidance for which is the approved Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. These requirements prevent USACE from discounting the HEA. Although USACE originally submitted the HEA with a 5%, during model review and HQ policy

218	4	B. Walker		"Do not exclusively use boulders for mitigation. Include a variety of mitigation actions."	CC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
218	5	B. Walker		"Update the cumulative impacts section to reflect a more accurate depiction of past events (see enclosed)." PC	PC	the information in Walker 2013 specific to the Port Everglades project will be added to the cumulative effects analysis in Section 4.29 of the EIS.
218	6	B. Walker		"Dredge without using anchors."	NC	As stated in the EIS (Section 2.9.1) the Corps is restricted from limiting competition under the Competition in Contracting Act. This Act requires federal agencies to limit how specific specifications are written to prevent limiting competition among contractors. This means the EIS cannot exclude particular pieces of equipment or dredging methods (including anchor deployment outside of the channel) during this phase of the project. Due to this legal restriction, the Corps analyzed all of the potential construction methodologies in Section 2.9 of the EIS and discussed the impacts of each method in Section 4 of the EIS. If no difference was likely to occur between different methods, all methods were treated the same. A review of the potential effects of anchors outside of the channel is included in the EIS.
218	7	B. Walker		"150m buffer around the port is not adequate to account for indirect impacts."	NC	The 150-meter buffer was developed during inter-agency meetings in 2007 to include an acknowledgement of the potential for indirect effects to the ecosystem associated with turbidity and construction during construction. This was based on a few factors - 1) USACE maintains a 400-foot buffer from dredging projects and nearby hardbottom resource during sand mining operations. 2) Peer reviewed literature and monitoring plans from previous dredging projects (operations and maintenance, sand mining and new construction) all showed that with proper turbidity controls (limits at 29-NTU as required by the state of Florida DEP permits) and in situ, during construction monitoring, impacts to the adjacent resources are minimal or undetectable (Gilliam et al 2010; Fisher et al 2011; CSA 1981; CSA 2007). See monitor plan for additional details.
218	8	B. Walker		"Account for the increased volume of polluted water carried onto the reef by a larger channel."	NC	The project will not increase the volume of polluted water (i.e., from inland sources) to the reef. Enlarged channel cross-sections typically decrease water velocities. The rate at which polluted waters enter the open ocean may be slowed, but perhaps at an insignificant rate.
218	9	B. Walker		"Recalculate the HEA based on Dr. Richard Dodge's HEA assessment, including using a 3% discount rate and more appropriate recovery rates and mitigation cost estimations."	PC	Please see response to Broward County's comment #9 above regarding discount rate. Also, HEA assumptions and mitigation costs have been re-evaluated in conjunction with NMFS.

218	10	B. Walker		"Consider the NOAA NMFS mitigation alternative as the primary mitigation plan."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
218	11	B. Walker		"Do not attempt to conduct the project, then determine what impacts occurred, and mitigate after the fact."	NC	Most impacts are accounted for prior to project. Areas where impacts that are not likely to not occur will be examined before as well as after the project to determine impacts. It is not fiscally feasible or practicable to mitigate for impacts that may or may not occur prior to the occurrence of direct and indirect project impacts.
218	12	B. Walker		"...no mapping protocols were provided..."	CC	Mapping and GIS analysis protocols are now included in the EIS.
218	13	B. Walker		"The maps used by the USACE were created by NSU for a county-wide mapping of benthic habitats...features less than 1 acre were not included in the map...a finer-scale map would have produced results more appropriate to determine impacts around Port Everglades..."	NC	A finer scale analysis has now been conducted based on 2013 bathymetric imagery. The best available habitat maps have been used.
218	14	B. Walker		"Should the HEA tables have used 15.66 acres?...Some of the discrepancies may have been from inexperienced GIS technicians..."	NC	All GIS analyses have been updated based on new data. The GIS technician used for the project has over 25 years of experience, and has been working on Port Everglades for over 15 years. If there are any errors in the report, it is likely to be the result of a typo or rounding in the hundreds place.
218	15	B. Walker		"polygons contained many overlaps and gaps"	PC	These were due to source data errors, not USACE analyses. Maps have been updated.
218	16	B. Walker		"I assume -59 to be the appropriate contour to allow for comparable results."	NC	No, it is not.
218	17	B. Walker		"In 2008, Broward County conducted a repeat lidar survey with higher resolution and better processing techniques...I performed the interpretation...labeled 'Previously Unmapped Hardbottom Boulder'"	PC	The updated 2013 LADS data set has been incorporated into the analysis
218	18	B. Walker		"I do not agree that habitats deeper than 59 ft should be excluded from the direct impact calculations."	PC	USACE has included some additional potential below-dredge impact contingencies.

218	19		B. Walker		"Equaling it [impacted amount] to a percent makes the impacts seem much less. ... Using county-wide mean coral density (2.6 m ⁻²) and percent cover (3.75%) historically PE development has impacted 6,149,000 corals equaling to 180 acres of live tissue area. Using these same numbers, the direct impacts for scenario 1 will impact 380,000 corals with 1.36 acres of live cover and scenario 2 will impact 177,000 corals with 0.63 acres of live cover."	NC	USACE cannot use county-wide data, but only data from the impact area to determine mitigation. Surveys from the channel area show a significant difference from the general county-wide analysis
218	20		B. Walker		"I recommend this section be rewritten to reflect a more accurate depiction of cumulative impacts on the reefs near Port Everglades."	PC	Some of your study data have been included.
219	1	Florida East Coast Railway	R. Ledoux		[General in favor of project] and "NOAA...has proposed a reasonable, cost-effective and scientifically credible mitigation alternative..."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
220	n/a	Florida House of Representatives District 100	J. Gibbons	n/a	[General in favor of project]	NR	n/a
221	n/a	City of Hollywood	C. Svanson-Riventark	n/a	[General in favor of project]	NR	n/a
222	n/a		P. Connors	n/a	[General in favor of project]	NR	n/a
223	n/a	Broward Workshop	K. Boutros	n/a	[General in favor of project] and "consider utilizing a blend of mitigation options..."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
224	1		R. Dodge	n/a	"Attention needs to be given that the dredging along the length of NSU property does not damage what, seawall, and other infrastructure."	NC	All precautions will be taken to avoid adverse project impacts, and where impacts are unavoidable, mitigation has been included in the analysis as required under NEPA.

225	1		R. Dodge		"I recommend that the NOAA NMFS plan become the preferred mitigation plan. It is also recommended that NOAA should be given responsibility for impact analysis, determination of mitigation type and amount, and implementation of the resultant program."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
225	2		R. Dodge		"Mitigation calculation for Direct Impact from Anchors and Cables is omitted."	CC	These have now been included in the mitigation plan and appendices to it.
225	3		R. Dodge		"the Appendix E Cost Analysis uses different HEA input assumptions for the Direct Impact. This is inconsistent and confusing"	PC	Revisions have been made
225	4		R. Dodge		"Reef habitat that exists in the dredging area will be destroyed below 57' and needs to be included in the Direct Impact area."	PC	These areas have been accounted for and will be addressed.
225	5		R. Dodge		"The statement clearly indicates that the current project under consideration is exempt from the "no discounting" rule."	NC	USACE is following published Federal guidance regarding discounting.
225	6		R. Dodge		"It is noted that the Corps uses a Discount Rate of 3.75% in their Economic Analysis in the DEIS. They should be using a minimum of 5% in their HEA and to be consistent they should use a discount rate of 3.75%."	NC	USACE is following published Federal guidance regarding discounting.
225	7		R. Dodge		"artificial reefs, including those composed of boulders, are not equivalent to those of natural habitat."	PC	USACE intends to replace the functions attributed to impacted habitats while recognizing that no man-made habitat is exactly the same in every way as impacted habitat.
225	8		R. Dodge		"A pile of boulders with a few coral transplants is not equivalent to a coral reef and will not, over time, actually become a coral reef. The choice of boulders as mitigation will provide a lower degree of habitat services compared to those of a coral reef. This fact needs to be reflected in the input of the Corps HEA.	PC	USACE biologists have viewed numerous piles of boulders and agree that none of them could be considered a coral reef (however, see response to comment #7 above). USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
225	9		R. Dodge		"upon maturity boulders would provide 50% of the services as the natural reef"	NC	Without knowing which services these are, USACE cannot comment.

225	10	R. Dodge		"This figure stands in contrast to the cost/acre of other and similar options which are circa \$1.2M or greater."	PC	Costs have been revised in coordination with NOAA.
225	11	R. Dodge		"Mitigation for the Anchors and Chains impact should be calculated and included as a contingency"	CC	This has been conducted in the revised impact analysis and mitigation plan.
225	12	R. Dodge		"The footprint would likely involve complete removal of all living organisms, a more correct 100% injury as well as the other inputs used in the Alternate HEA (3% discount rate, proper equivalence of boulders to natural reef) should have been and should be used to calculate possibly needed mitigation."	NC	The assessment of impacts has been revised, and in conjunction with pre- and post-construction surveys, will appropriately account for any effects of the project. The HEA has been revised, but the "0% discount" rate is still in effect. As required by OMB policy.
225	13	R. Dodge		"These [indirect impacts from sedimentation and turbidity] estimates should be revised upwards (e.g. at least on the order of 15% and 50 years) to be more accurate and thus to provide for contingency funds for mitigating likely indirect impacts."	PC	Contingency funds are included in the project costs.
225	14	R. Dodge		"The Corps specified monitoring for determination of the extent of indirect impacts is insufficient to accurately determine effects. The proposed sampling design presented is incomplete and does not provide a power analysis that will allow determination of sample size needed to detect differences of various amounts."	PC	USACE will ensure statistically accuracy of monitoring.
225	15	R. Dodge		"Batelle did review the Corps mitigation plan and found issues with Corps choice of parameters"	NC	The concerns of Batelle were addressed in follow-up correspondence.
225	16	R. Dodge		"These time estimates are underestimated given the age of oldest corals on similar habitat in the vicinity of the Port in excess of 100 years"	PC	The HEA has been revised in coordination with NOAA.
225	17	R. Dodge		"It is telling that the DEIS inconsistently uses 50 years in Appendix E2 and 30 years in the Cost Estimate. This gives the appearance of modifying recovery figures for use as HEA inputs to minimize HEA outputs."	PC	The HEA as well as cost assessment has been revised.

225	18		R. Dodge			"The Abstract results of the main DEIS is not consistent with those presented in DEIS Appendix E2...The Appendix E2 HEA inputs are inconsistent with the HEA inputs of the Appendix E Cost plan."	PC	All documents have been revised.
226	n/a	WorkForce One/Greater Fort Lauderdale Alliance	J. Bermings	n/a		[General in favor of project]	NR	n/a
227	n/a	Berkowitz Pollack Brant	R. Berkowitz	n/a		[General in favor of project]	NR	n/a
228	1	Tropical Audubon Society, South Florida Audubon Society, Biscayne Bay Waterkeeper, Group of Sierra Club, Lovahatchee Group Sierra Club (Audubon/Sierra Waterkeeper)				In the event that further toxicity is discovered in dredged materials, where will these materials be sent?	NC	To a confined upland Dredged Material Disposal Area on Port property as discussed in Section 2.8.4. Section 3.10 of the DEIS provides a summary of the results of the Tier 1 analysis conducted for the project, the entire Tier 1 is located in Appendix J. Additionally, as part of the Operations and Maintenance dredging that was completed in the Port between Jan-April 2013, the Corps was required by regulation to test the material to be dredged under the EPA "Green Book" - this testing included physical and biological testing of the material to be dredged to ensure that it met the criteria for disposal in the ODMDS. There was significant overlap in the areas of the 2013 project and the expansion project. The expansion project will also undergo this same level of testing in the PED phase of the project. Additionally, three previous dredging events underwent the same required testing, and all material tested passed the EPA requirements under the ocean disposal criteria in 40 CFR §227.6(c)(3) and §227.27(b). A Tier III evaluation of the MTB and NTB was conducted in 1998. A Tier III evaluation of the MTB and NTB was conducted in 2004 and a MPRSA Section 103 concurrence was provided for the Port Everglades Harbor in 2005.

228	2	Tropical Audubon Society, et al				What potential alternatives for deposit of dredging materials outside of the ODMS could be explored and why aren't they being explored initially?	NC	<p>Alternatives to ODMS disposal have been previously explored. NPRSA requires that the proponent for ocean disposal eliminate all other viable alternatives to ocean disposal. The alternatives that were reviewed throughout the project life (since 2000) include: (A) Use of material for construction of the runway extension at FLL. This was removed as a viable option due to schedule changes that delayed the port project.(B) Placement of material on the beach. The material being dredged is a combination of rock, fines and sand and does not meet the requirements of the state of Florida's sand criteria for placement on the beach. (C) Use of material to construct artificial reefs. This is an option that remains in the project proposal. Depending on how the contractor proposes to construct the project, material dredged from the bottom of the project, that meets the minimum size requirements can be used to construct the reefs. (D) Fill seagrass holes in Dade or Palm beach counties. There are no inland dredge holes in Broward County that need filling. To fill holes in either Dade or Broward County would require loading the material into barges and towing them 25 miles to the south or 40 miles to the north for placement in old dredge holes in Biscayne Bay or Lake Worth Lagoon. These options were examined in Section 4.2 of the mitigation plan and rejected due to excessive costs associated with them.</p>
228	3	Tropical Audubon Society, et al				The adoption of additional mitigation measures should be encouraged.	NC	<p>USACE always encourages contractors to minimize and avoid impacts to the maximum extent practicable and has committed to reviewing this contract through the Request for Proposal method of contract evaluation. The RFP method allows the Corps to select the contractor that best minimizes and avoids impacts. The commenter did not provide an suggested additional measures in their letter.</p>
228	4	Tropical Audubon Society, et al				Can additional blasting mitigation efforts be incorporated beyond the minimum standard set by the Port of Miami project?	NC	<p>the Port of Miami project's blasting plan and specifications are the most protective developed to date and have learned from previous projects. Port Everglades plan will take the Miami baseline and learn from the Port of Miami project as it progresses forward. Any new lessons learned from Miami will be incorporated into the plan for Port Everglades</p>
228	5	Tropical Audubon Society, et al				Dredging, especially for port projects, have been recognized as significantly detrimental to local habitats including coral reefs and other benthic resources.	NC	<p>Dredging removes habitat in a project area. That loss of habitat does impact the surrounding environment. At Port Everglades, through ship simulation and additional geotechnical analysis, the impacts to the habitats in and adjacent to the channel were minimized. Where impacts to these sensitive habitats could not be further minimized to the maximum extent practicable, mitigation is provided for both direct and indirect impacts.</p>

228	6	Tropical Audubon Society, et al				What additional protection can USACE provide for the habitats that will be affected by this project?	NC	no additional protections will be offered other than those BMPs required by Florida DEP as part of the WOC including shut-down procedures if turbidity exceeds acceptable/permited levels. Additional protections will be afforded by monitoring efforts as detailed in the response to comment document 239, comment 18
228	7	Tropical Audubon Society, et al				How can the experience with turbidity and sedimentation in previous projects be improved for Port Everglades?	NC	Each project is unique with regard to ocean conditions, geological conditions, biological conditions, equipment used to excavate the project, etc. However, lessons can be learned from each individual project and applied to the next project. That is exactly what has been done at Port Everglades and will continue to be done as the Port of Miami Project is constructed. Lessons learned from Port Everglades in 1981, Miami Harbor in 1991, 1995 and 2005 as well as Key West between 2004-2006 have been incorporated into the plans for Port Everglades. As new lessons are learned from the on-going Miami Harbor Project, those lessons will be added to the Port Everglades project.
228	8	Tropical Audubon Society, et al				Comments presented in the National Oceanic and Atmospheric Administration in Appendix H should be considered.	NC	Comments from NOAA's EFH document in Appendix H were reviewed and considered. Where it was appropriate, the Corps adopted NOAA's analysis and subsequent suggestions for mitigation. Much of Sections 3.5 and 3.6.1 of the EIS were taken directly from Appendix H. Where USACE and NOAA disagreed, the Corps used the best available science, as well as legal and policy guidance to craft our analysis.
228	9	Tropical Audubon Society, et al				What measures have been put in place to ensure that contractors are ultimately being held accountable for any potential breaches in the monitoring plans for protected species.	NC	Per law, the contractor is held to the terms and conditions of the contract specifications. The requirements of the permits, biological opinions and monitoring plans are incorporated into the project specifications. With regard to protected species, the project will specifications make it clear that it is illegal, with both criminal and civil penalties to take a listed species. "The Contractor shall instruct all personnel associated with the project of the potential presence of manatees, sea turtles, dolphins and whales in the area, and the need to avoid collisions with and harming these animals. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, sea turtles, dolphins or whales which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and/or the Florida Manatee Sanctuary Act. The Contractor shall be held responsible for any manatee, sea turtle, dolphin or whale harmed, harassed, or killed as a result of construction activities."

228	10	Tropical Audubon Society, et al				Uncertainty in the plan: During the public meetings held on July 23 and 24, 2013, USACE representatives explained that the precise methods that will be used to conduct the port expansion were uncertain because the contractors would be selecting the best ways to complete the job. In order to be completely accurate in the understanding of the impacts, the Environmental Impact Statement should create a limit to the methods that could be used to complete the job.	NC	As stated in the EIS (Section 2.9.1) the Corps is restricted from limiting competition under the Competition in Contracting Act. This Act requires federal agencies to limit how specific specifications are written to prevent limiting competition among contractors. This means the EIS cannot exclude particular pieces of equipment during this phase of the project. Due to this legal restriction, the Corps analyzed all of the potential construction methodologies in Section 2.9 of the EIS and discussed the impacts of each method in Section 4 of the EIS. If no difference was likely to occur between different methods, all methods were treated the same.
228	11	Tropical Audubon Society, et al				Completion of the Plan: Also during the public meeting, USACE representatives explained that the disposal site for the waste that would be produced by the project was not finalized. In order to avoid unforeseen obstacles, the Environmental Impact Statement should have a definitive alternative that has the capacity.	NC	While the EPA may choose not to expand the Port Everglades OOMDS site, under MRPSA, the Corps is authorized to do an expansion for a one-time use of a site. This means that an alternative, with the capacity exists should EPA choose not to expand the OOMDS. This information has been refined in the final EIS.
228	12	Tropical Audubon Society, et al				Lessons learned from the Port of Miami Dredging Project: USACE now has the benefit of the current plan for the Port of Miami project. Taking into consideration some of the similarities in the projects, the Port Everglades project should consider the best practices used in the Port of Miami plan.	PC	The Port Everglades plan was developed based on the lessons learned from development of the Miami Harbor project. The Port Everglades mitigation plan includes construction of artificial reef with transplantation of corals as well as coral reef restoration at sites to be determined later in conjunction with cooperating agencies.

	12 cont.	Tropical Audubon Society, et al				<p>* Although the proposed mitigation plan explains that artificial reef is the most cost-effective, the Port of Miami plan discovered a way to include both the artificial reef restoration plan and an alternative such as coral transplantation. Multiple approaches to restoring the hardbottom habitats create a greater opportunity to ultimately achieve the mitigation plan. USACE should consider absorbing one or more of the alternatives presented by alternative research groups in order to create greater opportunities for success. In particular, USACE should consider adopting the plan suggested by The Nature Conservancy.</p> <p>* The Port of Miami plan also included a detailed accountability plan that accompanied its mitigation and monitoring plans.</p>	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
228	13	Tropical Audubon Society, et al				Has the U.S. Fish and Wildlife Service provided any additional feedback after their original participation in the study?	NC	the USFWS completed the Fish and Wildlife Coordination Act Report on August 20, 2013 providing recommendations under the FWCA and by letter dated August 13, 2013, the US Department of the Interior, the Department that includes the USFWS said it had no comments to offer on the Draft EIS for Port Everglades.
228	14	Tropical Audubon Society, et al				What supporting information did USACE consider to find the conclusions of what to include as direct impacts to the coral reef and indirect impacts to the coral reef in the cost-benefit analysis.	NC	Section 1508.8 of the NEPA implementing regulations defines both direct and indirect effects: (a) Direct effects, which are caused by the action and occur at the same time and place. (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. With these definitions in mind, the Corps defined direct effects as direct removal of habitat by the dredging operations. Indirect effects of the project were defined as those impacts of the project beyond direct habitat removal by the project including sedimentation and turbidity, as well as impacts from dredging methods where habitat is being impacted by dredging equipment but not being directly removed. USACE consulted many technical sources in their determination of effects, and funded studies on the reefs themselves. These studies are included as appendices to the EIS and mitigation plan.
229	n/a	Port Everglades Association, Inc.	M. Kempel	n/a		[General in favor of project]	NR	n/a

230	1	Florida Power & Light Company	L. Pitts	n/a	(General in favor of project) and "I recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation..."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
231	1	Florida Power & Light Company	B. Wesley	n/a	(General in favor of project) and "I recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation..."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
232	n/a	Broward College	J. Armstrong	n/a	(General in favor of project)	NR	n/a
233	1		S. Miller	NOAA June 7, 2013, Discussion Draft	"Survivorship of transplanted corals can initially be high, but mortality can also be high, especially after four or five years. Factors responsible for mortality of transplants are not well understood."	NR	Concur. Monitoring will be important in ensuring that habitat values are replaced.
233	2		S. Miller	NOAA June 7, 2013, Discussion Draft	"Sexual reproduction by transplants has been observed, but only on a couple of occasions in Florida....no reefs have been successfully restored to the point of self-sustaining thickets that successfully reproduce through fragmentation and sexual reproduction"	NR	Agreed. There is reason for caution. NMFS asserts that there is little risk. USACE relies on NMFS leadership in this effort as they are the agency with the jurisdictional lead.

233		3		S. Miller	NOAA June 7, 2013, Discussion Draft	"they [<i>A. cervicornis</i>] are either random features, or they are an expansion northward possibly related to warming. The presence of these patches (but not specifically in the project area) suggests that restoration work for <i>A. cervicornis</i> offBroward County is not unwarranted. However, the premise of the NOAA recommendation, that restoration will be successful in the long-term (20 years), is not yet able to be confirmed."	NR	Agreed. There is reason for caution. NMFS asserts that there is little risk. USACE relies on NMFS leadership in this effort as they are the agency with the jurisdictional lead.
233		4		S. Miller	NOAA June 7, 2013, Discussion Draft	"there is a role for coral reef nurseries and outplanting in the Port Everglades Project, but I recommend that nurseries and outplanting should be initially limited, then scaled up only if results warrant"	CC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
233		5		S. Miller	NOAA June 7, 2013, Discussion Draft	"Such restoration work also needs to be conducted within the context of the existing abundance of coral species in the work area, where <i>Acropora cervicornis</i> is rare."	NR	Agreed. There is reason for caution. NMFS asserts that use of Acropora is appropriate. USACE relies on NMFS leadership in this effort as they are the agency with the jurisdictional lead.
233		6		S. Miller	NOAA June 7, 2013, Discussion Draft	"I support multiple nurseries to mitigate potential coral losses from cold fronts, storms and other stressors, as well as using different outplanting strategies, including various coral densities and outplant timing, as informed by science and monitoring work"	NR	Thank you for your input.
233		7		S. Miller	NOAA June 7, 2013, Discussion Draft	"NOAA and CRF are world-leaders in coral reef restoration"	NR	Agreed. This is why USACE is partnering with NOAA
234	Greater Pompano Beach Chamber of Commerce	n/a		R. Green	n/a	[General in favor of project]	NR	n/a

235	n/a	City of Hollywood	K. Biederman	n/a	[General in favor of project]	NR	n/a
236	n/a	City of Hollywood	L. Sherwood	n/a	[General in favor of project]	NR	n/a
237	1	Palm Beach County Reef Rescue	E. Tichenor	n/a	Why haven't the impacts to the reef zones below 57 feet been taken into consideration in the ACOE loss of coral habitat calculations? The failure to include the added coral loss also results in an underestimation of coral mitigation needed resulting from project impacts.	CC	It is now included.
237	2	Palm Beach County Reef Rescue	E. Tichenor	n/a	150 meter buffer for indirect effects. Was this estimation based on any scientific methodology?	NC	The 150-meter buffer was developed during inter-agency meetings in 2007 to include an acknowledgement of the potential for indirect effects to the ecosystem associated with turbidity and construction during construction. This was based on a few factors - 1) USACE maintains a 400-foot buffer from dredging projects and nearby hardbottom resources during sand mining operations. However since the channel was dredged perpendicular through the reefs when the channel was created, this cannot be adopted for this project 2) Pear reviewed literature and monitoring plans from previous dredging projects (operations and maintenance, sand mining and new construction) all showed that with proper turbidity controls (limits at 25-NTU as required by the state of Florida DEP permits) and in situ, during construction monitoring, impacts to the adjacent resources are minimal or undetectable (Gilliam et al 2010; Fisher et al 2011; CSA 1981; CSA 2007).
	2 cont.			n/a		NC	However, to ensure that any impacts (including minimal ones) are accounted for, the Corps has included turbidity, sedimentation and stress monitoring in our project monitoring plan (included in Appendix E, 5 of the EIS). This plan was based on the monitoring plan developed for the Key West Harbor O&M dredging in the Florida Keys National Marine Sanctuary. The plan was then updated including new information (like Gilliam and Fisher for the Miami Harbor project that began in fall 2013 and was permitted by FDEP in 2012. Additional lessons learned from Miami will also be integrated into the Port Everglades project where appropriate.

2 cont.				n/a		NC	This updated plan is the basis for the Port Everglades plan and any lessons learned from the ongoing dredging at Miami Harbor will be incorporated into the final monitoring plan. - This monitoring plan is based on the on page 1 of the monitoring plan. - This monitoring plan is based on the Monitoring Plan developed for the Miami Harbor Expansion Project as part of the Florida Department of Protection Permit # 0305721-001-BI issued May 22, 2012. It may be updated based on the lessons learned from and results of the Miami Harbor expansion project scheduled to begin construction in early 2013. ")
237	3	Palm Beach County Reef Rescue	E. Tichenor	n/a	How will any and all negative impacts beyond 150 meters from the channel be documented?	NC	the Corps is not expecting any impacts beyond 150 meters from the channel based on previous projects.
237	4	Palm Beach County Reef Rescue	E. Tichenor	n/a	Considering the potential for substantial increase in tidal flushing through the enlarged channel after expansion, has the ACOE evaluated potential interruption of larval coral transport from increased flushing along the reeflines?	NC	Please see response to NOAA/NMFS comment 47.
237	5	Palm Beach County Reef Rescue	E. Tichenor	n/a	Has the ACOE considered impacts on coral spawning, larval transport and survival?	NC	Yes. See response to NOAA/NMFS comment 47
237	6	Palm Beach County Reef Rescue	E. Tichenor	n/a	How has sedimentation and turbidity impacts to Acropora coral critical habitat been evaluated	NC	Section 4.5.10.2.3 of the EIS included an analysis of indirect effects of sedimentation and turbidity on Acropora corals and Section 4.5.10.2.4 includes an analysis of project impacts on designated critical habitat.
237	7	Palm Beach County Reef Rescue	E. Tichenor	n/a	How does the ACOE intend to monitor potential regional large-scale sediment degradation to the Acropora critical habitat substrate as it relates to coral recruitment and survival?	NC	USACE does not agree that the impacts of the project will result in "regional large-scale sediment degradation to the Acropora critical habitat substrate". Based on the NOAA listing package and biological assessment of the species, Acropora typically reproduce through fragmentation. As stated in the EIS, NMFS (2009) has previously found that dredging impacts of sedimentation and turbidity, where bound by the State of Florida 29 NTU limits and a sedimentation monitoring plan "will be insignificant. All three monitored sites showed increases in sedimentation pre- and postconstruction. However, sedimentation rates at all three sites remained within the bounds of the sedimentation rates occurring naturally. Additionally, Rogers (1983) tested sedimentation rates on <i>A. cervicornis</i> , among other coral species, and determined that daily doses of sediment at a rate of 200 mg/cm ² /day had no effect (Rogers 1990). The 400-ft buffer zone will also greatly reduce the likelihood of sedimentation effects.

237	7 cont.	Palm Beach County Reef Rescue	E. Tichenor	n/a	NC	Given the strong similarities between the proposed action and the BRP, we believe it is reasonable to assume the impacts documented at the BRP sites will be similar to those likely to occur during the proposed action. Adverse effects from sedimentation are also less likely to occur in the presence of strong oceanographic currents (Rogers 1990) because sediments are swept off corals. The influence of the relatively strong Gulf Stream in the action area is also likely to reduce any adverse effects from sedimentation. Since the rates of sedimentation observed during the BRP monitoring were within the bounds of sedimentation documented to be occurring naturally, and those were far less than this 200 mg/cm ² /day threshold, and because a 400-ft buffer zone will be implemented, we believe adverse effects to A. cervicornis from increased sedimentation will be insignificant.*
237	7 cont.	Palm Beach County Reef Rescue	E. Tichenor	n/a	NC	This determination was also carried forth in the FDEP permit issued for the recent Miami Harbor project, where no back-foot mitigation was required by DEP for indirect effects due to turbidity and sedimentation, only during project monitoring with the potential of mitigation for any documented project specific impacts. Port Everglades includes up-front mitigation for indirect effects as a lesson learned from Miami Harbor.
237	8	Palm Beach County Reef Rescue	E. Tichenor	n/a	NC	Turbidity and monitoring plan was included in appendix E-5 of the Draft EIS and includes both turbidity requirements (based on the Miami Harbor and turbidity monitoring plan developed by DEP as part of the permit) and a sedimentation monitoring plan to look for potential impacts to adjacent critical habitat.
237	9	Palm Beach County Reef Rescue	E. Tichenor	n/a	NC	Penalties for turbidity violations will be assessed by FLDEP under Section 401 of the Clean Water Act, as there are with all dredging projects in the state of Florida.
237	10	Palm Beach County Reef Rescue	E. Tichenor	n/a	NC	Sedimentation monitoring is included in the Project draft Monitoring plan in Appendix E-5 of the DEIS, specifically page 5-7 of that Plan.
237	11	Palm Beach County Reef Rescue	E. Tichenor	n/a	NC	Based on the data from Rogers 1990 previously cited by NMFS, and the FLDEP permit for Miami Harbor, the current value for determination of a sediment impact is 1.5mm/day above the analogous reference site. This value has been carried forth into this draft plan, however, this may be modified based on the results of Miami Harbor.

237	12	Palm Beach County Reef Rescue	E Tichenor	n/a	What chemical and physical analysis of port sediments was performed/reviewed in preparation of the Draft EIS?	NC	Section 3.10 of the DEIS provides a summary of the results of the Tier 1 analysis conducted for this project, the entire Tier 1 is located in Appendix J. Additionally, as part of the Operations and Maintenance dredging that was completed in the Port between Jan-April 2013, the Corps was required by regulation to test the material to be dredged under the EPA "Green Book" - this testing included physical and biological testing of the material to be dredged to ensure that it met the criteria for disposal in the OCMDS. There was significant overlap in the areas of the 2013 project and the expansion project. The expansion project will also undergo this same level of testing in the PED phase of the project. Additionally, three previous dredging events underwent the same required testing, and all material tested passed the EPA requirements under the ocean disposal criteria in 40 CFR §227.6(c)(3) and §227.27(b).
237	12 cont.			n/a		NC	A Tier III evaluation of the MTB and NTB was conducted in 1998. A Tier III evaluation of the MTB and NTB was conducted in 2004 and a MPRSA Section 103 concurrence was provided for the Port Everglades Harbor in 2005. In summary - The liquid phase (elutriate) of the material was evaluated for compliance with Sections 227.6(c)(1) and 227.27(a) and analyzed for the contaminants of concern (COC) in marine waters. The concentration of COCs was compared to the EPA National Recommended Water Quality Criteria (WQC) Acute Concentration Levels (Criterion Maximum Concentration (CMC)). ---In the Port Everglades elutriate chemistry assays, only one COC (copper) in one sample that exceeded the EPA WQC. It exceeded the WQC by 0.14 ug/L and was shown in the STFA TE model to be sufficiently diluted at the disposal site so as not to exceed the WQC post disposal.
237	12 cont.			n/a		NC	The suspended particulate phase of the material was evaluated for compliance with Sections 227.6(c)(2) and 227.27(b). Bioassay testing of the suspended particulate phase of the material was conducted using three appropriate sensitive marine organisms: <i>Americamysis bahia</i> and <i>Meridia beryllina</i> , in a 96 hour acute toxicity assay, and gametes of <i>Mytilus galloprovincialis</i> , in a 48 hour development assay. ---In the Port Everglades suspended particulate phase toxicology assays, one sample was found to have statistically significantly different larval development from the control. Likewise, it was shown in the STFA TE model to be sufficiently diluted at the disposal site so as not to exceed the Limiting Permissible Concentration (LPC) post disposal.

237	12 cont.			n/a	NC	<p>Ten-day whole sediment toxicity tests were conducted on project materials using the polychaete, <i>Neanthes arenaceodentata</i> and the amphipod, <i>Ampelisca abdita</i>. All test species are appropriate sensitive benthic marine organisms and as such, are good predictors of adverse effects to benthic marine communities.</p> <p>-- In the Port Everglades whole sediment toxicology assays, none of the samples showed organism mortality statistically significantly greater than reference nor did they exceed the reference mortality by more than required amount.</p> <p>Bioaccumulation potential of contaminants in sediments were evaluated through a 28-day solid phase test using representative species <i>Macoma nasuta</i> and <i>Neanthes virens</i>. Tissues were evaluated for target analytes including metals, butyltins, PAHs, and PCBs.</p>
237	12 cont.			n/a	NC	<p>--In the Port Everglades bioaccumulation assays, tissues tested did not exceed the FDA action limits for any compound for either organism. Concentrations in tissues were compared to tissues exposed to harbor sediments from the Port Everglades reference sample locations. Tissue samples with contaminants statistically greater than the reference sample were further evaluated. The magnitude and number of contaminants in these tissues were assessed using Ecological Non-Specific Effects Thresholds, the EPA Region 4 Eastern Florida Background Concentrations, and other factors to assess LPC compliance. Based on the results of the evaluation, there was no indication that the project sediments will cause significant bioaccumulation or toxicological effects.</p>
237	13	Palm Beach County Reef Rescue	E. Tichenor	n/a	NC	<p>What are the anticipated impacts from suspension of contaminated sediments, routes of exposure and long-term effects on the public health, flora and fauna during and post-project?</p>
238	n/a	South Florida Regional Planning Council	E. Swanson	n/a	NR	<p>Based on the previously discussed testing conducted in compliance with EPA's green book and the results of that testing and EPA's concurrence with the testing results, there are no contaminated sediments in the port that would pose a threat to human health, flora and fauna during or post dredging.</p> <p>n/a</p>

239	1	Cry of the Water	D. Clark	n/a	Can the the Corps better answer why they do not believe that the rubble will not roll down the slope(s) face of the reef, below -57 ft further impacting more acres?	PC	USACE included impacts below 57 feet as an indirect impact for its impact calculations and mitigation assessment based on review of previous dredging projects at both Port Everglades and Port of Miami. Based on the review of these projects, the Corps determined that rubble impacts to these areas was not likely to occur, but that these areas would be indirectly impacted by turbidity and sedimentation during construction. However, based on further discussion, particularly regarding the potential use of a backhoe or clamshell dredge, the Corps has performed additional analysis of needed mitigation associated with the potential for rubble impacts to downreef resources and is prepared to mitigate for direct impacts to these areas.
239	2	Cry of the Water	D. Clark	n/a	Why are more of these details have not been put in the EIS? (With regard to the inability for the Corps to dictate types of equipment that will be used on the project)	NC	As the EIS states in Section 2.9.1 of the EIS, "In general, USACE does not specify types of equipment and construction methods within its specifications due to the federal acquisition regulations implementing the Competition in Contracting Act requiring federal agencies to limit how specific specifications are written to prevent limiting competition among contractors (C. Tolle, USACE-SAJ Contracting, pers com). The contractor selected by USACE will determine the most efficient construction methodology for the project, in their professional opinion, and submit that as part of a proposal to USACE. USACE can, and does, specify the intended results of construction through detailed plans and specifications." With that information in mind - the Corps prepared a review of ALL potential equipment types and construction methodologies including cutterhead dredge, backhoe dredge, clamshell dredge, beaming, etc. This ensures that all potential construction methods are available for public review and the effects of those methods are included in the analysis.
239	3	Cry of the Water	D. Clark	n/a	What will be done to ensure that the public and regulatory agencies will be able to conduct oversight of the movement of all work vessels? Will the GIS information be decoded to useable GPS numbers?	NC	The project monitoring plan (Appendix E-5 - page 7-8) provides information on vessel tracking and monitoring of the project. The Corps does not require industry to publicly release vessel data, however that information is submitted to the Corps and is available via the Freedom of Information Act for the public to obtain. Dredge vessel positioning software is an industry proprietary system that the Corps also uses when monitoring vessel locations. GPS products can be developed from this data via a FOIA request, but if the raw data is requested, the requester must possess the necessary software to view the raw data. The contractor and the government have no obligation to convert the data to another format outside of the generating software.

238	4	Cry of the Water	D. Clark	n/a	Will there be penalties and fines if the contractor tried to play this game again to hide there noncompliance with permit conditions?	NC	FDEP is the state agency with responsibility to assess penalties and fines against the permit holder under Florida law and the Clean Water Act. In this case, the Corps would be the permit holder and DEP would assess those penalties against the Corps. The Corps may choose to penalize the contractor if it is determined they did not adhere to the project specifications.
239	5	Cry of the Water	D. Clark	n/a	Please describe how the USACE estimate was developed for the 130.37 acres of indirect impacts and the severity of the impacts that are expected?	NC	<p>The 130.37 acres of indirect impact area is a 150-meter buffer around the entire project footprint including any hardbottom or reef habitats in that area that are not being directly impacted via removal by the dredge. The 150-meter buffer was developed during inter-agency meetings in 2007 to include an acknowledgement of the potential for indirect effects to the ecosystem associated with turbidity and construction during construction. This was based on a few factors - 1) USACE maintains a 400-foot buffer from dredging projects and nearby hardbottom resources during sand mining operations; 2) Peer reviewed literature and monitoring plans from previous dredging projects (operations and maintenance, sand mining and new construction) all showed that with proper turbidity controls (limits at 28-NTU as required by the state of Florida DEP permits) and in situ, during construction monitoring, impacts to the adjacent resources are minimal or undetectable (Gilliam et al 2010; Fisher et al 2011; CSA 1981; CSA 2007).</p> <p>However, to ensure that any impacts (including minimal ones) are accounted for, the Corps has included turbidity, sedimentation and stress monitoring in our project monitoring plan (included in Appendix E-5 of the EIS). This plan was based on the monitoring plan developed for the Key West Harbor O&M dredging in the Florida Keys National Marine Sanctuary. The plan was then updated including new information (like Gilliam and Fisher) for the Miami Harbor project that began dredging in fall 2013 and was permitted by FDEP in 2012. This updated plan is the basis for the Port Everglades plan and any lessons learned from the Miami Harbor project will be incorporated into the final monitoring plan for Port Everglades, when Miami is complete.</p>
	5 cont.			n/a		NC	

239	6	City of the Water	D. Clark	n/a	What will happen if the turbidity plumes from this project are picked up on outgoing tides and transported to the reefs miles to the north?	NC	<p>The issue isn't the plume and the distance it goes, but how many NTUs above background is the plume (if any) and what sedimentation is falling out of that plume of material. Peer reviewed research and monitoring of other projects show that dredging's effects on the environment are equal to or less impactful than storms that move through the ecosystem when it comes to sedimentation effects (CSA 2007, Pennekamp et al. 1996). Additionally, EPA has conducted dredge disposal plume monitoring at Miami Harbor and mapped the plume's travel time and sediment concentration in the Gulf Stream. EPA 2006 found that at the time of initial disposal (1 minute post disposal) in the water column, sedimentation levels (surface TSS) concentration ranged from 34 to 77 mg/l. Approximately 30 minutes after discharge, plume concentrations decreased to a few mg/l. Both of these values are much lower than the 200 mg/cm²/day rate shown to have an impact on the threatened <i>Acropora cervicornis</i> (Rogers 1990). Movement of a plume of material to the north is not equal to an impact to the surrounding ecosystem.</p>
239	7	City of the Water	D. Clark	n/a	How will a monitoring plan be established to capture these events?	NC	<p>the turbidity monitoring plan includes a requirement for the contractor to follow the visible plume and take the turbidity in the densest portion of the visible plume, which would contain the largest amount of sediment being transported by the plume.</p>
239	8	City of the Water	D. Clark	n/a	How many days will this dredging operation go on?	NC	<p>The duration of dredging is dependent on many factors including: funding stream, contractor's equipment, weather delays, etc. The current estimate to complete the entire project, assuming a non-interrupted funding stream in consecutive dredging (one project segment at a time), is five years.</p>
239	9	City of the Water	D. Clark	n/a	What will be the long term impact to the reefs from these chronic silt, sediment and turbidity events?	NC	<p>Based on the monitoring results of the 1981 dredging of the outer entrance channel (CSA 1981), where no turbidity or sedimentation limitations were placed on the project, no impacts were documented, sedimentation levels remained within the background levels seen elsewhere off of Broward County. Due to the sedimentation triggers included in the monitoring plan for the proposed project, and the turbidity limits included in FLDEP state permit, the Corps does not expect long term impacts to the habitats surrounding the port.</p>
239	10	City of the Water	D. Clark	n/a	How far will the turbidity monitoring be required from the project area?	NC	<p>Turbidity monitoring distances will be set by the FLDEP water quality permit, as required by Florida statute</p>

239	11	Cry of the Water	D. Clark	n/a	How far from the project area will the sedimentation monitoring be conducted?	NC	The sedimentation monitoring is included in the proposed monitoring plan for the project (Page 5 and 6). The plan includes qualitative and quantitative sediment monitoring. The qualitative includes twice a week surveys during construction to document potential effects of sedimentation on the corals and other functional groups within 20-m of the channel. The quantitative surveys include sedimentation traps and blocks to look at actual sedimentation rates associated with the project, as well as background sedimentation rates in analogous habitats. This plan was adapted from the plan developed for the Key West Channel project within the boundaries of the Florida Keys National Marine Sanctuary and was found to be effective at detecting project and non-project sedimentation associated with the project.
239	12	Cry of the Water	D. Clark	n/a	How does the Army Corps justify this short distance for sedimentation monitoring?	NC	The plan is based on the best designed dredging monitoring plan developed to date, the Key West Monitoring Plan developed by an interagency group of coral experts for the dredging of the Key West Harbor O&M project in the Florida Keys National Marine Sanctuary.
239	13	Cry of the Water	D. Clark	n/a	Could the Army Corps and other regulatory agencies put more stringent mixing zone rules in place because of the proximity of this project to some of the state's best coral reef resources?	NC	The Florida DEP determines mixing zones based on their rules and Florida Administrative Code Special zones are set for Aquatic Preserves and Outstanding Florida waters. Neither of these designations is found in the project area. The Corps will comply with the requirements placed on the project by FDEP in the permit, when issued.
239	14	Cry of the Water	D. Clark	n/a	Why did the Keys receive a 15 NTU standard and the Port Everglades project receive a 29 NTU standard?	NC	The 29-NTU standard is the standard throughout the entire state of Florida. The project for the dredging of Key West Harbor took place within the boundaries of the Florida Keys National Marine Sanctuary, the equivalent of a marine national park. This federal designation by Congress requires higher levels of protection for resources within the boundaries of the sanctuary, hence the lower NTU value.
239	15	Cry of the Water	D. Clark	n/a	If the 1,500 meter mixing zone is incorporated in this project, how many acres of reef would fall within that 1,500 meter mixing zone?	NC	USACE cannot determine the basis of this comment; it cannot determine the origin of the comment's reference to 1,500 meters because mixing zones are 150m in size unless a variance is requested and USACE has never proposed to request a variance.
239	16	Cry of the Water	D. Clark	n/a	How many of those acres will be monitored for silt, sediment and turbidity?	NC	the mixing zone for the Port Everglades project is 150 meters. If they entire 150-meters is impacted by turbidity at one time it is equivalent to approximately 130 acres of reef and harbor bottom habitats included in the indirect effects assessment are that was included in the up-front mitigation calculations.
239	17	Cry of the Water	D. Clark	n/a	Are we to presume that turbidity monitoring will only take place at the edge of the 1,500 meter mixing zone?	NC	USACE cannot determine the basis of this comment; it cannot determine the origin of the comment's reference to 1,500 meters

239	18	Cry of the Water	D. Clark	n/a	What biological monitoring will be done to the adjacent reefs to document these impacts?	NC	<p>the Biological monitoring of the project is detailed in the Monitoring plan found in Appendix E-5 of the EIS. The following are general categories of the types of monitoring that will be conducted during the project: 1. Construction Period Surveys for Coral Health 2. Qualitative Construction Surveys for Indication of Sediment Impact and/or Stress 3. Quantitative Construction Sediment Monitoring 4. VESSEL TRANSIT MONITORING 5. ANCHOR PLACEMENTS AND MONITORING 6. DRAFT MONITORING 7. MONITORING OF IMPACTS ALONG CHANNEL WALLS WHERE CHANNEL WIDENING IS NOT PROPOSED 8. PROTECTED MARINE SPECIES MONITORING DURING CONSTRUCTION AND BLASTING 9. MONITORING ASSOCIATED WITH BLASTING OPERATIONS AND POTENTIAL IMPACTS 10. Fish Mortality Monitoring 11. TRANSPLANTATION AND MONITORING OF TRANSPLANTED CORALS 12. STRUCTURAL ARTIFICIAL REEF MONITORING 13. POST CONSTRUCTION MONITORING</p>
239	19	Cry of the Water	D. Clark	n/a	How may biological monitoring stations will be established? How far from the work area will the biological monitoring sites be? Will they be monitored pre, during and post construction? Will a baseline be established before the work is to start?	NC	<p>As stated on page #1 of the monitoring plan - "Three 20-m transects will be established 10 meters from the channel edge in a north-south direction, at each hard bottom habitat type station identified in the Benthic Assessment (R3N-1; R3N-2; R3N-3; R3S-1; R3S-2; R3S-3; R2N-1; R2N-2; R2S-1; R2S-2; HBN-1; HBN-2; HBS-1; HBS-2 for a total of 14 stations and 42 transects, 20 meters long by 40 cm (0.40 meters) wide equaling 336 m² of project area being directly monitored. Additionally, 12 control sites with three transects per site (36 transects) in analogous habitat areas of equal length and width for a total of 288m² will also be established and monitored to detect natural variation in the resources and to assist in determining the effects of the actual dredge operations on the resources surrounding the project area." Page 4 of the monitoring plan - "For the duration of active dredging (construction), the reef habitats surrounding the entrance channel and the corresponding habitat reference sites will be surveyed twice a week at the monitoring stations within 750 meters of the dredging activities, and the corresponding reference sites, when dredging occurs within 750 meters of reef or hardbottom habitat " c. After active dredging, the 14 the monitoring stations located in the reef habitats surrounding the entrance channels and the 12 corresponding reference sites will be surveyed at least once a week for four (4) weeks." Additional long term monitoring will also be conducted for three years post-construction with regard to coral survival on the artificial reefs. This plan may be modified based on the lessons learned and longterm monitoring results at Miami Harbor.</p>

239	20	Cry of the Water	D. Clark	n/a	Has the Army Corps of Engineers looked at the cumulative effect of silt and sediment that has been put into the system from past dredging events in the area, such as Broward County Segment III, Inlet maintenance dredging and the currently proposed Segment II 750,000 cu yd truck haul project by Broward County, the 150,000 cu yd Army Corps beach project in Segment II and the current the [FINO] Florida Inlet Navigation project to dredge and deepen the intracoastal Waterway and Dania Cut Off canal?	NC	The Cumulative Effects analysis included in Section 4 of the EIS (specifically Section 4.29) includes the projects the comment mentions in the table of projects included in the Cumulative effects analysis.
239	21	Cry of the Water	D. Clark	n/a	Why has the additional mitigation for Segment III not taken place?	NC	Segment III is not part of the Port Everglades project, so this response cannot provide answers to a project that is not part of the project begin evaluated under this EIS. Questions regarding the Broward County Segment III project should be submitted to Leah Oberlin, Chief, West Palm Beach Regulatory Office.
239	22	Cry of the Water	D. Clark	n/a	When do we reach the tipping point that leads to the collapse of our fisheries?	NC	This question is outside of the scope of this EIS.
239	23	Cry of the Water	D. Clark	n/a	Will the FEIS better address the loss of EFH up and down the coast to look at cumulative effects?	NC	USACE conducted a cumulative effects analysis under the requirements of NEPA. The statement of "up and down the coast" is not a specific geographic area for analysis. The geographic scope of analysis for impacts to projects was defined in Section 4.29 of the EIS. Cumulative effects analysis was also incorporated into the EFH assessment prepared for NMFS EFH consultation.
239	24	Cry of the Water	D. Clark	n/a	If the Federal government currently has an extra \$160 million to put into WRDA, wouldn't that money not be better spent for the Corps to fix the dike around Lake Okechobee and increase storage capacity, to decrease the billions of gallons of water that is being put to tide each day destroying our Essential Fish Habitat?	NC	This question is outside the scope of this EIS. You may wish to discuss this with your congress-olk, as they are the ones that decide on and prioritize use of Federal funds. Certainly USACE is concerned about both the preservation of EFH as well as clean water sources.
239	25	Cry of the Water	D. Clark	n/a	If the State is not requiring additional Compensatory mitigation for Segment III does the Corps regulatory branch have the authority to do so??	NC	Segment III is not part of the Port Everglades project, so this response cannot provide answers to a project that is not part of the project begin evaluated under this EIS. Questions regarding the Broward County Segment III project should be submitted to Chief, West Palm Beach Regulatory Office.
239	26	Cry of the Water	D. Clark	n/a	If the Corps does have the authority to do so, why have they not asked for additional mitigation 1 years after the project.	NC	Segment III is not part of the Port Everglades project, so this response cannot provide answers to a project that is not part of the project begin evaluated under this EIS. Questions regarding the Broward County Segment III project should be submitted to Chief, West Palm Beach Regulatory Office.

239	27	City of the Water	D. Clark	n/a	Why was the destruction of the mangroves in the Conservation Easement and their mitigation removed from the EIS and the Federal Cost Share of the project?	NC	Each component of a federal navigation project that is to be cost-shared using federal taxpayer dollars must have a positive cost benefit ratio of greater than 1.0. The Turning Notch component of the project did not meet this criteria, and as a result, does not qualify to be included in the federal project using federal taxpayer dollars. Therefore, mangrove impacts associated with it were eliminated.
239	28	City of the Water	D. Clark	n/a	Is it true that the Corps is denying the severity of impacts to hardbottom, reef resources, mangroves and sea grasses in an attempt to lessen the mitigation costs in order to make the Cost Benefit Analysis feasible?	NC	The Corps' mitigation requirements were prepared using habitat analysis that relied on the best science and information available at the time of analysis. To ensure that was the case, the Corps had the mitigation requirements undergo an independent external peer review. This review determined the Corps had properly analyzed the impacts and the necessary mitigation for those impacts. Additionally, NOAA has joined USACE as a cooperating agency on the required mitigation plan for the project and agrees with the impact assessment used for the preparation of the mitigation plan. USACE and Congress has set aside more than enough money for all mitigation contingencies; the USACE is not in a position to try to save money at the expense of the environment as its conservation is part of the Operating Principals governing this project.
240	n/a		J. Berry	n/a	(General in favor of project)	NR	n/a
241	1	Cliff Berry Incorporated	C. Berry		(General in favor of project) and "I recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Crossline and to afford NOAA a leadership and responsibility role in mitigation design and restoration implementation."	PC	USACE has revised its preferred mitigation plan in cooperation with NOAA/NMFS to include transfer of impacted corals from impact to mitigation sites and restoration of other Broward County sites using nursery-grown corals.
242	n/a	Florida Port Council	D. Wheeler	n/a	(General in favor of project)	NR	n/a
243	n/a		N. Piot	n/a	(General in favor of project)	NR	n/a
244	n/a		J. Swartull	n/a	(General in favor of project)	NR	n/a
245	n/a		D. Grant	n/a	(General in favor of project)	NR	n/a
246	n/a		A. Edelsein	n/a	(General in favor of project)	NR	n/a
247	n/a		B. Orgain	n/a	(General in favor of project)	NR	n/a
248	n/a		J. Roof	n/a	(General in favor of project)	NR	n/a
249	n/a		K. Hove	n/a	(General in favor of project)	NR	n/a
250	n/a		T. Deluca	n/a	(General in favor of project)	NR	n/a
251	n/a		C. Malter	n/a	(General in favor of project)	NR	n/a
252	n/a		S. Stephenso	n/a	(General in favor of project)	NR	n/a
253	n/a		G. Phipps	n/a	(General in favor of project)	NR	n/a

254	1	Save the Manatee Club	K. Tripp	n/a	We request that the Corps restrict the level of future use (number of annual vessel calls) to those numbers detailed in Table 36, which has been inserted on page 2 of this letter.	NC	The Corps has no jurisdiction to restrict vessel calls at any port in the United States. That authority lies solely with the US Coast Guard. The data in Table #36 is an economic projection based on the best available data used by our economists to determine project benefits and costs.
254	2	Save the Manatee Club	K. Tripp	n/a	We would not support any widening that would encroach on the existing conservation easement (beyond that portion of the easement which has been deeded to FDEP).	NC	No part of the proposed federal project's mangrove impacts occur to mangroves covered by a conservation easement.
254	3	Save the Manatee Club	K. Tripp	n/a	We respectfully request that the amount of mitigation not be reduced, but be maintained at the levels detailed in this report (2.4 seagrass functional units (18.47 acres of seagrass creation/restoration) and 1 mangrove functional unit).	NC	The required mitigation will be based on a final pre-construction survey of impacts and be based on the requirements included in the FDEP permit when issued. The values in the report are based on current project impacts. If impacts are reduced - then the necessary mitigation to replace the lost functions of those impacts will also be reduced.
255	n/a	The Alexis Group Consultants, Inc.	G. Alexis	n/a	[General in favor of project]	NR	n/a
256	n/a		J. Ryan	n/a	[General in favor of project]	NR	n/a
257	n/a		M. Ryan	n/a	[General in favor of project]	NR	n/a



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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August 13, 2013

Mr. Eric Summa, Chief
Environmental Branch,
Planning Division,
Jacksonville District Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

SUBJECT: Port Everglades Harbor Navigation Improvements Draft Environmental Impact
Study and Feasibility Study, CEQ No. 20130178, ERP No. COE-E32085-FL

Dear Mr. Summa:

To fulfill EPA's Clean Air Act (CAA) § 309 and National Environmental Policy Act (NEPA) § 102(2)(C) responsibilities, EPA reviewed the above draft SEIS. Under § 309, EPA is directed to review and comment publicly on the environmental impacts of Federal activities.

EPA's primary concerns involve potentially significant impacts to public water supplies, water quality, aquatic ecosystems including corals and hardbottoms, mangrove wetlands, seagrasses, associated mitigation. Our detailed technical comments are enclosed to assist with the preparation of the final SEIS. EPA is willing to work with USACE to address our significant concerns. Based on our review, we have rated this draft EIS as "Environmental Concerns" (EC-2) rating (EPA's rating criteria can be found at <http://www.epa.gov/compliance/nepa/comments/ratings.html>)

Thank you for the opportunity to review this draft SEIS. If you wish to discuss this matter further, please contact Beth Walls, 404-562-8309 or walls.beth@epa.gov, of my staff.

Sincerely,

A handwritten signature in black ink, appearing to read "Mueller", is placed below the word "Sincerely,".

Heinz J. Mueller, Chief
NEPA Program Office
Office of Environmental Accountability

Enclosures: EPA's Technical Comments

EPA Technical Comments on Draft EIS and Feasibility Study for Port Everglades Harbor Navigation Improvements, Broward County, FL, CEQ No. 20130178

Background

Port Everglades Harbor is located within the cities of Hollywood, Dania Beach, and Fort Lauderdale. Its entrance is approximately 27 nautical miles north of Miami Harbor and 301 nautical miles south of Jacksonville Harbor, Florida.¹

Port Everglades originally started as a petroleum port² and is one of three Florida ports receiving petroleum.³ It is the main entry and delivery center for petroleum, gasoline and jet fuel for 12 South Florida counties. Nearly one-fifth of Florida's energy requirements and one-fifth of Port Everglades' total revenues comes from petroleum and its byproducts stored and distributed through the Port.⁴

Port Everglades is nationally ranked number 35 for tonnage passing through the port. The Port documented 4,079 vessel calls in 2010.⁵ Port tenants include more than 30 shipping lines calling on over 150 ports in 70 countries.⁶ Additionally, Port Everglades has a growing cruise ship/passenger vessel presence being a major homeport/destination port for major cruise ship lines. It is one of the world's busiest cruise ports in terms of the number of passengers served. Total annual cruise calls are projected to remain around 2,000 annually.⁷

The Port has access to rail, air, and road transport and land available for storage. It is comprised of three main berthing areas: 1) Northport, which services cruise ships, vessels, tankers, barges, and cargo, 2) Midport, which services cruise ships and cargo, and 3) Southport, which services predominantly container ships with the largest area for growth.⁸

To the east of the Port is a barrier island where a U.S. Navy facility, the Nova Southeastern University Oceanographic Center, a U.S. Coast Guard facility, and the John U. Lloyd Beach State Park and its adjacent beaches are located. South of the Dania Cutoff Canal is the West Lake Park area, the proposed mangrove wetland and seagrass mitigation bank. West of the Port is US Highway 1 flanked by the Fort Lauderdale/Hollywood International Airport. North of the Port is a mixture of small craft waterways and commercial and residential development.⁹ The federal Intercoastal Water Way transits through the Port in a north – south direction and serves both barges and recreational vessels.¹⁰ On the ocean side of the barrier island is sandy beach and an offshore reef system.¹¹

Purpose & Need: The primary objectives are, through the year 2060, to decrease costs associated with vessel delays from congestion, channel passing restrictions, and berth deficiencies; decrease transportation costs by increasing economies of scale for cargo and petroleum; and increase channel safety and maneuverability for existing and potentially future larger vessels while complying with USACE environmental operating principles.

Alternatives: The proposed action is comprised of the following components: outer and inner entrance channel, three existing turning basins, creating a fourth turning basin, creating a widener, south access channel, and turning notch.¹² USACE looked at a number of depth and

widening alternatives for the outer and inner entrance channel, a number of depth alternatives for the remaining features, and some widening options.

The Tentatively Selected Plan requires the removal of approximately 5.47 million yd³ of dredged material necessitating the expansion of the existing Port Everglades Offshore Dredged Material Disposal Site,¹³ which is being addressed in a separate NEPA action pursuant to the Marine Protection, Research and Sanctuaries Act.¹⁴ The Plan will deepen the outer entrance channel from 45 to 57 feet, extend it 2,200 feet into the ocean, and widen it to 800 feet.¹⁵ Both the inner entrance channel and the main turning basin will be deepened from 42 to 50 feet.¹⁶ The widener, an area of shallow water, will be deepened to 50 and widened to 300 feet.¹⁷ Modifications to the south access channel include widening the “knuckle” area by 250 feet causing the relocation of the US Coast Guard facility, shifting the channel 65 feet to the east to effect a transition from the “knuckle” south to the federal channel, deepening from 42 to 50 feet, and widening a 1,845 foot section by 100 feet and widening by 130 feet a section north of the turning notch.¹⁸ The turning notch is to be deepened from 42 feet to 50 feet after the federal sponsor has widened the turning notch by removing 8.6 acres of mangrove wetlands and deepened it to 42 feet.

Affected Environment:

The entrance to the harbor is in the vicinity of three reef tracts: inner (located approximately 100 to 2,000 feet from shore and cresting at 26 feet), middle (located approximately 3,000 to 6,000 feet from shore and in 49 feet of water), and outer (located approximately 8,000 feet from shore and cresting at 52 feet) where all the coral and hardbottom and impacts will occur. These are high-latitude reefs, existing near the northern limit of reef growth in the continental United States.¹⁹ While no longer a growing system, the reef complex provides storm protection, hardbottom habitat for invertebrates and fish species, and recreational uses resulting in economic benefits to South Florida.²⁰

The harbor is habitat for seagrasses and mangrove wetlands serving as an estuary for a number of animal and fish species including those protected under the Endangered Species Act. The 287-acre John U. Lloyd State Park is located directly across and parallel to the southport access channel.²¹ The State Park’s harbor portion includes estuarine tidal swamp (mangroves), estuarine and marine unconsolidated substrates, marine consolidated substrates, and a rare, tropical coastal hammock ecosystem (maritime hammock).²² These maritime hammocks have become increasingly valuable for their ability to act as “refugia” because of South Florida’s near total loss of this plant-community type.²³

The Florida Department of Environmental Protection designated the waters within the Port as Class III, acceptable for recreation, fish, and wildlife and the waters adjacent to State Park, the Atlantic Ocean, as Outstanding Waters of the State.²⁴

Environmental Impacts:

Corals/hardbottom: The most significant impact associated with dredging the outer entrance channel is the permanent removal of coral and hardbottom habitat. The draft EIS indicates the permanent removal of approximately 5.58 acres of the middle reef and approximately 11.09 acres of the outer reef to create the entrance channel flare for vessel safety purposes to address variable and unpredictable cross currents resulting from eddies spinning off the Gulf Stream.²⁵ It also indicates the potential for another 17.13 acres of reef and nearshore hardbottom could be

impacted associated anchoring the cutterhead dredge equipment. EPA notes these estimates do not include direct impacts to the remaining coral associated with the actual construction activity, e.g., cutterhead dredge and confined blasting effects. EPA also notes a discrepancy in defined impacts exists between the USACE and the National Marine Fisheries Service.

Seagrasses: The draft EIS indicates dredging will permanently remove up to 3.57 acres of mixed or monoculture Johnson's seagrass where it occurs along the south access channel and widener and impede post-dredging recolonization as the seagrasses require shallow, 13-14 foot habitats.²⁶ Again, EPA notes a discrepancy in defined impacts exists between the USACE and the National Marine Fisheries Service.

Mangrove wetlands: The draft EIS indicates the proposed action will only impact 1.6 acres of jurisdictional mangrove wetlands located along the east side of the south access channel along J. Lloyd State Park's western shore.²⁷ EPA finds a greater wetlands impact (8.59 acres) associated with the close linkage between the turning notch component of the proposed action to be done by the USACE and that being done by the sponsor.²⁸

EPA's Technical Comments

Aquatic Ecosystems – *Impacts to corals*

- EPA recommends the final EIS address the discrepancy between National Marine Fishery Service and USACE's findings regarding the occurrence of *A. cervicornis* within the study area.²⁹ According to NMFS, *A. cervicornis* has been documented within 150 meters of the channel whereas the draft states no *A. cervicornis* colonies have been identified within the channel or border area.
- EPA recommends the final EIS address NMFS findings the USACE coral reef impacts estimates are too low, by approximately 8.16 acres. A concern, NMFS raised back in 2011 which has not been addressed in the 2013 draft.
 - EPA recommends the USACE use the appropriate mapping scale to determine impacts associated with the proposed outer entrance channel deepening and widening component. The County appears to have demonstrated the importance of these coral resources by expending the necessary resources to appropriately characterize impacts. The proposed action represents a significant impact to the County/State's coral resources and the UACE may be able to use and build upon the County's improved mapping efforts.
 - In 2008, Broward County resurveyed the areas using updated lidar technology having higher resolution and better processing capabilities³⁰ to realize enhanced seafloor depictions over the 2001 survey. According to NSU, a visual inspection of these data showed that several apparent hardbottom features were not depicted in the original 2004 NSU maps made from the 2001 lidar survey data.
 - EPA notes in the mid-2000s the Florida Fish and Wildlife Conservation Commission and Nova Southeastern University, both members of the Port Everglades Research Group, recommended the offshore reefs within the proposed action's footprint be mapped at a finer scale. EPA recommends the construction impacts be re-considered consistent with NFMS determinations as supported by the corresponding State agency. EPA recognizes these entities to be the appropriate expertise for determining hardbottom/reef impacts.

- The impacts associated with construction equipment and activities do not appear to have been considered in the direct impact assessment. In addition to permanent removal, dredging is expected to dislodge coral fragments and rubble causing them to slide down the existing steep slopes to impact down slope the spur-and-grove reef habitats lying outside the dredging footprint. Moreover, it is reasonably foreseeable for the confined blasting to fracture the hardbottom, existing corals and their substrate. The ultimate likely result is an unstable reef substrate. Further increasing the difficulties to recover a damaged coral habitat and detrimentally impacting the resilience of the designated critical coral habitat.
- EPA also recommends the final EIS address NMFS concern regarding the draft's underestimation of cutterhead-dredge impacts within the outer entrance channel. NMFS estimates 19.31 acres of potential impacts compared to USACE's 17.31 acres.
- EPA recommends the final EIS provide coral/hardbottom impact information associated with the use of explosives and a mechanical excavator which is lacking in the draft.
- EPA further recommends the final EIS add a column to Table 18³¹ to indicate the potential additional impacts associated with dredging/excavation equipment used.
 - For example, the draft indicates 10 additional reef impacts, plus an additional 7.13 acres assuming the worst case scenario,³² may be associated with the use of a cutterhead dredge.³³
 - The draft also indicates an option to cutterhead dredge is the mechanical excavator with the use confined underwater blasting with explosives to break the rock to facilitate dredging.³⁴ No data has been given regarding the impacts associated with a mechanical excavator or confined blasting.
 - The draft also indicates a hopper dredge has the highest likelihood of adverse turbidity and/or sedimentation effect.³⁵
- EPA recommends the final EIS discuss the appropriateness of using cutterhead dredge, with its associated anchoring and cable operation in a sensitive coral reef area.
 - EPA notes the USACE indicated it *cannot dictate types of dredging equipment that a contractor may use (per the Competition in Contracting Act), so the potential remains for all of the potential contractors to propose to use a cutterhead dredge with the traditional anchor cable configuration.*³⁶ USACE states it can only request the selected contractor to implement an anchoring and vessel operation plan to effectively minimize anchor and cable impacts to hardbottom habitat through its Request for Proposal process, which will include incentives to encourage potential contractors to avoid reef impacts.³⁷
- EPA recommends the final EIS discuss potential reef impacts associated with dredge equipment when the 5 – 7 year dredging period is interrupted by storms. As the draft noted, Florida's weather is very dynamic ranging from nor'easters associated with arctic fronts and the tropical depressions and hurricanes from the South Atlantic Ocean.³⁸
- EPA recommends the final EIS address NMFS concern for the proposed action's potential to create a gap or vacuum of sufficient dimension it prohibits floating coral fragments and larvae's ability to cross and land in suitable habitat to grow and reproduce. Moreover the documented highly unpredictable offshore currents and eddies combined with the proposed deep and narrow channel may sweep larva out into the deeper waters or into the harbor,

ultimately reducing the existing designated critical coral habitat's resiliency. Another concern NMFS raised in 2011, which this 2013 draft does not address.

- EPA recommends the final EIS clarify the appropriateness of the draft's characterization of the percent of the designated critical habitat permanently removed by channel extension as an expression of the significance of the proposed action's impacts to coral habitat.
 - The draft states [g]iven the percentage of available NMFS-defined colonizable habitat less than 0.006% (0.02 sq km) of the FL DCH unit would be permanently removed by the TSP's construction.³⁹
 - EPA finds this characterization does not adequately reflect the nature of the complex reef dynamics, these reefs exist near the northern limit of reef growth, nor appropriately characterize their value, both economically and ecologically. Moreover, it is inconsistent with the impact determinations and associated mitigation protocol.
- EPA recommends the final EIS clarify the draft's explanation of the methodology used to calculate impacts for mitigation purposes.
 - Several different hardbottom/reef impact acreage numbers appear throughout the draft and its appendices. The Executive Summary indicates 15.23 acres.⁴⁰ Direct dredging impacts are indicated to total 16.66 acres.⁴¹ Appendix E-2 refers to 16.64 acres.⁴² While Appendix E refers to 15.17.⁴³ It is unclear where these numbers come from. It was stated without any discussion or explanation, the revised lower number of 15.17 resulted from engineering modifications and better mapping.
 - The discussion of impact scenario 2 is very confusing. The first paragraph indicates no impacts would occur associated with cables and anchors. Then the following paragraph indicates anchor-cable impacts were calculated at 7.40 acres.⁴⁴ It is unclear whether anchor and cable impacts will occur under Scenario 2.
 - The draft mentions USACE's contractor, Dial Cordy and Associates, mapped the area⁴⁵ using video cameras⁴⁶ and benthic assessments, but no mapping protocols were provided to describe how the mapping was performed.
 - Figure 59 cites the habitat maps but no discussion was provided to explain how the polygons were drawn, their criteria, or purpose.⁴⁷
 - Appendix E is unclear whether the calculations were for a 57 or 59 foot depth.⁴⁸
- EPA recommends the final EIS discuss how it derived its *Species specific impact* as depicted in Tables 2-5.⁴⁹
- EPA recommends the final EIS change the word "buffer" to different word because it is being to reference the cutterhead dredge anchor placement: 150 meters from the channel's edge.⁵⁰ This identified "buffer" area is the area being directly impacted by the proposed action's potential use of a cutterhead dredge and its associated anchors. Moreover, its use is inconsistent with the draft's proper use of *buffer*, e.g., marine mammal protection zone from confined underwater blasting,⁵¹ a buffer against poor recruitment years,⁵² and mangrove buffer in context of sawfish habitat.⁵³
- EPA recommends the final EIS clarify the draft's position the USACE revised the reef impact amount based upon refined engineering analysis, higher resolution habitat maps, refined construction timelines to modified the project's duration, and indirect effects associated with vessel movements as a result of the economic analysis. The draft provided no explanation how these factors revised the number of injured areas depicted in Tables 6 – 10.⁵⁴

Aquatic Ecosystems – *Impacts to Seagrasses*

- EPA recommends the final EIS clarify the draft's seagrass impacts identified as 4.01 acres when it is our understanding the cumulative impacts associated with the Tentatively Selected Plan is approximately 9.492 acres.⁵⁵
 - EPA recommends the final EIS clarify why the draft⁵⁶ does not include:
 - The 1.06 acre of seagrass, and corresponding mitigation, National Marine Fisheries Service's identified in the outer entrance channel in its assessment area number 1.⁵⁷
 - The 2.071 acres of seagrass, and corresponding mitigation, NMFS' identified in the harbor in its assessment area number 2.⁵⁸
 - EPA recommends the final EIS clarify why the draft⁵⁹ is inconsistent regarding seagrass acreage impact calculations with NMFS.
 - USACE's 0.08-acre determination for the inner entrance channel is inconsistent with NMFS' 0.698 acre determination in its corresponding assessment area number 3.
 - USACE's 5.01-acre determination for both the widener and south access channel is inconsistent with NMFS' 5.681 acre determination for its corresponding assessment areas number 4 and 5.
 - USACE's 3.26-acre determination for the widener is inconsistent with NMFS' 4.647 acre determination.
 - EPA further recommends the seagrass impacts be re-considered consistent with NFMS determinations as supported by the corresponding State agency. EPA recognizes these entities to be the appropriate expertise in the science of fisheries and their associated habitats, i.e., seagrasses.
 - EPA recommends the final EIS clarify why the USACE's snapshot approach to assessing seagrass impacts is based upon the best available science and should be used over NMFS' cumulative cover approach, which NMFS' maintains is best supported by the available science.

Aquatic Ecosystems – *Impacts to Mangroves*

- EPA recommends the final Feasibility Study describe which the draft does not, how impact acres to mangrove and reef/hardbottom habitat were determined.⁶⁰
- EPA recommends the final SEIS clarify the draft's statement *the USACE has determined that although no filling of jurisdictional wetlands will occur as a part of the proposed action....*⁶¹ The draft EIS indicates the proposed installation of *environmentally friendly bulkheads* will impact jurisdictional wetlands.⁶²

Aquatic Ecosystems - *Impacts*

- EPA recommends the final EIS address its independent technical review panel⁶³ concerns the draft does not address all the requirements of the Endangered Species Act, National Environmental Policy Act,⁶⁴ and Water Resources Development Act.⁶⁵
- EPA recommends the final EIS discuss port and beach renourishment projects located in the two adjoining coastal counties as part of the cumulative impact analysis.
- EPA recommends the final EIS discuss the sponsor's dredging of the turning notch and the Dania Canal Cutoff,⁶⁶ which outside sources report started in July of 2013⁶⁷ as part of the

cumulative impact analysis, including impacts upon the proposed mitigation bank, West Park Lake.

Aquatic Ecosystems - Mitigation – corals/hardbottom

- EPA recommends the USACE further address the National Marine Fisheries Service's mitigation coral nursery proposal to propagate coral and support active coral reef enhancement for the benefit identified in the draft: *... it is designed to maximize the chances of successful natural coral reproduction; larval transport; settling and colonization into new areas; and genetic mixing required for survival and recovery of the species*⁶⁸ combined with the USACE proposal to create boulder reefs, i.e., substrate for NMFS to colonize using nursery stock.
 - NMFS' proposal when compared to the USACE's passive, boulder reef approach has environmental data to support its potential for success. However, the question remains as to whether the proposed action's impacts to coral reefs will ever be appropriately mitigated. As noted in the draft, these are high-latitude reefs, existing near the northern limit of reef growth,⁶⁹ not in optimal growing conditions, and they exist in a higher stress environment making mitigation efforts challenging at best.
 - The draft presents only a few papers supporting the use of boulders as appropriate mitigation for lost natural reef habitat. However, a number of studies refute the effectiveness of the proposed mitigation and its purported equivalency to natural habitat. There are few long term studies of artificial reefs pertaining directly to the issue of compensation for function and services of a natural reef.
- EPA recommends the final EIS clarify the draft's apparent misstatement of Port Everglades Reef Group's compensatory mitigation recommendations. PERG's recommendation appears to be for a minimum advisable size of 12-15 cm colonies.⁷⁰ However the draft indicated states *[o]ne notable recommendation of PERG that will be implemented is the transplantation of corals larger than 25 cm in diameter/height to the mitigation site.*⁷¹
 - EPA recommends the transplanting of corals should be consistent with NFMS determinations as supported by the corresponding State agency. EPA recognizes these entities to be the appropriate expertise for addressing coral mitigation.
- EPA recommends the final EIS address both the National Marine Fishery Service's and USACE's independent own independent technical peer review findings⁷² regarding the use of boulder piles and its assumption they will reach 100 percent equivalency with natural coral reefs in 30 years. The USACE's use of Habitat Equivalency Analysis to make this 100 percent equivalency finding introduces potentially significant uncertainty regarding the actual achievement of 100 percent.
 - USACE in its HEA determinations inappropriately used a "0" discount rate and indicated it did so in compliance with OMB Circulars and Corps regulations and guidance.⁷³
 - However, the referenced OMB Circular specifically exempts from its scope water resource projects.⁷⁴ It does not prohibit the proposed action from the use of discount rates greater than "0." Nor does the guidance for the exempted water resource projects⁷⁵ prohibit the use of discount rates.
 - EPA recommends some discount rate greater than 0 percent be used in USACE's HEA analysis in order to attempt to provide sufficient mitigation because the value or services provided by the habitat and communities removed and injured by dredging will

be lost for decades⁷⁶ by all estimates and may never achieve 100 percent recovery to present value.

- For example, a 3-percent discount rate with the assumption the USACE's proposed boulder mitigation will upon maturity reach 50 percent, not 100, of the natural reef services has been proposed.
- EPA recommends the discount rate should be re-considered consistent with NFMS determinations as supported by the corresponding State agency. EPA recognizes these entities to be the appropriate expertise for calculating the appropriate HEA.
- Additionally, USACE's underestimation of impact acreage to corals and hardbottom, as discussed in the above comments on impacts, further adds to the significance of the HEA analysis' uncertainty.
- EPA recommends the final EIS discuss how the HEA input parameters were selected and whether agreed to by all parties. According to the draft, much appears to have been decided at meetings without clear documentation for those not present at these deciding meetings. No justification has been provided in the draft to justify the actual parameters used.
- EPA recommends the final EIS identify appropriate compensatory mitigation for the "best buy" mitigation plan⁷⁷ as proposed should the transplant survival rate be lower than the performance criteria value for the transplantation of stony coral colonies to boulder reefs or alternate locations.
- EPA recommends the final EIS clarify and provide a scientific basis for the drafts' statement the transplantation of corals onto mitigation reefs will reduce the time to *substantial functional productivity* by as much as 20 years.⁷⁸ Functional productivity requires the octocorals, sponges, reef fishes and other reef biota be present with community structure similar to pre-impact conditions.
- EPA recommends the final EIS clarify the drafts' apparent double counting of mitigation credits for one action. According to the draft EIS,⁷⁹ the total number of corals to be dredged is 100,744. Its cost estimate indicates the relocation of up to 12,235 corals outside of the impact area to boulder- reef recovery areas, a 12% reduction in impact. EPA recommends this impact minimization measure be reflected in a corresponding reduction in compensatory mitigation requirements. It would be inappropriate to also grant compensatory mitigation credit to the boulder reef recovery areas receiving the coral transplants.⁸⁰ The effect is getting credited twice for the same action.
- EPA recommends the final EIS clarify during the proposed five year monitoring period how it will be determined that 100% equivalency of natural reef habitat has been achieved when it is expected take decades after boulder reef construction to achieve 100 percent, assuming 100 percent can be achieved. EPA believes it is unlikely in five years to achieve *75% of species found in the impact site shall be present in the mitigation site by the time of the completion of the monitoring period; and percent cover by the major groups of organisms in the mitigation site shall be no less that it was in the impact site.*⁸¹

Aquatic Ecosystems - Mitigation – mangrove wetlands

- EPA recommends the final EIS fully account for all aquatic ecosystem impacts and clarify the draft EIS' allegations of avoidance and minimization of mangrove wetlands and seagrasses. The USACE show cases dropping the turning notch and Dania Cutoff Canal

projects from the proposed action as example of its mitigation avoidance⁸² in response to stakeholder concerns.⁸³ EPA encourages the USACE to explain how these wetlands and seagrasses impacts will be *avoided* when the sponsor will likely have destroyed them prior to the proposed action's initiation. EPA also encourages USACE to explain how its proposed avoidance effectively addressed the concerns of its stakeholders.

- The USACE takes credit for avoiding impacts to 8.59 acres of red and black mangrove wetlands⁸⁴ by dropping the turning notch widening/deepening component for economic reasons⁸⁵ while knowing the federal sponsor will remove these same wetlands⁸⁶ to implement the original, federally proposed, turning-notch widening proposal and to deepen up to 42 feet of the original 50 foot design. The draft EIS indicates the sponsor already has initiated permitting discussions and held a pre-application meeting in August, 2012. Moreover after being deepened to 42 feet by the sponsor, USACE intends take action to further deepen the notch to 52 feet.⁸⁷
 - EPA notes the draft EIS describes these mangroves to be removed as: *[t]his mangrove area is mitigation for previous wetland impacts associated with the Turning Notch Project (DC&A 2001). During the interagency site visit in May 2008, it was noted this area contains a mature mangrove community and the riprap revetment between the mangroves and open water appears to provide sufficient spacing to allow for detrital exchange and fishery resource access.*⁸⁸
- The USACE also takes credit for avoiding significant impacts to mature red and black mangrove wetlands,⁸⁹ by dropping the Dania Cutoff Canal component for economic reasons.⁹⁰ Hence avoiding 18.49 acres of mangrove wetlands.⁹¹ The Dania Cutoff Canal component is now considered to be a non-federally sponsored project,⁹² for which dredging commenced in July of 2013.⁹³ The draft EIS did not discuss USACE's approval of the sponsor's permit for this project.⁹⁴ EPA notes the dredged material is being disposed of in a landfill instead of being disposed into the Port Everglades offshore dredged material disposal site.
 - EPA notes the proposed mitigation for removing these 8.6 acres by the sponsor remain undetermined.⁹⁵
- EPA recommends the final EIS clarify the draft's claim *[t]he tentatively selected plan now proposes to impact only approximately 1.16 acres of mangroves.*⁹⁶ The Turning Notch project will impact an additional 8.59 acres. And the Dania Cutoff Canal project impacted an additional 18.49 acres for a total 28.4 acres of mangrove impacts for which mitigation is only being proposed for 1.16 acres.
- EPA recommends the final EIS clarify whether the proposed action's mangrove impacts will affect habitat created by the Port as mitigation for previous impacts to native areas of mangrove.⁹⁷

Aquatic Ecosystems - Mitigation – seagrasses

- EPA recommends the final EIS clarify the proposed action's seagrass impacts and associated mitigation. The draft states mitigation to offset impacts to 4.01 acres of seagrass will occur at West Lake Park.⁹⁸ EPA understands seagrass impacts may exceed 9 acres. See Aquatic Ecosystem – impacts comments below.
- EPA recommends the final EIS clarify how West Lake Park creates sufficient seagrass mitigation credit to offset 4.01 to 9.49 acres of seagrass impacts associated with the proposed action.

- EPA recommends the final EIS clarify how the best available science and scientific literature supports mitigation of seagrasses at the West Lake Park and is consistent with the federal mitigation rule's requirements.⁹⁹
- EPA recommends the final EIS address the National Marine Fishery Services' concern regarding Port Everglades seagrasses habitat value to two federally managed species: the gray snapper and bluestriped grunt, which is a function of distance from the ocean and inlet which West Lake Park cannot adequately compensate.
- EPA recommends the final EIS identify how many mitigation credits are available at West Park Lake.
 - The draft states [t]o offset impacts due to implementation of the TSP, 2.4 seagrass functional units ... will be provided by West Park Lake.¹⁰⁰ This is to mitigate the draft's identified 4.01 seagrass acres impacted.
 - However, USACE permit SAJ-2002-0072 has authorized only 2.22 seagrass credits.
 - Moreover, NMFS has identified 9.492 acres of seagrass impacts requiring 5.25 seagrass credits.
- EPA recommends the FEIS identify and discuss alternative mitigation plans should West Lake Park provide insufficient mitigation to offset proposed action's impacts.
- EPA recommends the FEIS explain how the seagrass UAMAM scores were determined.¹⁰¹
- EPA recommends the final EIS clarify the draft EIS' claim it avoided 0.66 acres of seagrasses associated with dropping the Dania Canal Cutoff component since the sponsor currently is dredging this canal.¹⁰²

Aquatic Ecosystems - Mitigation

- EPA recommends the final EIS clarify the Port Everglades Navigation Project Mitigation Plan¹⁰³ will be in compliance with the *Federal Compensatory Mitigation Rule*, dated April 2008.¹⁰⁴
- EPA recommends the final EIS address its peer review panel concerns, as the draft did not, regarding the adequacy of the draft's discussion on avoidance, minimization, and mitigation measures for unavoidable impacts to identified resources and ESA-listed species such as the federally threatened Johnson's seagrass (*Halophila johnsonii*).¹⁰⁵
- EPA recommends the final EIS discuss additional avoidance and minimization measures in accordance to the Clean Water Act¹⁰⁶ because the mangroves, sea grass and coral/hardbottom communities in the area are aquatic resources of national importance. EPA agrees with the Corps finding in the draft EIS: [m]any of the natural resources in the project area are considered significant under the Corps planning guidance.¹⁰⁷
- The EPA requests the final EIS clarify the draft's use *adopted primary* mitigation plan as presented in Table 35.¹⁰⁸ This language appears to be a final statement on proposed mitigation for project impacts when significant doubt exists regarding the proposed mitigation's adequacy.

Water Quality – public water supplies

- EPA recommends the final EIS discuss the ground-water related studies conducted to determine the potential impacts to potential public groundwater supplies associated with the proposed construction.

- The draft's conclusion no substantial impacts to water supplies is expected¹⁰⁹ does not appear to have been supported by a ground water study, which has been done for other port deepening projects, e.g., Savannah and Jacksonville Harbors.
 - For example, there is no information on the whether the cone of depression associated with the nearest municipal water-supply well-field will be impacted. For large municipal wells, cones of depression can extend many miles from the pumped well. The four-mile distance of the nearest municipal water supply well field does not preclude impacts associated with the proposed action's construction.¹¹⁰
 - Moreover, the fact that the shallow aquifer is not now used for public water supply does not preclude its current use for private water supplies or for future use as public water supply.
 - One concern is the proposed blasting may facilitate increased porosity and transmissivity of seawater into ground-water dependent public water supplies, particularly during storm events and high tides by fracturing associated with the proposed blasting.^{111, 112, 113, 114} South Florida's geology is extensive karst limestone which is very hydraulically conductive. The USACE proposes each blasting charge to be placed in a drilled hole 5-10 feet deep **below** the desired depth,¹¹⁵ e.g., 57 feet. This blasting may facilitate increased porosity and transmissivity of seawater into ground-water dependent public water supplies, particularly during storm events and high tides.
- EPA recommends the final EIS describe the proposed action's construction impacts to the surficial-aquifer system. The draft does not provide information on how the proposed action will cumulatively affect previous harbor dredging impacts to the surficial aquifer. Nor does it provide any rock-removal volume estimates. No discussion has been provided describing rock-removal impact's the aquifer's porosity and ability to transmit sea water associated with public water supply well-draw downs.

Water Quality – *nutrients*

- EPA recommends the final EIS provide environmental information regarding the proposed action's impacts to nutrient concentrations of the coastal waters. As the existing deepest channel in the vicinity, the Port Everglades Inlet represents the largest source of potential pollutant loads from inlets to the coastal ocean in Southeast Florida.¹¹⁶ Moreover, Figure 62 depicts the inner and outer entrance channel as a point source of fecal coliforms, enterococci, and *Clostridium perfringens*.^{117, 118} EPA notes the referenced USGS study only sampled for microbial constituents of human sewage, and did not include sampling for nutrients.
- EPA recommends the final EIS address those studies indicating the water in the inner entrance channel contains higher concentrations of nutrients compared to levels typically seen in the coastal ocean.^{119, 120} Enlargement of the channel may potentially increase the flux of these substances out of the inlet and into the coastal ocean. Moreover, the proposed blasting will potentially significantly increase the groundwater–surface water interface potentially increasing the nutrient enriched ground water to discharge into surface water.
 - The Port Everglades Flow study results indicate the possibility for the upper water column inside the inner entrance channel (the part of the water column most likely to contain excess nutrients and microbial contaminants) to flow in an opposite direction from the lower water column. As stated in sub-appendix C, RMA-2 is a depth-averaged 2D model

and will not resolve the vertical features of the channel water column. These features, however, may be important when considering impacts within the vicinity of the inlet, e.g., nutrient enrichment concerns.

Water-Quality Impacts – Turbidity

- EPA recommends the final EIS evaluate the potential turbidity effects to water quality during the estimated five-seven years of dredging and blasting. Without information to support its conclusions, the draft states water quality impacts are expected to be inconsequential,¹²¹ temporary, and no foreseeable future actions resulting in a cumulative effect.¹²²
- EPA recommends the final SEIS fully evaluate the long-term turbidity effects associated with larger ships using a deeper navigational channel. Larger ships are expected to create larger wakes, potentially increasing shoreline erosion effects, and potentially disturbing and re-suspending bottom sediments. Additionally the widening effect associated with the proposed deepening may expose more surface area of unconsolidated sediments to erosion.
- EPA recommends the USACE consider avoidance and minimization techniques to reduce these potential environmental consequences and identify appropriate mitigation to address this concern.

Offshore Dredged Material Disposal Site (ODMDS) Impacts

- EPA recommends the final EIS clarify the deepening and expansion material has not been tested or evaluated pursuant to the Marine Protection, Research and Sanctuaries Act. By stating *[i]mpacts associated with disposal activities at the USEPA designated and authorized ODMDS have been reviewed and addressed in USEPA's 2005 EIS for the designation of the Port Everglades ODMDS. The USACE ... hereby incorporates those analyses into this EIS ...*,¹²³ the draft implies the dredged material to be disposed offshore is suitable for ocean disposal without further analysis, study, or testing, which is not a factual determination. See ODMDS comments below.
- EPA recommends the final EIS discuss the impacts to the proposed action should a significant volume of dredged material be unable to meet the required ocean dumping criteria, prohibiting the use of the preferred disposal option, ocean disposal off shore.¹²⁴ It remains unknown whether any of this material will meet ocean dumping criteria, require special management practices, or a non-ocean disposal site.
- EPA recommends the final EIS clarify the deepening and expansion material has not been tested or evaluated pursuant to the Marine Protection, Research and Sanctuaries Act. The draft EIS states: *[s]ediments sampled within the OEC, IEC, NTB, MTB, and STB have been tested and found suitable for ocean disposal ...*¹²⁵ which appears to imply the material associated with the proposed action has been tested and found in compliance with the ocean disposal criteria. The sediments tested in 2004 were the maintenance material dredged and disposed of in 2006, which is no longer in the basin. Additionally, the harbor has been maintenance dredged at least twice since 2004.
- EPA recommends the final EIS clarify the draft's inconsistent statements. It states, *[n]o sources of pollutants or contaminants have been identified within the construction or disposal areas.*¹²⁶ However, it also states, *[a]lthough industrial facilities exist in the area that may have a potential for release of toxic materials, the materials most likely to be discharged are petroleum hydrocarbons, small, undocumented chemical spills, and stormwater runoff from large container and freight yards.*¹²⁷ EPA agrees the latter describes potential pollution

and contaminant sources within the construction area, which might impact the material to be dredged and its potential compliance with the ocean disposal criteria.

- EPA recommends the final EIS provide the Tier I analysis Appendix J. The draft indicates it has been performed and is in Appendix J,¹²⁸ which it is not. Moreover, Appendix J does not address the requirements of the MPRSA or follow any national or regional guidance for performing a Tier I evaluation.
 - EPA requests the USACE provide it an appropriate Tier I analysis for review prior to the final EIS, since EPA was unable to determine from the draft EIS whether it was consistent with national and regional testing guidance.
- EPA recommends the final EIS clarify it is Section 103, not Section 102 of the MPRSA authorizing the USACE to designate a one-time use of a disposal site.¹²⁹
- EPA recommends the final EIS describe the proposed artificial mitigation site to facilitate the appropriate CWA Section 404 compliance determination. It is not described in the draft.¹³⁰ At a minimum, the description should include the site's location and the substrate's characteristics. It is impossible to make a factual determination of compliance without an appropriate description of the proposed disposal site.
- EPA recommends the final EIS clarify the decision not to incorporate the site designation into this draft Port Everglades EIS was a joint EPA/USACE, not solely EPA's.¹³¹
- EPA recommends the final EIS clarify the ocean dumping criteria are based on a suite of tests including chemical and biological tests, not just chemical testing as implied in the draft.¹³²
- EPA recommends the final EIS clarify the dredged material disposed at the ODMDS is not regulated under the Clean Water Act and therefore the CWA's Section 404(b)(1) evaluation guidelines are inapplicable to the ODMDS' use.¹³³
- EPA recommends the final EIS define what part of the approximately six million cubic yards is expected to be rock removed (i.e., from the surficial aquifer). The draft indicates a significant quantity of rock will require blasting; approximately 40-50% of the material in the main, south, and north turning basins.¹³⁴

Sea Level Rise

- EPA recommends the final SEIS discuss the effects of anticipated sea-level rise over the 50-year project life in context of the need to construct the proposed action to the proposed depth to accommodate the design vessels. Whether sea-level rise may naturally provide some increased water depth to facilitate deep-draft vessel passage without going to the full TSP depth.
- EPA recommends the final SEIS discuss how the proposed action will incorporate any revisions to the USACE's existing guidance,¹³⁵ which expires on September 30, 2013, to reflect updated scientific findings over the proposed action's life.

Storm Surge

- The FEIS should discuss how the storm-surge impact analysis was performed, the assumptions made, and confidence in any model derived results. The draft indicates no storm-surge modeling or analysis was performed.
 - EPA recommends this analysis discussion include worst case scenarios, e.g., slow moving, category 5 hurricane occurring at a high tide with the three sea-level rise

scenarios: baseline, intermediate, and high over the 50-year project life consistent with current USACE guidance.¹³⁶

- EPA recommends this analysis discussion indicate whether the ADCIRC storm surge simulations were used. E.g., the USACE's Sabine Neches study.¹³⁷
- EPA recommends this analysis discussion indicate where the changes in peak surge occur in the area associated with the proposed action and what is being impacted. Infrastructure? Residential Areas? The Barrier Island?
- EPA recommends this analysis discussion describe the cumulative effect of storm-surge and sea level impacts based upon the USACE's existing sea level rise guidance: the three sea-level rise scenarios: baseline, intermediate, and high over the 50-year project life.
- EPA recommends the final SEIS discuss the effects of a deepened channel allowing a greater volume of seawater to penetrate the harbor upon the surrounding areas including environmental justice communities, public water supply facilities, wastewater treatment facilities, and other public infrastructure.
 - Flooding, erosion, and salt-water intrusion through the porous limestone unit of the surficial aquifer are potential concerns associated with storm surges. The proposed action could possibly breach up to ten¹³⁸ or more feet of the surficial aquifer creating extensive fractures facilitating new dissolution areas within the existing karst.
 - A concern exists for impacts associated with large, slow moving storm events upon areas already susceptible to storm-surge flooding. It is unclear whether the proposed action may exacerbate the storm-surge impacts and associated flooding risk of smaller storms than under existing conditions.
 - EPA recommends the final SEIS discuss storm-surge impact in context of low and high tides, previous histories of major storm-surge impacts, and sea-level rise.
 - EPA recommends the final SEIS' discuss the effects of a deepened channel allowing a greater volume of seawater to penetrate the harbor upon the J.U. Lloyd Beach State Park, the harbor's mangrove wetlands and seagrasses.
 - EPA recommends the final SEIS consider appropriate mitigation measures (e.g., informing the local county's public utilities and emergency management program to allow them to update their storm surge maps, evacuation procedures, increasing storm-water retention areas, etc.).

Air Quality –

- EPA recommends the USACE continue to explore with the applicant additional measures to reduce fossil-fuel use during construction. Additionally, the USACE and applicant should consider mitigative measures for port operations, such as additional repower/electrification of container handling equipment, improved logistics related to container movement, port locomotive idle and shut-off policies, use of biodiesel blends, etc.¹³⁹
- EPA recommends the final EIS identify any sensitive receptors within 1,500 feet (approximately 500 meters) from all air-toxics emission sources because the draft EIS did not address air toxics. Sensitive receptors include hospitals, daycares, nursing homes, schools and other at risk populations. EPA recognizes a substantial area around the port is industrialized. Based upon a cursory review of the study area on EPA's NEPAAssist program, no schools or hospitals could be identified within 1,500 feet of major port facilities. EPA

requests the USACE identify any potential near-facility sensitive receptors and confirm this information in the final EIS.

Environmental Justice & Children's Health

- Environmental Justice
 - EPA recommends the final EIS provide more information on how it meets Executive Order 12898.¹⁴⁰ The draft generally states the project would benefit shipping and general economy including low-income and minority populations, no identified minority or low income populations were identified in the study area or that would be affected by the project, and stakeholder involvement approach provided a variety of opportunities for affected communities to be involved.¹⁴¹ No supporting information was provided regarding the above conclusions.
 - EPA recommends the final EIS include demographic information and maps to support its statements made regarding the lack of minority and low-income population in the study area and surrounding community. If the demographic analysis identified any minority and low-income populations, efforts made to meaningfully engage these populations in the decision-making process should be identified including a brief summary of any EJ comments or concerns identified along with USACE's response. In addition, any potential environmental and human health impacts should be identified along with any efforts to avoid, minimize or mitigate the effects. Furthermore, if the project benefits are anticipated for communities with EJ concerns, supporting information should be provided.
- Children's Health
 - EPA recommends the final EIS address impacts to children pursuant to Executive Order 13045¹⁴² pertaining to children's health and safety which directs each Federal agency to make it a high priority to identify and assess environmental health and safety risks disproportionately affecting children and to address these risks.
 - EPA recommends the final EIS include an analysis of impacts to children if there is a possibility of disproportionate impacts related to the proposed action. The analysis and disclosure of potential effects under NEPA is important because physiological and behavioral traits of children render them more susceptible and vulnerable to environmental health and safety risks. Children may have higher exposure levels to contaminants because they generally have higher inhalation rates, eat more food, and drink more water, and relative to their body size. In addition, a child's neurological, immunological, digestive, and other bodily systems are also potentially more susceptible to exposure-related health effects. It is well documented that children are more susceptible to many environmental factors that are commonly encountered in NEPA projects, including exposure to mobile source air pollution, diesel emissions, particulate matter and heavy metals. As mentioned in the Air Quality comments above, the final EIS should identify sensitive receptors such as schools, daycares, and hospitals located near the proposed project area and clearly describe the potential direct, indirect, and cumulative environmental and human health impacts to children.

Editorial Comments –

- EPA recommends the final EIS clarify Figure 13, in the draft EIS, it shows a proposed channel depth at 56 feet¹⁴³ but the action proposes an effective 57 foot depth.¹⁴⁴
- EPA recommends the final EIS clarify the draft EIS' inconsistencies in the turning notch depths. The draft SEIS text indicates USACE plans to deepen the turning notch from 42 to 52 feet¹⁴⁵ but Figure 5 indicates the USACE will deepen to 48 feet.¹⁴⁶
- EPA recommends the final EIS clarify the projected number of vessel calls for the no action and the proposed action and be consistent throughout the text.
 - The draft EIS indicates the 2060 no action projects are for a minimum of 5,193 vessels calling annually, an increase from the pre-2012 baseline of more than 1,163 vessels annually.¹⁴⁷
 - The draft EIS indicates the No Action analysis estimates 5,163 vessel calls in 2060, an increase in the 2012 level of 1,646 calls.¹⁴⁸
 - The draft also states *with* project vessel calls in 2060 are estimated to be 8,693, one call less than estimated *without* project.¹⁴⁹
 - The draft also states *with* project vessel calls in 2060 are estimated to be equal to or less than the without-project vessel calls.¹⁵⁰
 - The draft also states the 2060 no action projects 8,984 vessel calls; an increase of 3,691 from 2012 baseline, and 1 call less than with the TSP, 8,983 and the proposed action 2060 calls are projected to be 8,983, one less call than the no action.¹⁵¹
 - The draft also states the no action, 2060 vessel project is 5163 while the proposed action's 2060 vessel projection is 5,067.¹⁵²
 - The draft also states the estimated vessel calls *without project* – 8,983 in 2060 and *with project* – 8,983 in 2060.¹⁵³
 - The draft also states the no-action alternative would involve a continued increase in ship calls from the 4,000 vessel call 2012 baseline. The future 2060 *without project* estimate is 5,163 vessel calls an increase of 1,646.¹⁵⁴ EPA's calculator finds 4,000 + 1,646 does not equal 5,163.
- EPA recommends the final EIS clarify Figure 62 as the draft EIS references it for two different figures.¹⁵⁵
- EPA recommends the final EIS improve on the draft EIS' Figure 64 to make it readable.¹⁵⁶
- EPA recommends the final EIS make Figure 74 readable.¹⁵⁷
- EPA recommends the final Feasibility Study clarify where the UMAM calculations are provided. They were not provide in Appendix B of the draft EIS as indicated in the draft Feasibility Study.¹⁵⁸
- EPA recommends the final Feasibility Study clarify where PERG's Draft Compensatory Mitigation Recommendations can be found. They were not provide in Appendix B of the draft EIS as indicated in the draft Feasibility Study.¹⁵⁹
- EPA recommends the final EIS reflect updated population numbers as the draft EIS states Florida's 2010 population was 1,748,066.¹⁶⁰
- EPA recommends the final EIS add TSP to the Acronyms/Definitions of terms list.¹⁶¹ For example, the draft EIS' Table 18 provides information regarding the habitat impacts of the TSP by plan component but TSP is undefined.¹⁶²
- EPA recommends the final EIS reflect the correct spelling of artificial in the Section 7.2.3 header.¹⁶³

- The draft EIS states [m]angrove mitigation requirements were determined using the State of Florida's Uniform Mitigation Assessment Method (UMAM) assessment.” It should be Seagrass, not Mangrove.¹⁶⁴
- EPA recommends the final EIS clarify the draft’s statement [u]navoidable impacts to mangrove wetlands will be mitigated by using credits (functional units) generated by habitat improvements at West Lake Park.¹⁶⁵ It should be seagrass, not mangrove.

Region 4 EPA Contacts:

Consistent with EPA/USACE discussions, EPA offers its assistance to address our identified concerns with this draft SEIS prior to publication of the final. The following is a list of staff, their contact information, and expertise areas.

- Beth Walls, Region 4 NEPA Program Office, walls.beth@epa.gov (404-562-8309).
- Christopher Militscher, Region 4 NEPA Program Office - air toxics assistance, militscher.chris@epa.gov, (404-562-9512).
- Ntale Kajumba, Region 4 NEPA Program Office - EJ and sensitive communities assistance, kajumba.ntale@epa.gov, (404-562-9620).
- Ron Miedema, Region 4 Water Protection Division, South Florida Regulatory Office – aquatic ecosystems, monitoring and adaptive management plan assistance, miedema.ron@epa.gov (561-616-8741).
- Christopher McArthur, Region 4 Water Protection Division – offshore dredged-material disposal site assistance, mcarthur.christopher@epa.gov (404-562-9391).
- Roland Ferry, Region 4 Water Protection Division – aquatic ecosystems: coral and hardbottoms and HEA, ferry.roland@epa.gov (404-562-9387).

¹ Section 1.2, p. 2.

² Section 3.14, p. 167.

³ Section 3.18, p. 166.

⁴ Section 3.14, p. 167.

⁵ Section 3.18, p. 166.

⁶ Section 3.18, p. 166.

⁷ P. Section 3.8, p. 167.

⁸ E.S., p.1.

⁹ Section 1.2, p. 2.

¹⁰ Section 1.4, p. 9 – FS.

¹¹ Section 1.4, p. 8 – FS.

¹² Section 2.2.2, pp. 19 – 22.

¹³ Section 2.3.2, p. 27.

¹⁴ 16 USC § 1431 et seq. and 33 USC §1401 et seq. (1988).

¹⁵ Section 2.3.2, p. 27.

¹⁶ Section 2.3.2, p. 27.

¹⁷ Section 2.3.2, p. 27.

¹⁸ Section 2.3.2, p. 27.

¹⁹ Section 3.6.2, p. 108.

²⁰ Section 3.6.2, p. 108.

²¹ Section 2.5.5, p.40.

²² Section 3.17, p. 162.

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- ²³ Section 3.17, p. 162.
- ²⁴ Section 3.9.1, p. 147.
- ²⁵ Section 4.5.10.2.2, p. 209.
- ²⁶ Section 4.4.1.2., p. 176 and Section 4.5.2.2, p. 191.
- ²⁷ Section 4.3.2, p. 172.
- ²⁸ Section 2.7.1, p. 44.
- ²⁹ Section 4.5.10.2.1, p. 208.
- ³⁰ Guilford, J.; Robertson, W.; Ramsay, S., 2008. Evolution of the LADS MkII ALB System: A Comparison of the 2001 and 2008 Broward County Lidar Surveys. Available at http://www.thsoa.org/hy09/0512P_04.pdf.
- ³¹ Section 4.3.2, p. 173.
- ³² Section 4.5.10.2.2, p. 211.
- ³³ Section 4.4.2.2, p. 179.
- ³⁴ Section 2.9.1, p. 47.
- ³⁵ Section 4.5.10.2.3, p. 213.
- ³⁶ Appendix E-2, Section 4.51, p. 12.
- ³⁷ Section 4.5.10.2.2, p. 211.
- ³⁸ Section 3.3, p. 87.
- ³⁹ Section 4.5.10.2.4, p. 220.
- ⁴⁰ p. iv.
- ⁴¹ Section 4.4.2.2, p. 177.
- ⁴² Section 4.5.1, p. 12.
- ⁴³ Section 6.1, p. 22, Table 8, p. 33, and Table 11, p. 37.
- ⁴⁴ Appendix E-2, Section 4.51, p. 12.
- ⁴⁵ Appendix E, Section 1.0, p. iv.
- ⁴⁶ Section 3.6.2, p. 111.
- ⁴⁷ Section 3.7.2.13, p. 137 and p. 140.
- ⁴⁸ Appendix E, Section 6.3.5, p. 34, and Table 10, p. 35.
- ⁴⁹ Appendix E-2, Section 4.5.1.1.1, pp. 13-15.
- ⁵⁰ Section 4.5.10.2.2, p. 211.
- ⁵¹ Section 2.9.3.2.3, p. 72.
- ⁵² Section 3.6.3.3, p. 117.
- ⁵³ Section 3.7.2.2, p. 121.
- ⁵⁴ Appendix E-2, Section 4.6, pp. 17 - 21.
- ⁵⁵ Section 4.3.2, Table 18, p. 173.
- ⁵⁶ Section 4.3.2, Table 18, p. 173.
- ⁵⁷ Section 3.6.1.1, Figure 49, p. 101.
- ⁵⁸ Section 3.6.1.1, Figure 49, p. 101.
- ⁵⁹ Section 4.3.2, Table 18, p. 173.
- ⁶⁰ Section 8.11, p. 138 – FS.
- ⁶¹ Section 4.7.1, p. 221.
- ⁶² Section 2.7.1, p. 44.
- ⁶³ Final Independent External Peer Review Report, Science Reports for the Port Everglades Harbor, Florida, Feasibility Study and Environmental Impact Statement (EIS), by Battelle for USACE Ecosystem Restoration Planning Center of Expertise Rock Island Division (August 17, 2011).
- ⁶⁴ NEPA documents shall use data and incorporate findings from analysis required by other environmental laws (e.g., ESA and the Clean Water Act) to assess the project's effects on listed species and wetland resources and to evaluate avoidance or minimization measures.
- ⁶⁵ WRDA 2007 (Section 2036), projects under the USACE Civil Works program need to ensure that *all significant impacts to ecological resources have been avoided and minimized ... and, unavoidable impacts compensated to the extent practicable*.
- ⁶⁶ Section 4.29.2, Table 38, p. 249 does not include the Dania Cutoff Canal project.
- ⁶⁷ Dania Cutoff Canal Deepening Project Kicks Off, July 10, 2012, see: <http://www.dredgingtoday.com/2012/07/10/dania-cutoff-canal-deepening-project-kicks-off-usa/>
- ⁶⁸ Section 5.2.3, P. 260.

⁶⁹ Section 3.6.2, p. 108.

⁷⁰ *Recommendations of the Port Everglades Reef Group Regarding Compensatory Mitigation for Navigational Improvements at Port Everglades Harbor* (May 2005) Section 7.6, p. 25.

⁷¹ Appendix E, Section 6.2, p. 23. See also Section 7.2.3, p. 123 – FS.

⁷² Final Independent External Peer Review Report, Science Reports for the Port Everglades Harbor, Florida, Feasibility Study and Environmental Impact Statement (EIS), by Battelle for USACE Ecosystem Restoration Planning Center of Expertise Rock Island Division (August 17, 2011).

⁷³ Appendix E, Section 1.0, p. iv.

⁷⁴ OMB Circular A-94.

⁷⁵ Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (1983), available at [ftp://ftp-fc.sc.egov.usda.gov/Economics/priceindexes/Data/PrinciplesAndGuidelinesLocalSite.pdf](http://ftp-fc.sc.egov.usda.gov/Economics/priceindexes/Data/PrinciplesAndGuidelinesLocalSite.pdf)

⁷⁶ The draft EIS indicates, without supporting data or studies, [t]he interval required to reach substantial functional productivity of this alternative is estimated to be 30-50 years. And also states without supporting data or studies, its proposed mitigation will shorten this interval to 23-30 years. See: Section 5.2.2, p. 259.

⁷⁷ Appendix E, Section 6.3.4, p. 34, and draft EIS, Section 5.2.2, p. 258.

⁷⁸ Section 5.2.2, p. 259.

⁷⁹ Appendix E2.

⁸⁰ Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, 40 CFR Part 230 (2008).

⁸¹ Appendix E-5, Monitoring Plan, p. 19.

⁸² ES, p. iv.

⁸³ Section 1.6, p. 16 – FS.

⁸⁴ Section 2.7.1, p. 44.

⁸⁵ Section 2.5.5, p. 40 and Figure 9, p. 40.

⁸⁶ Section 2.2.2, Figure 5, p. 20.

⁸⁷ Section 2.5.5, p. 40.

⁸⁸ Section 3.5.2, p. 93.

⁸⁹ Section 2.5.5, p. 40.

⁹⁰ Section 2.5.5, p. 40.

⁹¹ Section 2.7.1, Table 7, p. 45.

⁹² Section 1.4.6, p. 10 – FS.

⁹³ Dania Cutoff Canal Deepening Project Kicks Off, July 10, 2012, see:

<http://www.dredgingtoday.com/2012/07/10/dania-cutoff-canal-deepening-project-kicks-off-usa/>

⁹⁴ Section 4.29.2, Table 38, p. 249 does not include the Dania Cutoff Canal project.

⁹⁵ Section 4.29.2, Table 38, p. 249.

⁹⁶ Section 7.2.1, p. 122 – FS.

⁹⁷ Section 3.5.2, p. 95.

⁹⁸ Section 5.0, p. 260.

⁹⁹ Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, 40 CFR Part 230 (2008).

¹⁰⁰ Section 5.3, p. 260.

¹⁰¹ Appendix E, Table 2, p. 10.

¹⁰² Section 2.7.1, Table 7, p. 25.

¹⁰³ Appendix E, Section 3.0, p. 7-8.

¹⁰⁴ Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, 40 CFR Part 230 (2008).

¹⁰⁵ Final Independent External Peer Review Report, Science Reports for the Port Everglades Harbor, Florida, Feasibility Study and Environmental Impact Statement (EIS), by Battelle for USACE Ecosystem Restoration Planning Center of Expertise Rock Island Division (August 17, 2011).

¹⁰⁶ Section 404(b)(1) Guidelines.

¹⁰⁷ Section 2.3, p. 22 – FS.

¹⁰⁸ Section 7.2.3, p. 124 – FS.

¹⁰⁹ Section 4.7.2, p. 222.

¹¹⁰ Section 4.7.2, p. 221.

¹¹¹ Section 2.9.2, p. 48.

¹¹² Section 2.9.3.2.1, p. 67.

¹¹³ Section 2.9.3, p. 65.

¹¹⁴ Section 4.0, p. 235.

¹¹⁵ Section 2.9.3.2.2, p. 67.

¹¹⁶ <http://newspaper-edit.wunderground.com/data/hurricane/mwrscape/www.aoml.noaa.gov/themes/CoastalRegional/projects/FACE/PtEverg.htm>

¹¹⁷ Section 3.9.1, p. 147 - 148.

¹¹⁸ *Clostridium perfringens* (*C. perfringens*) is one of the most common causes of food poisoning in the United States. <http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/cperfringens/>

¹¹⁹ For example, Stamates, S J, J R Bishop, T P Carsey, J F Craynock, M L Jankulak, C A Lauter, and M M Shoemaker. Port Everglades flow measurement system. NOAA Technical Report, OAR-AOML-42, 2013, 22 pp.

¹²⁰ Futch, J.C., D.W Griffin, K. Banks, and E.K. Lipp. 2011. Evaluation of sewage source and fate on southeast Florida coral reefs. *Marine Pollution Bulletin*. 62: 2308-2316.

¹²¹ Section 4.4.3.2, p. 184.

¹²² Section 4.29.5, p. 252.

¹²³ Section 4.7.1, p. 221.

¹²⁴ Section 2.9.4, p. 80.

¹²⁵ Section 3.1.

¹²⁶ Appendix B.

¹²⁷ Section 3.10, p. 151.

¹²⁸ Section 3.1

¹²⁹ Appendix B.

¹³⁰ Appendix B.

¹³¹ Section 1.8.

¹³² Section 2.9.4.

¹³³ Appendix B.

¹³⁴ Section 2.9.3.2, p. 67.

¹³⁵ *Sea-Level Change Considerations for Civil Works Programs*, EC 1165-2-212 (1 October 2011).

¹³⁶ ER1165-2-212.

¹³⁷ *Surge Sensitivity Analysis for Sabine Neches Water Way Navigation Project* by Ty V. Wamsley, Mary A. Cialone, and Tate O. McAlpin, March 2010, available at <http://www3.swg.usace.army.mil/pep/SNW/W/Doc/2Sabine%20Surge%20Final%20Draft%203-22-10.pdf>

¹³⁸ Section 2.9.3.2.2, p. 67.

¹³⁹ Section 4.9.5, p. 228.

¹⁴⁰ Executive Order 12898 entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*.

¹⁴¹ Section 6.23, p. 265 – 266.

¹⁴² Protection of Children From Environmental Health Risks and Safety Risks.

¹⁴³ Section 2.3.5, p. 37.

¹⁴⁴ Table 31, f.n. 1, p. 117.

¹⁴⁵ Section 2.5.5., p. 40.

¹⁴⁶ Section 2.2.2, Figure 5, p. 20.

¹⁴⁷ Section 2.4, p. 28.

¹⁴⁸ Section 4.5.4.1, p. 194.

¹⁴⁹ Section 4.5.6.2, p. 201.

¹⁵⁰ Section 4.5.9.2, p. 207.

¹⁵¹ Section 4.9.6, p. 229.

¹⁵² Section 4.9.6, Table 36, p. 230.

¹⁵³ Section 4.9.10, p. 234.

¹⁵⁴ Section 4.9.11, p. 234.

¹⁵⁵ Section 3.9.1, p. 147 and Section 3.9.2, p. 148.

¹⁵⁶ Figure 64, p. 150.

¹⁵⁷ P. 182.

¹⁵⁸ Section 7.2.1, p. 123.

¹⁵⁹ Section 7.2.1, p. 123.

¹⁶⁰ Section 3.4, p. 46.

¹⁶¹ I.e., pp. vii and viii.

¹⁶² Section 7.2, p. 121.

¹⁶³ Section 7.2.3, p. 123.

¹⁶⁴ Appendix E, Section 4.1, p-8.

¹⁶⁵ Appendix E, Section 4.4, p. 14.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Bureau for National Marine Fisheries

AUG 13 2013

Colonel Alan M. Dodd, Commander
U.S. Army Corps of Engineers, Jacksonville District
PO Box 4970
Jacksonville, Florida 32232

Dear Colonel Dodd:

The National Oceanic and Atmospheric Administration (NOAA) has reviewed the U.S. Army Corps of Engineers (USACE) Draft Environmental Impact Statement (EIS) entitled *Navigation Improvements - Port Everglades Harbor, Broward County, Florida*. Comments are included from the National Marine Fisheries Service (NMFS), representing NOAA as a cooperating agency on the referenced EIS. NMFS was invited to cooperate on the EIS by the USACE in light of NMFS' jurisdiction over, and expertise in, essential fish habitat (as defined by the Magnuson-Stevens Fishery Conservation and Management Act) and threatened and endangered species (as defined by the Endangered Species Act).

In brief, NOAA believes that the referenced Draft EIS significantly understates the project's impacts to seagrass, coral reef, and mangrove habitat. We also believe that the EIS significantly underestimates the level of mitigation required to compensate for the project's effects. The EIS omits significant input that NMFS has provided and does not address questions that NMFS has raised.

Please see the attached NMFS letter for a full description of NOAA's concerns. Please direct any questions you have regarding these comments to Ms. Jocelyn Karaszia or Ms. Kelly Logan. Ms. Karaszia may be reached at:

400 North Congress Avenue, Suite 120
West Palm Beach, Florida 33401
561-249-1925
Jocelyn.Karaszia@noaa.gov

Ms. Logan may be reached at:

National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
727-460-9258
Kel.Logan@noaa.gov

Sincerely,

Patricia A. Montanio
NOAA NEPA Coordinator

Enclosures




UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office

263 13th Avenue South

St. Petersburg, Florida 33701-5505

<http://sero.nmfs.noaa.gov>

F/SER4:JK/pw

AUG 12 2013

Colonel Alan Dodd, Commander
 U.S. Army Corps of Engineers, Jacksonville District
 PO Box 4970
 Jacksonville, Florida 32232

Dear Colonel Dodd:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the draft Environmental Impact Statement (EIS) dated June 14, 2013, entitled *Navigation Improvements, Port Everglades Harbor, Broward County, Florida*. The overall purpose of the project is to provide increased navigational safety, efficiency, and improved economic conditions while limiting impacts to the environment to the maximum extent practical. The U.S. Army Corps of Engineers (USACE) is the lead federal agency and Broward County is the non-federal cost sharing partner for the project. The draft EIS describes a tentatively selected plan (TSP) that includes deepening the Outer Entrance Channel (OEC) to -57 feet mean lower low water (MLLW), widening the OEC to 800 feet, and extending the channel seaward 2,200 feet; deepening the main turning basin to -50 feet MLLW and extending the southeastern boundary of the turning basin an additional 300 feet; widening and deepening the south access channel; and deepening the turning notch (following local sponsor dredging of the same area). Blasting may be needed to remove rocky substrate. Dredge disposal would occur at the existing Port Everglades Harbor Ocean Dredged Material Disposal Site (ODMDS). The draft EIS states the TSP would impact 4.01 acres of seagrass, 15.17 acres of coral reef, and 1.16 acres of mangrove habitat. As detailed below, NMFS believes the draft EIS significantly understates these impacts. These comments reflect the responsibilities of the NMFS under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Fish and Wildlife Coordination Act, and Endangered Species Act (ESA).

Service as a Cooperating Agency in Development of the EIS

By letter dated October 12, 2007, NMFS accepted the invitation from the USACE to participate as a cooperating agency in development of the EIS. In that letter, NMFS stated it would provide technical assistance on how impacts to threatened and endangered species and to essential fish habitat (EFH) would be identified and mitigated. However, NMFS does not have a NOAA federal action that requires us to adopt the EIS for our purposes (such as issuing an MMPA incidental take authorization).

While this is the third version of the EIS NMFS has reviewed, the draft EIS omits significant input NMFS has provided and does not address questions NMFS has raised. Attachment 1 is the detailed review NMFS provided USACE on July 7, 2011. In lieu of repeating the same comments in this letter, NMFS will focus on the major issues that have not been adequately



addressed in the draft EIS, including comments on calculation of impacts to coral reefs, characterization of indirect effects to coral reefs, calculation of seagrass impacts, and seagrass mitigation.

As a cooperating agency, NMFS has responded to requests from the USACE for technical assistance during development of the EIS, including preparation of a report, *Characterization of Essential Fish Habitat in the Port Everglades Expansion Area*, which is draft EIS Appendix H and is part of USACE's EFH assessment, and development of a compensatory mitigation plan for coral reefs that is technically sound and appropriately offsets the impacts to coral reef habitats through active propagation and outplanting of corals. USACE included this mitigation option in the draft EIS as Appendix E-4. In this regard, NMFS also prepared sections of the draft EIS and appendices that describe this mitigation alternative. Lastly, due to the USACE's reluctance to calculate coral reef impacts in the manner NMFS recommended in its comments on earlier versions of the draft EIS, NMFS completed a GIS analysis and technical report characterizing and quantifying the coral reef impacts that would result from the project (Attachment 2).

While NMFS remains hopeful an agreement can be reached on those issues affecting NOAA trust resources, if NMFS and USACE cannot agree on a mutually acceptable mitigation plan to be incorporated in the final EIS, NMFS is considering exercising the option under Section 50 CFR 600.920(k) to refer disputes to the Assistant Secretary of the Army. Further, NMFS may also evaluate the option of referring the matter to the President's Council on Environmental Quality pursuant to Part 1504 of regulations for implementation of the National Environmental Policy Act.

Characterization of Coral Reef Impacts

Calculation of Direct Impacts to Coral Reef Habitat

NMFS and Nova Southeastern University completed a GIS analysis and characterized the coral reef impacts that would result from the Port Everglades Expansion Project and concluded 21.66 acres of coral reef located in the federal channel will be severely impacted by the planned expansion (Attachment 2). This estimate of direct impacts is approximately 6.49 acres more than the estimate in the draft EIS. The USACE's estimate of direct impacts to coral reef habitats is based only on removal by the dredge and is estimated to total approximately 15.17 acres. Coral reef communities in the channel would be directly impacted through (1) removal by the dredge; (2) coral fragments and dredged material, including rubble and sediments, moving downslope or down current and shearing coral reef organisms from the substrate; and (3) fractures in hardbottom and lithified coral propagating into the reef framework, thereby destabilizing attachment of coral reef organisms. The latter two impacts create an unstable coral reef environment resulting in lower coral abundance and fewer large coral colonies. The steeply sloped, eastward facing spur-and-groove reef habitats are particularly at risk from the downslope movement of sediment and rubble. Stabilizing the seafloor following the dredging at Port Everglades may be the most significant measure that could minimize post-injury impacts on the surrounding reef communities and newly established reef organisms on uncovered substrate (Dial Cordy and Associates 2006); however, such stabilization is not proposed in the draft EIS.

Calculation of Potential Impact from Anchor Placement Outside the Channel

Depending on the type of dredge selected, anchoring may be required outside the channel in coral reef and hardbottom habitats. The USACE mitigation plan estimates the anchors would result in approximately 17.13 acres of additional impacts to coral reef and hardbottom habitats. NMFS believes this estimate is too low because the draft EIS uses maps created at a coarse regional scale to calculate the impacts. Brian Walker, Ph.D., of Nova Southeastern University, the cartographer of the maps used by the USACE in the draft EIS, provided NMFS updated acreage calculations based on finer scale maps more suitable for impact assessment at Port Everglades (Attachment 3). NMFS concurs with Dr. Walker's assessment that 19.31 acres (i.e., 2.18 acres more than USACE estimates) of coral reef and hardbottom habitats would be impacted by dredge anchors if this construction strategy is used.

Indirect Impacts to Coral Reef Habitat

The draft EIS describes indirect impacts to 130.37 acres of coral and hardbottom habitat within 150 meters of the channel; however, the draft EIS neither describes how this estimate was developed nor the severity of the impacts expected. While NMFS and Dr. Walker estimate 111.87 acres of indirect impacts to coral and hardbottom habitat would result within the 150 meter zone around the channel, NMFS does not agree that sedimentation and turbidity impacts would be limited to this zone. Chronically high levels of sedimentation and turbidity can be as damaging to coral reefs as acute stress (Rogers 1979).

In the July 2011 letter (Attachment 1), NMFS noted that permit SAJ-2003-00203 for the Key West Harbor dredging project included a more stringent turbidity limit (15 Nephelometric Turbidity Units, or NTUs) than what is normally required by the State of Florida. The basis for this requirement was research conducted by Telesnicki and Goldberg (1995) on two Florida coral species (*Dichocoenia stokesii* and *Meandrina meandrites*). The research measured the photosynthetic and respiratory responses of corals subjected in the laboratory to turbidity ranges of 7 to 9, 14 to 16, and 28 to 30 NTU. By day four for *D. stokesii* and day three for *M. meandrites*, corals exposed to 14 to 16 NTU significantly differed from controls. In both cases, this level of turbidity produced a photosynthesis to respiration (P:R) ratio very close to 1.0; the ratio then declined to a ratio of less than 1.0 after six days. The stress from this level of turbidity also induced mucus production. The researchers concluded, "while other species of scleractinians may have different reactions to turbidity, the data suggest that the standard of 29 NTU above background is not conservative and should be reevaluated." These researchers' findings are relevant to the Port Everglades project. Due to the presence of both corals within the project footprint (Dial Cody and Associates 2006), as well as the presence of designated critical habitat for elkhorn and staghorn corals, NMFS continues to recommend a more conservative turbidity standard for the Port Everglades project.

Should blasting be necessary to construct the channel, the draft EIS indicates sedimentation and turbidity monitoring would be done adjacent to the blast sites. NMFS notes conducting monitoring would not avoid or minimize the effects from blasting. The discussion of indirect impacts in the final EIS should provide a more thorough discussion of impacts from blasting that may occur outside the channel, including the size of material produced, amount of material produced, and locations of areas that may require blasting.

Additional Indirect Impacts to Coral Reef Habitat from Poor Water Quality

The vertical velocity and density structures of the Port Everglades inside channel are stratified and vary depending on the tidal phase (Stamates et al. 2013). The results from the Port Everglades Flow study indicate that it is possible for the upper part of the water column inside the inner entrance channel (the part of the water column most likely to contain excess nutrients and microbial contaminants) to flow in an opposite direction from the lower parts of the water column. Specifically, on the flood tide (as defined from tide tables), the lower part of the inner entrance channel may indeed be flooding but the upper part of the inner entrance channel may remain in ebb for a significant fraction of the time ascribed to the “flood tide.” As stated in sub-appendix C, RMA-2 is a depth-averaged 2D model and will not resolve the vertical features of the channel water column. These features, however, may be important when considering impacts within the vicinity of the inlet.

Mitigation for Coral Reef Impacts

The draft EIS indicates the amount of coral reef mitigation is important to the USACE in determining what the draft EIS refers to as a “best buy” for mitigation and to develop an overall project construction cost. However, NMFS determines the Habitat Equivalency Analysis (HEA) presented in the draft EIS is flawed due to the input of assumptions that are not supported by the best available science. The amount of coral reef mitigation in the form of boulder piles is significantly underestimated and subsequently the costs for coral reef mitigation are also significantly underestimated. Replicating the approach presented in the draft EIS with more realistic assumptions for the HEA results in a mitigation requirement of an additional 32 acres (approximately 51 acres total) of boulder piles needed to offset impacts to coral reef habitats at an additional cost of \$51M above the cost estimate the USACE developed (approximately \$71M total).

The four main areas of disagreement with the way the HEA was used to determine the amount of mitigation are (1) amount of coral reef habitat to be impacted (described in the previous section), (2) equivalence of the impact area to the compensatory action, (3) recovery rate of the mitigation action, and (4) discount rate applied. Additionally, NMFS disagrees with the estimated costs for boulder pile construction, which is a major factor in the determination of a mitigation option as a “best buy.” Furthermore NMFS believes the creation of boulder piles will not adequately mitigate for lost critical habitat for elkhorn coral and staghorn coral.

NMFS notes the independent technical reviews completed by Battelle Memorial Institute (Battelle 2011) for the USACE conclude that some assumptions made for the HEA are either unsupported or have not been clearly justified. Furthermore, a replication of the HEA and technical review of the USACE “best buy” mitigation plan was completed by an internationally recognized coral reef scientist, Richard E. Dodge, Ph.D, Dean of the Nova Southeastern University Oceanographic Center, and provided to NMFS on July 15, 2013 (Attachment 4). NMFS scientists have reviewed the HEA performed by Dr. Dodge and affirm its accuracy. The analyses of Dr. Dodge, Battelle (2011), and NMFS arrive at nearly identical conclusions

regarding the deficiencies in the HEA performed by USACE. Those deficiencies are described below.

Inadequacy of Boulder Piles as Mitigation

The HEA presented in the draft EIS assumes 100 percent equivalency between the coral reefs that would be impacted and the boulder piles created for mitigation. This is not supported by the best available science. For example, Miller et al. (2009) documented an overall lack of similarity between the benthic species at natural and artificial reefs. Gilliam (2012) concluded the length of time boulder reefs require to mitigate lost reef resources in southeast Florida exceeds the age of the oldest boulder reef examined in the study (17 years). Kilfoyle et al. (2013) showed nearshore natural and artificial hardbottom habitats have dissimilar usage by the early life stages of species managed under the fishery management plan for snappers and groupers with significantly higher abundances occurring on natural nearshore hardbottoms compared to artificial habitat. Battelle (2011) arrives at a similar conclusion. In particular, the USACE's independent panel review panel expressed concern about the efficacy of mitigation boulders. A pile of boulders is not a coral reef and will not become a coral reef over time, and NMFS disagrees with USACE's determination that boulder piles are in-kind mitigation for coral reef habitat.

Ultimately, the boulders would provide a lower degree of ecosystem services compared to those of a natural coral reef. Battelle (2011) also concludes that some of the assumptions made for the HEA, especially regarding recovery service levels, have not been clearly presented or justified. Specifically, this report states that the assumed 100 percent recovery service level could be overly optimistic. The report acknowledges these values are critical to the HEA and significantly affect the outcomes for the required reef mitigation (Battelle 2011). In the separate analysis performed by Dr. Richard E. Dodge (Attachment 4), an alternative approach to determine equivalency of boulder piles and natural coral reefs is identified. This approach describes an assumption that upon maturity boulders would provide a fraction of the services of the natural reefs (services from structure). This approach is described in Attachment 4 and assumes (for purposes of illustration only) that the artificial reef will provide 50 percent of the services of a natural reef. Both Dr. Dodge and NMFS believe that 50 percent is overly optimistic and not based on the best available science. NMFS believes boulder placement should not be credited with any mitigation value beyond those services provided by the structural components of the reef which the boulders would replace.

The USACE's choice of mitigation is boulder placement with coral transplants. These measures will not provide services upon maturity equivalent to those of the natural reef. Information in the draft EIS states that the recovery rate of boulder piles is 50 years, whereas the cost estimate (draft EIS, Appendix E2) assumes 30 years. The USACE subtracted 20 years from the recovery rate as credit for the coral relocation to the boulder reefs. NMFS acknowledges the Port Everglades Reef Group (2004) discussed allowing a 10-year discount for relocated corals; however, this estimate does not reflect the amount of corals to be relocated by the USACE as project minimization, and this discussion occurred prior to the publication of the USACE and U.S. Environmental Protection Agency's (EPA) Mitigation Rule in 2008.

According to the draft EIS Appendix E2, the total number of corals to be dredged is 100,744. The draft EIS cost estimate indicates up to 12,235 corals would be removed. This would represent a 12 percent reduction in impact and therefore it is not appropriate to credit the boulder reef recovery by 20 years. Furthermore, NMFS does not support crediting the recovery of boulder reefs that have coral transplants, because the transplants are a project minimization measure, not a compensatory mitigation measure. The USACE and EPA's Mitigation Rule (2008) and the Clean Water Act 404(b)(1) Guidelines emphasize that mitigation is sequential: first avoid, then minimize, then perform mitigation for unavoidable impacts. The Mitigation Rule specifically states that compensatory mitigation is only for impacts that cannot be avoided or minimized (Federal Register, Volume 73, Number 70, page 19596, April 10, 2008). This impact minimization measure should be reflected in a corresponding reduction in compensatory mitigation requirements. Thus, it would not be appropriate to also give compensatory mitigation credit to the boulder reef recovery areas that will receive these same coral transplants. This amounts to asking for "credit" twice for the same action. NMFS confirmed this is an accurate interpretation of the Mitigation Rule with EPA headquarters staff via email on July 31, 2013.

Additionally NMFS does not support limiting the amount of relocation to 12,235 coral colonies. Rather, NMFS recommended that USACE establish a performance goal for the relocations of 90 percent for the coral species and size classes presented in Table 2 of the "NOAA Mitigation Alternative," which is located in draft EIS Appendix E-4.

Furthermore, NMFS agrees with the findings of Battelle (2011) that the USACE recovery projection is overly optimistic. In particular, Battelle expressed concern about the unsupported assumptions used in the HEA model analysis. Battelle notes the coral growth rate of *Siderastrea radians* does not support the assumption of the 50-year reef recovery projection. With the given 1.5 millimeters per year growth rate, it will take about 167 years, rather than 50 years, for this coral species to reach 25 centimeters (Battelle 2011). Separately, a NMFS analysis using the very high growth rate of 5 millimeters per year for stony corals suggests that numerous coral species would have a recovery period in excess of 50 years, and likely significantly longer considering the widespread coral recruitment failure documented in the Atlantic and Caribbean (Hughes and Tanner 2000; Williams et al. 2008).

HEA/Resource Equivalency Analysis and the Discount Rate

HEA/Resource Equivalency Analysis (REA) is an economic model. While NMFS agrees that HEA and REA are appropriate models to scale the mitigation requirements in some cases, NMFS notes the HEA is applied by the USACE in a manner in which it was never intended for use. Specifically, USACE applies a zero percent discount rate. A zero percent discount rate means the value of environmental services provided today is the same as the value of environmental services provided 1,000 or more years from now. A zero percent discount rate is contrary to the nearly universally accepted theory that there is a time rate of preference for goods of any kind, material or environmental. HEA is an economic model and is not designed to be used with a zero discount rate.

The application of a zero percent discount rate also significantly affects the mitigation requirement when the HEA presented in the draft EIS assumes the impact areas will recover in

50 years. The draft EIS acknowledges some coral reef habitat will only achieve 15 percent of natural reef services but the draft EIS stops the calculation clock at 50 years. If discounting were in place, this would not affect the mitigation requirement much; however, with a zero percent discount rate, continuing these losses beyond 50 years would result in a significant increase in mitigation requirements. While NMFS is aware the draft EIS stops at 50 years because that is the “project life,” this is another example of HEA being applied in a manner inconsistent with its designed application.

The draft EIS states that USACE is prohibited from applying a discount rate due to guidance provided in the Office of Management and Budget Circulars A-4 and A-94 (Regulatory Analysis and Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, respectively). NMFS disagrees with the USACE’s interpretation of the Circulars. Specifically, Circular A-94 states, “Specifically exempted from the scope of this Circular are decisions concerning water resource projects (guidance for which is the approved Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies).” The Port Everglades Navigation Improvements study and all its components are water resource development projects exempt from Circular A-94. USACE Guidance Documents available for FY12 appear to indicate the USACE should use a discount rate of 4 percent for planning projects¹.

Cost of Boulder Piles

The mitigation plan states the cost per acre ranges from approximately \$1M to \$1.8M among the four alternatives identified in the plan. However, the draft EIS lists the cost to construct boulder piles in previously permitted artificial reef sites or borrow sites as \$588,524 per acre in Table 8 and the cost per acre of boulder piles placed on top of tires as \$1,225,000. The draft EIS does not make clear why there is so much variation in costs of different mitigation alternatives describing a similar action. NMFS agrees with Dr. Dodge’s assessment (Appendix 4) that the \$1.2M estimate per acre is a more appropriate cost. NMFS further notes that the HEA inputs and results in Appendix E2 of the draft EIS are not the same as those of the Cost Analysis.

Boulder Piles and *Acropora* Critical Habitat

NMFS and USACE have held multiple meetings and conference calls regarding the effects to *Acropora* critical habitat from this project. NMFS remains concerned that the USACE has not adequately addressed the direct, indirect, and cumulative effects on critical habitat from this project. Further, the draft EIS does not explain how the boulder reef mitigation plan would compensate for loss of critical habitat. NMFS does not believe that a boulder reef would satisfactorily address the lost functions and values of critical habitat within the project area over the lifetime of the project. Despite numerous discussions with the USACE on this subject, NMFS remains concerned that the project as proposed would not adequately preserve and protect designated critical habitat which is necessary for the conservation of the species.

¹ <http://planning.usace.army.mil/toolbox/library/EGMs/EGM1201combined.pdf>

NMFS Recommended Mitigation: Coral Nursery with Outplanting

Considering the unprecedented scale in the southeastern U.S. of the planned coral reef impacts, NMFS presented the USACE with a mitigation plan dated June 7, 2013. The plan consists of propagating corals at one land-based nursery and approximately six nursery sites located offshore of Broward County and then transplanting the reared corals to natural reefs to enhance those reefs or to restore degraded sites. NMFS' recommendation is based on careful evaluation of the expected losses of scleractinian coral and octocorals from the expansion of the Port Everglades OEC and the successes of coral propagation and enhancement programs in Atlantic and Caribbean waters. Because boulder reefs would not adequately offset the functions and values of the reef system which will be impacted as part of the Port expansion project, NMFS recommends this alternative approach using propagation. Furthermore, the NMFS recommended mitigation program is more cost efficient than the USACE "best buy" based on the replicated HEA performed by Dr. Dodge and validated by NMFS.

Elkhorn and Staghorn Coral and Their Designated Critical Habitat

NMFS continues to have significant concerns with the project's impacts to resources protected under the ESA. The most significant impacts are to critical habitat for threatened elkhorn coral (*Acropora palmata*) and staghorn coral (*Acropora cervicornis*). In 2008, NMFS designated critical habitat for these species to support a single, key conservation objective of increasing the frequency of successful sexual and asexual reproduction: staghorn and elkhorn coral reproduce sexually via broadcast spawning and asexually via fragmentation. The essential habitat feature to accomplish this objective is substrate of suitable quality and availability to support successful larval settlement, recruitment, and reattachment of fragments. NMFS defined "substrate of suitable quality and availability" as "natural consolidated hard substrate or dead coral skeleton that is free from fleshy or turf macroalgae cover and sediment cover" (73 FR 72210).² The coral reefs offshore Broward County provide suitable substrate for meeting this key conservation objective.

NMFS believes the draft EIS does not adequately assess the project's impacts to *Acropora* critical habitat. The USACE's analysis of impacts needs to focus on the project impacts on the overall ability of the critical habitat to meet the key conservation objective of supporting successful reproduction. NMFS recommends the analysis address three key issues in this assessment:

- 1) the direct and indirect impacts to coral reef habitat containing the essential feature,
- 2) hydrographic changes from the project and their effect on coral reproduction, and
- 3) beneficial impacts, if any, of the selected mitigation plan to the extent the mitigation plan is included in the USACE's proposed action.

² The draft EIS incorrectly characterizes the essential feature of *Acropora* critical habitat and references the status review which is not an appropriate reference for critical habitat. The final EIS should reference the critical habitat rule directly to accurately describe critical habitat.

In addition to the comments above on the project's impacts to reef areas, NMFS recommends the USACE provide a more complete characterization of the reef habitats associated with the project. Certain types of turf algae will still allow for settlement by *Acropora* larvae. Although the draft EIS states that NMFS has failed to provide a standard protocol for assessing critical habitat, assessing the amount of "substrate of suitable quality and availability" is a basic benthic type characterization which NMFS believes does not require any additional protocol. Even though these direct and indirect impacts lend themselves to expression as areas, the assessment of critical habitat impacts should not be limited to simple area comparisons of the percentage of the entire critical habitat unit being impacted. The analysis should be based on the conservation function lost.

The potential for the widening and deepening of the Port Everglades OEC to affect the functioning of critical habitat through physical changes in the bottom and in local currents remains a major concern. In the 2011 letter, NMFS requested the draft EIS evaluate the potential impacts of creating a "sink" or trench where coral fragments and larvae moving northward or southward along the reef line fall into the channel and become no longer viable. This type of impact not only affects the species directly, it also affects the adjacent critical habitat's ability to support the species. NMFS believes the draft EIS does not adequately respond to these concerns. The draft EIS states multiple times that the currents in the Port Everglades location are "highly unpredictable." The draft EIS discusses the natural reef breaks located in areas between Port of Miami and Port Everglades channels and specifically points out the width of these natural breaks, noting that they are much wider than the proposed cut as part of the Port Everglades channel expansion. However, there is no discussion in the DEIS concerning the depth of these natural breaks and the velocity of the currents through them. NMFS believes that a deeper, narrower "break" would produce a higher velocity current perpendicular to the natural south-north transport of larvae -- and possibly fragment -- transport resulting in the larvae/fragments being washed out of the natural transport pathway, preventing them from landing on suitable substrate, thereby reducing the species' reproductive success and the value of the critical habitat. Because of the need to fully understand impacts, the relative comparison to natural reef breaks is not illuminating. NMFS recommends the USACE provide a detailed hydrographic assessment of the predicted current flow changes post-construction.

The effects of the mitigation plan on the value of *Acropora* critical habitat also needs to be fully analyzed and included in the record of decision for the proposed project. As previously stated, NMFS does not believe the boulder reef mitigation alternative would replace the functions and values of critical habitat lost within the project area over the lifetime of the project. The NMFS recommended mitigation of coral nurseries with outplanting, however, could have significant beneficial impacts on the function of critical habitat. With proper design and operation, this mitigation method could create increased incidences of successful fertilization and fragmentation on both sides of the Port Everglades OEC and increase the conservation function of critical habitat in the vicinity of the project. The USACE needs to fully analyze the net impacts of the project, including the selected mitigation plan, on designated critical habitat, not only to do a thorough comparison of alternatives, but also to ensure the project does not destroy or adversely modify critical habitat, as required by the ESA.

Underestimate of Seagrass Impacts

The draft EIS describes how seagrass beds, in particular *Halodule wrightii*, *Halophila decipiens*, and *Halophila johnsonii*, expand and contract over time. The seagrass survey data from seven seagrass survey events illustrate this point and are described in Appendix H. In particular, the draft EIS points out this expansion and contraction may be a long-term survival strategy of *H. johnsonii* and other seagrass species (Virnstein et al. 2009). For impact assessment purposes, it is important to consider the broader seagrass habitat and not just the currently vegetated portions. However, the draft EIS describes impacts to seagrass based only on the vegetated portions of the beds documented in the 2009 survey. The draft EIS does not describe impacts to areas historically mapped and previously ground-truthed to contain seagrass. These areas represent the available expansion habitat that will no longer be available after the project is constructed. NMFS believes USACE significantly underestimates the amount of seagrass that would be impacted.

A GIS analysis was used to examine the changes in seagrass coverage between 2000 and 2009. NMFS determined that the cumulative seagrass habitat documented in these seven surveys is approximately 19.45 acres (draft EIS Appendix H), and approximately 8.45 acres of seagrass habitat impacts are proposed³. This impact estimate is more than double the seagrass impact described in the draft EIS.

Battelle (2011) also recommended USACE complete a bathymetric survey to identify the extent of potentially suitable seagrass habitat (the report used the more general term submerged aquatic vegetation or SAV). The specific water depths recommended were 0.0 feet to -6.0 feet NGVD. This survey would provide a more complete assessment of seagrass habitat versus seagrass acreage that could then be used as a baseline reference for future seagrass mapping and permitting activities since seagrass bed distribution can vary greatly at any point of time. Fully addressing this recommendation would contribute to resolving concerns NMFS has with the underestimate of seagrass impacts. In the review of a preliminary version of the EIS (Attachment 1), NMFS recommended the draft EIS clearly describe where seagrass impacts would occur and the amount of seagrass habitat present in these areas. The draft EIS does not address this comment.

Seagrass Mitigation

West Lake Park Seagrass Mitigation Credits

The restoration planned to be performed by Broward County at West Lake Park is proposed for use as compensatory mitigation for seagrass impacts associated with the port expansion. However, the restoration was not set up as a mitigation bank when NMFS completed its EFH review of the restoration work under SAJ-2002-0072 (IP-LAO). According to the ledger contained in this permit (Attachment 5), there are 2.2 seagrass credits available at West Lake Park. The USACE mitigation plan describes the need to use 2.4 seagrass credits. Using the

³ NMFS requires the GIS shapefiles for the revised TSP in order to refine this estimate.

impact estimate that includes 8.45 acres of historically mapped and ground-truthed seagrass habitats and the Unified Mitigation Assessment Method (UMAM) scores applied by the USACE (which are in dispute per the section below), over 5 seagrass credits would be needed from West Lake Park. Thus, using either impact assessment, there are not enough seagrass credits available at West Lake Park.

Low Unified Mitigation Assessment Method Scores

Florida's UMAM was the type of functional assessment used to determine the mitigation amount and the USACE acknowledges in their permit that, "USACE UMAM scores on this project were done separately from those submitted by the applicant in conjunction with South Florida Water Management District, future scoring should be done in line with those values which can be found in the file." In July 2011 (Attachment 1), NMFS requested the functional assessments. The draft EIS does not contain the UMAM score sheets for the impacts or the mitigation so NMFS cannot verify the scoring was done in accordance with the permit. A summary table of the UMAM completed for the impacts is provided in the USACE mitigation plan. Notably, 14 out of the 16 seagrass polygons assessed were given a score of 4 or less (out of 10) by the USACE, which corresponds to the habitat providing "minimal level of support to [benthic community] functions" (Form 62-345.900(2), F.A.C.). Five of the 16 seagrass polygons scored 1 or 2 for benthic community. These scores do not reflect NMFS field observations. Additionally, the USACE did not assign higher landscape support functions to seagrass habitats closer to the inlet and clear oceanic waters. The seagrass UMAM scores also do not reflect the best available science or agency input that was obtained from the USACE in 2005 (Attachment 6).

Inadequacy of Seagrass Habitat Mitigation at West Lake Park

Another issue previously raised by NMFS (Attachment 1) relates to the location of the mitigation site with respect to the impacts. While it may be appropriate to mitigate for seagrass impacts along the south access channel in West Lake Park, seagrass habitats located closer to the Port Everglades Inlet provide different functions than seagrass habitats located in more interior areas of the Port. The seagrass habitats at West Lake Park, which is located further away from the inlet and coral reefs, would not provide the same ecological services as the seagrass impacted through the expansion.

The proximity of seagrass to the Port Everglades Inlet increases the value of the seagrass habitats located near the inlet for oceanic and estuarine spawners. Habitat value during growth to maturity for gray snapper (*Lutjanus griseus*) and bluestriped grunt (*Haemulon sciurus*) is a function of distance from an ocean inlet (Faunce and Serafy 2007). For example, the planktonic larvae of gag grouper (*Mycteroperca microlepis*) move into estuaries and settle in the first available habitat, such as polyhaline seagrass beds near inlets (Ross and Moser 1995). Based on work completed in the Indian River Lagoon, Gilmore (1995) determined that seagrass habitats near ocean inlets offer optimum physical conditions with low variation in temperature and salinity and other physical parameters, as well as proximity to ocean spawning sites for reef species. Seagrass habitats near inlets typically provide habitat for more fishery species than seagrass away from inlets. A faunal transition and fish community change takes place within 5 km (3.1 miles) of the ocean inlet to the lagoon as one proceeds away from the inlet (Gilmore 1995). Other studies (e.g., Bushon 2006; Turtora and Schotman 2010) have also linked species

distribution and life history stages as a function of proximity to a coastal inlet. The continuity of the seagrass beds between the mitigation site and the inlet is important to fishery species. The proposed port modifications would further isolate seagrass beds at West Lake Park from the inlet, limiting their value in larval migrations and settlement. Accordingly, NMFS believes the UMAM scores for the West Lake Park seagrass should be lower than what the USACE has provided.

Cumulative Impacts

Coral Reefs and Hardbottoms

As described in Attachment 3, the draft EIS minimizes previous losses of hardbottom due to port construction activities by equating the proposed impacted amount to a percent of all the hardbottom located offshore Broward County. Equating the project impacts to a percent gives the appearance that impacts would be much less. The actual habitat loss is more relevant. Walker et al. (2012) published a peer-reviewed paper on the estimated historical losses of port and shipping activities in southeast Florida. They estimated that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef due to improper dumping of spoil material. Using county-wide mean coral density (2.6 per square meter) and percent cover (3.75 percent), Port Everglades development has historically impacted 6,149,000 corals equating to 180 acres of live tissue area. Using these same numbers and the impact scenarios presented in the draft EIS, scenario 1 (includes anchoring impacts outside the federal channel) would impact 380,000 corals with 1.36 acres of live cover, and scenario 2 (dredging coral reefs above -57 feet MLW and no anchoring impacts) would impact 177,000 corals with 0.63 acres of live cover.

The draft EIS does not describe any cumulative impacts for hardbottom. Although the effect of impacting six million corals is difficult to measure, it undoubtedly has some impact on surrounding communities. In addition, the burial of 178 acres of Outer Reef due to improper spoil disposal has a lasting effect on the system. This spoil remains in place today where rocks of all sizes are piled on the reef. These spoils likely shift during storms and continually impact the local community by scouring the substrate as evident in the Dial Cordy and Associates (2009) benthic assessment of previously impacted sites.

Water Quality

NMFS disagrees with the USACE determination that water quality impacts would only be temporary due to construction activities, and the project would not result in any foreseeable future actions that would result in a cumulative effect. On the ebb tide, water is advected seaward through the Port Everglades inner entrance channel. Several studies of this inlet have shown this water contains higher concentrations of nutrients and microbial contaminants compared to levels typically seen in the coastal ocean (Stamates et al. 2013; Futch et al. 2011). These substances have the potential to degrade the coastal environment. Enlargement of the channel brings the possibility of increasing the flux of these substances out of the inlet and into the coastal ocean.

Endangered Species Act Section 7 Consultation

NMFS continues to work with the USACE to obtain all the information necessary to conduct a Section 7 consultation for ESA-listed species and critical habitat under NMFS purview. Two comments on critical habitat are offered at this time. First, the draft EIS concludes that adverse effects to *Acropora cervicornis* and designated critical habitat from increased sedimentation would be insignificant. NMFS agrees that the findings and evidence reported in the paragraphs preceding that statement may support this finding for the species. However, it provides no basis for the determination about sediment effects to critical habitat. To evaluate that effect, the USACE would need to provide documentation regarding the duration of sediment residence (dependent on grain size and physical oceanography of the area) on adjacent hardbottoms (i.e., the essential feature) to be able to say the effect is insignificant for designated critical habitat. Second, NMFS requests clarification of the following point made in the draft EIS, “hardbottom communities exist in a dynamic environment . . . may be periodically covered and uncovered by sands.” NMFS requests a reference for this statement and the periodicity that is being referred to.

Essential Fish Habitat Consultation

As a cooperating agency, NMFS prepared *Characterization of Essential Fish Habitat in the Port Everglades Expansion Area*, which is included in the draft EIS Appendix H. This report describes the EFH and fishery resources in the project area and summarizes the biological resource surveys that have been completed. For complete descriptions of EFH in the project area, NMFS refers to this report. The main categories of EFH and HAPC that would be adversely affected by this project include coral, coral reef, and hardbottom; seagrass; mangrove; the coastal inlet; and unvegetated soft bottom habitats.

The report requires the addition of a section characterizing the existing channel bottom due to review of a video from October 18, 2006, that documents corals in the existing channel bottom. Notably, this video confirms the presence of corals that not only are EFH but also proposed to be listed by NMFS under the ESA, including rough cactus coral (*Mycetophyllia ferox*).

Impacts to Essential Fish Habitat

The USACE provided an initial determination that the project may adversely affect EFH and HAPCs. The USACE determined the magnitude of the impacts varies from temporary and insignificant to substantial and permanent. NMFS believes the impacts of the proposed project, along with project components that have been removed from the federal project but are still being pursued by the Port (i.e., dredging 8.4 acres of mangrove to expand a turning notch), result in more adverse impacts to EFH than what are described in the draft EIS, questioning USACE’s conclusion that the project’s cumulative impacts are negligible.

Essential Fish Habitat Assessment Information Needs

NMFS has considerable disagreement with the USACE on how seagrass and coral reef impacts and mitigation requirements have been determined. NMFS also has significant disagreement with the USACE on how water quality degradation and cumulative impacts are described in the

draft EIS. These issues are identified in the preceding and warrant thorough consideration prior to completing the EFH consultation for this project.

EFH Recommendations

NMFS finds the project would adversely impact EFH. Section 305(b)(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH conservation recommendations when an activity is expected to adversely impact EFH. Based on this requirement, NMFS provides the following:

EFH Conservation Recommendations

Prior to dredging seagrass or coral reef and hardbottom habitat to expand the Port Everglades Harbor, NMFS recommends the following:

1. The USACE shall provide a mitigation plan that assumes no less than 21.66 acres of direct impacts to coral reef and hardbottom habitats.
2. The USACE shall provide a mitigation plan that assumes no less than 19.31 acres of anchor impacts, in the case that the dredge equipment selected requires anchoring outside the federal channel.
3. The USACE shall provide a monitoring plan to evaluate physical and biological impacts that may occur outside the channel. This plan shall reflect substantial input by NMFS.
4. The USACE shall provide a mitigation plan that reflects no less than 111.87 acres of indirect impacts that would occur in the 150 meter zone surrounding the federal channel. The final EIS should clearly describe how the amounts of indirect impacts to coral reefs are determined.
5. In the case that blasting is required, USACE shall work with NMFS and other resource trustees to develop a monitoring program. Substantial input from NMFS shall be reflected in the final blasting monitoring plan.
6. The USACE shall update the HEA with scientifically defensible inputs on equivalency of natural coral reefs and boulder piles, recovery rates of dredged coral reef habitat, recovery rates of boulder piles, and discount rates. The final HEA shall reflect actual costs of boulder piles with substantial input from NMFS.
7. The USACE shall adopt a compensatory mitigation plan that is the most technically sound approach to offsetting the loss of coral, coral reef, and hardbottom habitat. The final coral reef mitigation plan shall not take credit twice for coral relocation. The final coral reef mitigation plan shall reflect input from NMFS.
8. As a project minimization measure, the USACE shall relocate all corals in accordance to Table 2 in the draft EIS Appendix E-4. Coral relocation shall occur in expansion areas and previously dredged areas. The coral relocation plan should include clearly defined performance standards, monitoring protocols, and schedule.
9. The USACE shall update the EIS to evaluate the potential for the deepening and widening of the OEC to create a "sink" or trench whereby coral fragments and larvae moving northward or southward along the reef line fall into the channel and become no longer viable. This update to the EIS shall reflect significant input from NMFS.
10. The USACE shall update the EIS to describe no less than 8.45 acres of seagrass habitat impacts. The EIS shall be updated to include historically mapped and ground-truthed

seagrass habitat areas that would be eliminated by dredging and no longer available as contraction and expansion habitat.

11. The USACE shall update the EIS to describe indirect impacts to seagrass habitat. This update shall reflect input from NMFS. Specifically, NMFS requests USACE update the EIS to identify each seagrass impact polygon on a map and provide a narrative that explains how the impact area was calculated for each seagrass impact area.
12. The USACE shall develop supplementary compensatory mitigation for seagrass impacts to account for the loss of all seagrass habitat that has been historically mapped and ground-truthed and will become unavailable as habitat after the dredging occurs. The additional mitigation shall appropriately address seagrass impacts that occur closer to or within the inlet. The plan shall address how the site selection for mitigation locations is supported by the best available literature. This plan should include clearly defined performance standards, monitoring protocols, and schedule. The mitigation amounts shall be based on a functional assessment that reflects NMFS and other resource trustee input.
13. The USACE shall update the cumulative impacts section and description of cumulative impacts to coral reefs and water quality. The EIS should be updated to acknowledge the findings of Walker et al. (2012) that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef as dredged material disposal, which resulted in the loss of over six million corals and approximately 180 acres of live coral tissue area.
14. The USACE shall require use of best management practices (BMP) to avoid and minimize the degradation of water quality and minimize impacts to hardbottoms and seagrass habitat, including the use of staked turbidity curtains around the work areas, marking of seagrass and hardbottom habitat to facilitate avoidance during construction, and prohibiting staging, anchoring, mooring, and spudding of work barges and other associated vessels over seagrass and hardbottom. These BMPs shall be coordinated with NMFS for approval prior to commencement of any work.

Section 305(b)(4)(B) of the Magnuson-Stevens Act and implementing regulation at 50 CFR Section 600.920(k) requires the USACE to provide a written response to this letter within 30 days of its receipt. If it is not possible to provide a substantive response within 30 days, in accordance with NMFS's "findings" with the USACE Jacksonville District, an interim response should be provided to NMFS. A detailed response must then be provided prior to final approval of the action. The detailed response must include a description of measures proposed by the USACE to avoid, mitigate, or offset the adverse impacts of the activity. If USACE's response is inconsistent with the EFH conservation recommendations, the USACE must provide a substantive discussion justifying the reasons for not following the recommendation.

Thank you for the opportunity to provide comments. Related questions or comments should be directed to the attention of Pace Wilber, Ph.D., or Ms. Cathy Tortorici. Dr. Wilber can be reached at 219 Fort Johnson Road, Charleston, SC, 29412, by telephone at 843-762-8601, or by e-mail at

Pace.Wilber@noaa.gov. Ms. Tortorici can be reached at the letterhead address. Ms. Tortorici may also be reached by telephone at 727-209-5953 or by e-mail at Cathy.Tortorici@noaa.gov.

Sincerely,



Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosures: Attachment 1: NMFS comments, dated July 11, 2011, on interim draft EIS
Attachment 2: Acreage analysis by NMFS
Attachment 3: Acreage analysis by Dr. Brian Walker, July 15, 2013
Attachment 4: HEA review by Dr. Richard Dodge, July 21, 2013
Attachment 5: West Lake Park mitigation credit ledger
Attachment 6: USACE UMAM scores

cc:

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Attachment 1



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE

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JUL 7 2011

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Colonel Alfred Pantano
 District Engineer, Jacksonville District
 Department of the Army Corps of Engineers
 PO Box 4970
 Jacksonville, Florida 32232

Dear Colonel Pantano:

NOAA's National Marine Fisheries Service (NMFS) has reviewed the interim Draft Environmental Impact Statement (EIS), dated May 31, 2011, titled *Navigation Improvements, Port Everglades Harbor Broward County, Florida*, prepared by the U.S. Army Corps of Engineers, Jacksonville District (COE). This is the second version of the interim Draft EIS that the COE has asked NMFS to review as a cooperating agency under the National Environmental Policy Act. The higher priority issues NMFS has identified regarding the proposed work are discussed below so they may be resolved before a Draft EIS is released to the public. Other important issues and information needed for the essential fish habitat (EFH) and Endangered Species Act consultations are described in the matrix format requested by the COE (enclosed). Our comments reflect NMFS' responsibilities under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Fish and Wildlife Coordination Act, and Endangered Species Act (ESA).

By letter dated October 12, 2007, NMFS accepted the COE's invitation to participate as a cooperating agency in development of the EIS for the expansion of Port Everglades. In this letter, NMFS stated that as a cooperating agency we would provide technical assistance on how impacts to threatened and endangered species and to EFH should be identified and mitigated. However, in the years since we began working with the COE as a cooperating agency, NMFS has experienced considerable difficulty in having our input substantively incorporated into the resulting NEPA documents. To illustrate this point, fewer than 20% (33 out of 180) of the comments NMFS provided on the 2008 version of the interim Draft EIS are fully addressed in this latest version. NMFS invested significant time in the earlier review and, as a cooperating agency, we are disappointed that so few of our recommendations have been adopted to date. While we remain hopeful that we can reach agreement on those issues affecting NMFS trust resources, NMFS feels obliged to inform the COE that if NMFS' comments and recommendations are not adequately resolved in the forthcoming Draft EIS, NMFS will consider the option of referring the matter to the Council on Environmental Quality.



Coral Reef Impact Assessment: ESA-listed species, Compensatory Mitigation, Terminology, and Contingency Planning

Calculation of Coral Reef Impacts. The interim Draft EIS does not describe how impacts to coral reefs were determined. Dr. Brian Walker (Walker *et al.*, 2008b) concludes there would be 20.34 acres of direct impact to coral reefs; however, the interim Draft EIS describes 15.34 acres of direct impact to coral reefs. In June 2008, the COE informed NMFS that coral reefs located deeper than 56 feet¹ but still within the proposed expansion to the federal channel would be considered indirect impacts. NMFS assumes this approach by the COE results in the different total for impact acreage, but we cannot verify this because the impacts are not precisely described in the interim Draft EIS. For each coral reef impact area, please identify the impact polygon on a map and provide a narrative that explains how the impact area was calculated. Also, please provide a detailed description of the source of each direct and indirect impact. For example, coral reefs located within the federal channel that are not dredged but are immediately adjacent to the dredging would be severely and permanently injured through the physical processes of rubble movement and scour. This impact is not discussed in the interim Draft EIS and should not be lumped into a discussion of impacts from turbidity and sedimentation, which may be as severe and permanent by occurring through a different mechanism. However, the physical impact to coral reef structure and the biological response to these types of impacts would be different. This detail is needed in the EIS, and similar detail is missing for indirect and direct impacts from anchoring and vessel operations.

Acroporid species (elkhorn and staghorn coral) and their designated critical habitat. NMFS has significant concerns with the proposed widening and deepening of the Outer Entrance Channel (OEC). These impacts constitute new dredging that would permanently remove portions of the Middle and Outer Reef. According to the interim Draft EIS, approximately 15.35 acres of coral reef habitat would be directly and permanently impacted by dredging and 91.29 acres of coral reef habitat may be indirectly impacted (note that these estimates do not include the potential for additional reef impacts from the anchors and cables needed for operation of a cutterhead dredge). This coral reef habitat is designated as an EFH-Habitat Area of Particular Concern (HAPC) under the Magnuson-Stevens Act and as critical habitat designated under the ESA for threatened elkhorn coral (*Acropora palmata*) and staghorn coral (*Acropora cervicornis*)².

In 2008, NMFS determined that the key conservation objective for threatened elkhorn and staghorn corals is increasing the frequency of successful sexual and asexual reproduction; staghorn and elkhorn coral reproduce sexually via broadcast spawning and asexually via fragmentation. To accomplish this objective, NMFS determined that conservation of substrate of suitable quality and availability to support successful larval settlement, recruitment, and reattachment of fragments was needed. NMFS defined "substrate of suitable quality and availability" as "natural consolidated hard substrate or dead coral skeleton that is free from fleshy or turf macroalgae cover and sediment cover" (73 FR 72210). The coral reefs offshore from Broward County provide suitable substrate for meeting the key conservation objective.

¹ The EIS states that the Tentatively Selected Plan would dredge to -57 feet (pg 37).

² Due to time constraints, NMFS Protected Resources Division was not able to review the *Acropora* spp. survey report. We will review this document during ESA Section 7 consultation.

NMFS requests that the EIS evaluate the potential for the deeper and wider OEC to serve as a “sink” or trench whereby coral fragments moving northward or southward along the reef line fall into the channel and become no longer viable. The proposed action may exacerbate the “sink” effect by dredging through the middle and outer reefs, thereby cutting off the continuity of the reef and potentially impeding successful asexual reproduction (Ken Banks, Ph.D., Broward County, pers. comm., June 23, 2011).

Based on the information provided, NMFS believes the proposed action would undermine the key conservation objective (i.e., facilitating successful reproduction) and potentially hinder the recovery of threatened corals. Consequently, the proposed action is likely to adversely modify designated critical habitat for elkhorn and staghorn coral. NMFS will evaluate potential effects from the proposed project on elkhorn and staghorn coral and their designated critical habitat in our biological opinion. The loss of elkhorn and staghorn coral critical habitat due to the proposed action would be permanent and would not be offset by any form of mitigation. NMFS requests an analysis to determine how this potential “sink” effect (basically separating the critical habitat) would affect the critical habitat’s ability to conserve the species.

Effects of turbidity and sedimentation on corals. The analysis presented in Section 4.5.14.22 needs to be updated with additional literature from locally relevant studies. The interim Draft EIS states “a review of four [dredging] projects [in south Florida, including the Florida Keys] found that using Best Management Practices for turbidity and sedimentation control (e.g., ceasing dredging when turbidity levels exceed permitted standards) are protective of the coral and hardground environments surrounding south Florida sand borrow sites and navigation channels.” NMFS notes that permit SAJ-2003-00203 for the Key West harbor dredging project includes a more stringent turbidity limit (15 Nephelometric Turbidity Units, or NTUs) than what is normally required by the State of Florida. The basis for this requirement was research conducted by Telesnicki and Goldberg (2005) on two Florida coral species (*Dichocoenia stokesii* and *Meandrina meandrites*) that measured the photosynthetic and respiratory responses of corals subjected in the laboratory to turbidity ranges of 7 to 9, 14 to 16, and 28 to 30 NTU. By day four for *D. stokesii* and day three for *M. meandrites*, corals exposed to 14 to 16 NTU significantly differed from controls. In both cases, this level of turbidity produced a photosynthesis to respiration (P:R) ratio very close to 1.0; the ratio then declined to a ratio of less than 1.0 after six days. The stress from this level of turbidity also induced mucus production. The researchers concluded “while other species of scleractinians may have different reactions to turbidity, our data suggest that the standard of 29 NTU above background is not conservative and should be re-evaluated.” These researchers’ findings are relevant to the Port Everglades project. Due to the presence of both corals within the project footprint (DCA 2006; NMFS 2011), NMFS believes that a more conservative turbidity standard is warranted for the Port Everglades project and other dredge and fill projects in southeast Florida that occur in close proximity to coral reefs. Furthermore, the most recent and most local (Broward County) sedimentation study (Jordan et al. 2010) is not referenced in the interim Draft EIS. Jordan et al. (2010) concluded that sampling stations within close proximity to dredging in sand borrow areas exhibited higher collection rates and lower percent fines when compared to control stations. A thorough review of sedimentation effects on corals is also provided in this paper. NMFS recommends that the findings from Jordan et al. (2010), be summarized in this discussion as well.

Additionally, in this section of the interim Draft EIS, several unsubstantiated statements are made that should be removed unless supported by citation. For example, the interim Draft EIS states “the examples of adverse effects of turbidity and sedimentation on coral species often cited by resource managers are commonly projects in third world countries without the strict water quality protections that are in place in the U.S.” No studies are referenced to support this statement. The interim Draft EIS further states that these water quality protections are also protective of coral species, including *Acropora spp.* and its designated critical habitat, located near dredging operations. This statement should be supported by an appropriate reference.

NMFS believes the interim Draft EIS does not accurately characterize the results of Rogers (1983). While this reference is not provided in the literature cited, NMFS presumes the reference is to work in Puerto Rico where the sublethal and lethal effects of sedimentation were examined on five Caribbean coral species, including elkhorn coral and staghorn coral. Rogers (1983) found that elkhorn coral was the least tolerant of the species tested. Immediately after a single application of sediments (200 mg per square cm), the three elkhorn coral colonies released fine strands of mucus. After 6 days, algae were already growing on the smothered portions, both on the bleached sections of the corals and on the sediment accumulations. These colonies never recovered. While elkhorn coral was found to be the least tolerant of the species Rogers tested, staghorn coral fared better, presumably due to its cylindrical branches and almost spherical morphology. NMFS believes it is misleading to combine elkhorn and staghorn coral when discussing sedimentation effects. In addition to discussing the effects of sedimentation on staghorn coral, the interim Draft EIS should mention the less favorable results of Rogers’ experiments on the more sensitive elkhorn coral.

Coral reef mitigation. The mitigation proposed to offset the coral reef impacts is insufficient. While the deployment of boulder piles has been a practice in southeast Florida for coastal construction projects authorized by the Jacksonville District, there are no studies available that show that the creation of boulder piles can return ecological services similar to those that would be lost due to dredging the Middle and Outer Reefs. Considering the unprecedented scale of the planned coral reef impacts, NMFS believes the COE should invest additional effort in working with coral reef stakeholders to develop a mitigation plan that could adequately offset the magnitude and extent of coral reef impacts that would result from this project. NMFS is aware of several coral reef restoration and enhancement opportunities that may be relevant; for example, coral reef enhancement and restoration through tire removal³, water quality improvements⁴, creation of a coral nursery and outplanting, restoration of orphaned grounding or anchor drag sites, or a combination of these activities. NMFS encourages the COE to collect the necessary information beyond what has been collected to date by other agencies or universities to pursue these opportunities further.

A scientifically sound mitigation plan should be developed with substantive input from resource trustees. The plan should clearly document though appropriate use of functional assessments and analytic tools (e.g., Habitat Equivalency Analysis and Florida’s Unified Mitigation Assessment Method) that the injuries to the coral reef framework and biological communities would be offset

³ This mitigation option was vetted through the Port Everglades Reef Group during 2002-2005 (DCA 2005)

⁴ This mitigation option was vetted through the Port Everglades Reef Group during 2002-2005 (DCA 2005)

through the compensatory action(s). The plan should also be developed to ensure that appropriate coral species and size classes are scalable to the amount and type of coral reef mitigation that is planned (see NMFS 2011, Section 6.4). Furthermore, the mitigation plan should describe how the work would fully adhere to the Council on Environmental Quality's Appropriate Use of Mitigation and Monitoring Guidance (CEQ 2011) and the Army Corps of Engineers and Environmental Protection Agency's mitigation rule (33 CFR Parts 325 and 332/40 CFR Part 230).

Sea turtles and coral reefs. In addition to being an EFH-HAPC and designated critical habitat for elkhorn and staghorn coral, the coral reefs offshore from Broward County provide foraging and resting habitat for sea turtles that are listed under the ESA. Coral reefs are widely recognized as the resident foraging habitat of juvenile, subadult, and adult hawksbill sea turtles (*Eretmochelys imbricate*) (NMFS and FWS 1993). NMFS also recognized the importance of coral reefs as resting and foraging grounds for loggerhead sea turtles (*Caretta caretta*) (NMFS and FWS 2008). In the second revision to the Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle, NMFS states that the "negative impacts of dredging include destruction or degradation of habitat and incidental mortality of sea turtles" (NMFS and USFWS 2008). The proposed action would adversely affect foraging and resting habitat for loggerhead and hawksbill sea turtles. NMFS requests an analysis of how the proposed work (i.e., the permanent removal of coral reef habitat) may affect the various life stages of hawksbill and loggerhead sea turtles that are associated with coral reefs.

Coral reef terminology. Consistency is needed on how coral reefs are referenced in the EIS. In some instances, as many as nine different terms are used to describe the same feature. For example, for the feature NMFS refers to as the "Outer Reef," the EIS refers to this as: outer terrace (pg 102), outer tract (pg 142), third reef (pg 166), outer reef (pg 38), third outer reef (pg 31), Terrace 3 (pg 102), coral reef (page 193), hardbottom and reef communities (page 144), and low relief and high relief hardbottom (pg 145). Calling the same feature many different names is not technically correct and is confusing to the reader. NMFS recommends using the habitat classifications tied with the development of the coral reef maps. This is further supported by the terminology described in Moyer et al. (2003); Banks et al. (2007); Walker et al. (2008a); Walker et al. (2008b); and Collier et al (2008). These peer-reviewed publications should be the basis for the terminology.

The need for a contingency plan to adaptively respond to unauthorized coral reef impacts. As evidenced in the Key West channel dredging project (2004 to 2005), dredges can drift outside of the channel and damage sensitive benthic resources. In this case, the hopper dredge drifted outside of the channel limits, and the drag arm damaged NOAA trust resources within the NOAA Florida Keys National Marine Sanctuary in the Sanctuary. Due to the possibility of human error and the presence of coral reef communities immediately adjacent to the Port Everglades channel, it would be prudent to develop a contingency plan to avoid or minimize damage to NOAA's trust resources should an incident transpire similar to what occurred in Key West. The commitment to develop such a plan should be provided in the EIS.

Seagrass Impact Assessment and Compensatory Mitigation

Seagrass habitat area and calculation of seagrass impacts. NMFS (2011) used survey data from 2001, 2006, and 2009 to determine there are 19.45 acres of seagrass habitat in the project area (i.e., the project footprint and adjacent areas). A cumulative analysis of these seagrass surveys to yield the amount of seagrass habitat is supported by the best available scientific information on the biology of seagrass species present in the Port Everglades area. For example, Virnstein et al. (2009) concludes that the expansion and contraction of seagrass beds, also referred to as “pulsating patches” may be a long-term survival strategy of *Halophila johnsonii*. Summary information on the best available science on this issue can be found in NMFS 2011 (Section 2.1.1).

The interim Draft EIS does not clearly describe how the COE determined that the extent of impacts to seagrass habitat is 4.01 acres. Based on the results described in NMFS (2001), we believe that the interim Draft EIS substantially underestimates the amount of seagrass habitat that would be impacted through the planned dredging. Furthermore, seagrass habitats documented in the Outer Entrance Channel (1.04 acres) and indirect impacts to seagrass are not quantified or considered as environmental consequences. For each seagrass impact area, please identify the impact polygon on a map and provide a narrative that explains how the impact area was calculated. The impact amounts should be based on cumulative seagrass area. Please also provide a detailed description of the type of direct and indirect impact. For this purpose, please also include an evaluation of seagrass impacts that would result from the equilibration of channel side slopes. The EIS should clearly describe where these impacts will occur and how much seagrass is present in these areas.

Seagrass mitigation. The restoration planned to be performed by Broward County at West Lake Park is proposed for use as compensatory mitigation for seagrass and mangrove impacts associated with the Port expansion. However, the restoration was not set up as a permittee-responsible mitigation area (PROMA) or other type of mitigation bank when NMFS completed its EFH review of the restoration work under SAJ-2002-0072 (IP-LAO)⁵. A mitigation banking instrument or PROMA instrument should be developed and coordinated with NMFS for review and approval. At a minimum, the PROMA instrument should describe the available credits⁶, how they were determined, and the credit release schedule. In addition, NMFS requests to be provided the results from a functional assessment that shows the habitats impacted in order to complete the restoration work to demonstrate that impacts have been adequately mitigated and any other habitat tradeoffs in EFH will result in a net benefit to fishery resources.

Furthermore, seagrass habitats located closer to the Port Everglades Inlet likely provide different functions than seagrass habitats located in more interior areas of the Port. The seagrass habitats at West Lake Park, which is located further away from the inlet and coral reefs, would not

⁵ Special condition 16 of the permit authorized by the Jacksonville District for West Lake Park acknowledges that the restoration work may be used as compensatory mitigation for Broward County projects. Special condition 17 describes how mitigation credits could be accounted for through post-restoration monitoring and permit modification.

⁶ The South Florida Water Management District determined that 2.2 functional credits are available at West Lake Park, however the EIS Executive Summary (page iv) states that 3 functional units from West Lake Park would be needed. In contrast, the Mitigation Plan (page 11) states that 1 functional unit would be needed.

provide the same ecological services as the seagrass impacted through the expansion. This issue should be examined in the Draft EIS and through a functional assessment.

Alternatives and Objectives

The 2008 version of the interim Draft EIS did not identify objectives of the feasibility study. When NMFS agreed to participate as a cooperating agency, the COE stated the purpose of the project was to (1) evaluate potential project designs to provide increased safety, (2) enable efficiency and lower costs for future port navigation and utilization, and (3) protect the environment to the maximum extent practical while meeting the stated goals of the feasibility study. The current version of the interim Draft EIS presents revised objectives that include (1) decrease costs associated with vessel delays from congestion, channel passing restrictions, and berth deficiencies at Port Everglades, (2) decrease transportation costs through increasing economies of scale for cargo and petroleum vessels at Port Everglades, and (3) increase channel safety and maneuverability at Port Everglades for existing vessel use as well as for larger vessels, through the year 2067. Notably, the commitment to environmental protection is missing from the revised project objectives.

The 2008 version of the interim Draft EIS evaluates seven alternatives, whereas the current version thoroughly reviews only two alternatives, the Tentatively Selected Plan (TSP) and the No Action Alternative. Five alternatives were not thoroughly reviewed in the current version of the interim Draft EIS and now are proposed for elimination. This approach does not present a full, balanced review of alternatives. For example, the interim Draft EIS only presents disadvantages associated with the Lightering Alternative and concludes that lightering is not under the jurisdiction of the District, yet this alternative is not included in Section 2.6: Alternatives not within the jurisdiction of the lead agency.

An additional example is from statements provided to justify elimination of the Offshore Petroleum Alternative from further examination. The interim Draft EIS says the COE was unable to identify a pipeline route and a deepwater anchorage area that would avoid coral reef and hardbottom habitats, but there is no discussion of how the U.S. Maritime Administration was able to identify such areas in their EIS for the nearby Calypso Deepwater Port. The interim Draft EIS also inaccurately characterizes other issues with this alternative as intractable, when in fact they were resolved in the Calypso project, e.g., constructing the pipeline in the Navy exclusion area and increasing congestion and traffic were resolved in this particular example.

In response to our review of the 2008 version of the interim Draft EIS, NMFS recommended the COE fully evaluate an alternative or combination of alternatives that evaluates the potential to install a NOAA National Ocean Service Physical Oceanographic Real Time System (PORTS), a modified version of PORTS, or other current tracking system. In response to this, the COE indicates they will not consider a PORTS alternative and they cite information on the ineffectiveness of an Acoustic Doppler Current Profiler in the entrance channel (which alone does not constitute a PORTS). In the past, the COE has cited discussions with pilots and real time data issues; however, discussions NOAA staff has had with the pilots do not corroborate the elimination of a PORTS for this reason. NMFS continues to recommend the COE fully evaluate a PORTS as an alternative and in combination with other alternatives.

Further, the interim Draft EIS states that “should any of the cooperating agencies choose to provide a detailed analysis of any of these alternatives for incorporation into the EIS, they are invited and encouraged to do so.” This was not presented to cooperating agencies as an expectation when we agreed to serve in this capacity, nor were we aware that the project objectives and resulting elimination of alternatives would change so drastically that this might be necessary. Considering the expedited schedule for moving forward with the interim Draft EIS and due to staffing and funding constraints, NMFS is not prepared to perform as a cooperating agency in this capacity.

EFH Assessment

The information provided in the interim Draft EIS does not meet the requirements of the EFH provisions of the Magnuson-Stevens Act. While the COE may choose to integrate the required components of an EFH Assessment into various parts of the EIS, the various components of the interim Draft EIS as presented do not meet the requirements of 50 CFR 600.920(e)(3) and (4). NMFS would like to work with the COE to ensure that the requirements found at 50 CFR 600.920(e)(3) and (4) are included in the Draft EIS. Notably missing are items that pertain to the analysis of the potential adverse effects of the action on EFH and the managed species, the COE's conclusions regarding the effects of the action on EFH, and details regarding proposed mitigation. In addition, pertinent literature is missing from the interim Draft EIS (see the literature cited for this letter and in NMFS 2011). Also a thorough analysis of alternatives to the proposed action is missing (see section above).

Endangered Species Act Section 7 Consultation

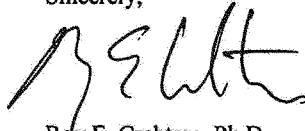
There are numerous references in the interim Draft EIS to NMFS' opinion concerning how the proposed work may affect listed species and critical habitat under our purview. In our previous review of the 2008 interim Draft EIS, NMFS asked the COE to remove “placeholders” that were included in the document referencing NMFS' concurrence or NMFS' biological opinion concerning this project. To date, NMFS has not received all of the information needed to evaluate potential effects of the proposed work on listed species and critical habitat under our purview; therefore, it is inappropriate and incorrect to reference NMFS' opinion in a public document given that we have not even received all of the information needed for our analysis. NMFS reiterates our request that such references to “NMFS' concurrence” and “NMFS' biological opinion” be removed from the EIS until those are obtained.

Closing

In view of the expectation that the EIS will be released to the public in January 2012, NMFS hopes the COE will soon propose a schedule to coordinate with us to fully address all of the above listed items, in addition to the other important issues identified in the enclosed matrix. Please direct inquiries and correspondence related to the EFH consultation under the Magnuson-Stevens Act to the attention of Ms. Jocelyn Karazsia at (561) 616-8880, extension 207, or Jocelyn.Karazsia@noaa.gov. For further endangered and threatened species

coordination on this project, please contact Audra Livergood at (954) 356-7100 or at Audra.Livergood@noaa.gov.

Sincerely,



Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosures: Additional SERO comments on the EIS

cc:

F/SER3, David Bernhart, Audra Livergood
F/SER, David Keys, Noah Silverman
F/SER4, Miles Croom, David Dale
F/SER47, Jocelyn Karassia

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NOAA NMFS PRD Comments
Interim DEIS
(VERSION 2: July 7, 2011)
PORT EVERGLADES FEASIBILITY STUDY DRAFT EIS
COMMENTS REVIEW MATRIX

These comments supplement the issues addressed in our letter dated July 7, 2011

AGENCY	COMMENT No.	SECTION/ PAGE/Line	COMMENTOR/ OFFICE	COMMENT	RESPONSE
NMFS SERO				It remains difficult for NMFS to fulfill our responsibility as a cooperating agency (or the intent of 40 CFR 1501.6 and 1508.5) due to the District's reluctance to substantively address the comments we provided during our review of the initial EIS in March 2008. To illustrate this point, less than 20% (approximately 33 out of 180) of our comments are fully addressed in the latest version of the EIS. NMFS invested considerable time in the 2008 review and in this review, and as a cooperating agency, we fully expect the District to carefully consider our comments and recommendations. In this regard, please address all the comments listed below, in addition to the comments we provided in March 2008. The latter set of comments is not re-stated here.	
NMFS PRD			Livergood/PRD	NMFS recommends that the dredge contractor and associated personnel participate in a resource awareness training prior to commencement of construction. We envision training similar to the training required for the Broward County Shore Protection Project (Segment III). The COE may wish to consider this type of training as a Conservation Measure that would potentially benefit ESA-listed species and other NMFS' trust resources.	
NMFS PRD		Exec Summ/iv/3	Livergood/PRD	DEIS states, "Pre-treatment of rock substrates may be necessary. Appropriate measures to safeguard protected species during this process will be undertaken." This is vague. Please elaborate on what is meant by "appropriate measures to safeguard protected species."	
NMFS PRD		Exec Summ/iv/21	Livergood/PRD	An up-to-date estimate (based on 2009 survey data) of the total acreage of areas that contain <i>H. johnsonii</i> (i.e., Seagrass Assessment Areas 2, 4, and 5, based on 2009 survey data). For the purposes of quantifying adverse effects on <i>H. johnsonii</i> , NMFS requests that the impact estimate be based on implementation of the Recommended Alternative, as described in the DEIS.	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	Exec Summ/iv/23	Livergood/PRD	<p>PRD has significant concerns with the proposed widening and lengthening of the Outer Entrance Channel. These impacts constitute new dredging that will permanently remove portions of the middle and outer reef. According to the DEIS, approximately 15.35 acres of coral reef habitat would be directly impacted (i.e., permanently removed) by dredging and 91.29 acres of coral reef may be indirectly impacted (note that these estimates do not include the potential for additional reef impacts associated with anchor/cable placement from a cutterhead dredge). This coral reef habitat is both EFH-HAPC and designated critical habitat for threatened elkhorn coral (<i>Acropora palmata</i>) and staghorn coral (<i>Acropora cervicornis</i>).</p> <p>In 2008, NMFS determined that the key conservation objective for threatened elkhorn and staghorn corals is facilitating increased incidence of successful sexual and asexual reproduction. In order to facilitate increased incidence of successful reproduction, NMFS determined that the feature essential to the conservation of these species is substrate of suitable quality and availability to support successful larval settlement, recruitment, and reattachment of fragments. NMFS defined "substrate of suitable quality and availability" as "natural consolidated hard substrate or dead coral skeleton that is free from fleshy or turf macroalgae cover and sediment cover" (73 FR 72210). The coral reefs offshore from Broward County, Florida, provide suitable substrate necessary to meet the key conservation objective of facilitating increased incidence of successful sexual and asexual reproduction. Therefore, these reefs provide the feature essential to the conservation of threatened elkhorn and staghorn coral. Staghorn and elkhorn coral can reproduce sexually (via broadcast spawning) and asexually (via fragmentation). Perhaps the Port Everglades entrance channel acts a "sink" or trench whereby coral fragments attempting to migrate north or south along the contiguous linear reef fall into the channel and are no longer viable (Dr. Ken Banks, Broward County, pers. comm., 6-23-11). The proposed action may exacerbate the "sink" effect by dredging through the middle and outer reefs, thereby cutting off the continuity of the reef and potentially impeding successful asexual reproduction. Hence, the proposed action undermines the key conservation objective (i.e., facilitating successful reproduction) and potentially hinders the recovery of these threatened corals. Based on the preceding, the proposed action is likely to adversely affect designated critical habitat for elkhorn and staghorn coral. NMFS will evaluate potential effects from the</p>
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COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	Exec Summ/iv/23	Livergood/PRD	<p>proposed project on elkhorn and staghorn coral and their designated critical habitat in our biological opinion. The loss of elkhorn and staghorn coral critical habitat due to the proposed action would be permanent and would not be offset by any form of mitigation. NMFS requests an analysis to determine how this potential "sink" effect (basically separating the critical habitat) would affect the critical habitat's ability to conserve the species.</p> <p>DEIS states the proposed work includes the removal of 15.35 acres of hardbottom and reef habitats. Coral reefs are widely recognized as the resident foraging habitat of juvenile, subadult, and adult hawksbill sea turtles¹. NMFS also recognized the importance of coral reefs as resting and foraging grounds for loggerhead sea turtles². In the second revision to the Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (<i>Caretta caretta</i>), NMFS states that the "negative impacts of dredging include destruction or degradation of habitat and incidental mortality of sea turtles" (NMFS and USFWS 2008). The proposed action would adversely affect foraging and resting habitat for loggerhead and hawksbill sea turtles. NMFS requests an analysis of how the proposed work (i.e., the permanent removal of coral reef habitat) may affect the various life stages of hawksbill and loggerhead sea turtles that are associated with coral reefs.</p>	
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¹ National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1993. Recovery Plan for Hawksbill Turtles in the U.S. Caribbean Sea, Atlantic Ocean, and Gulf of Mexico. National Marine Fisheries Service, St. Petersburg, Florida.

² National Marine Fisheries Service and U.S. Fish and Wildlife Service. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*) Second Revision. National Marine Fisheries Service, Silver Spring, Maryland.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		Exec Summ/iv/28 & 29	Livergood/PRD	DEIS states, "No direct impacts to protected species are anticipated." However, line 21 states, "unavoidable impacts include removal of 3.6 acres of protected Johnson's seagrass." Johnson's seagrass is a threatened species, protected under the ESA, and it would be directly impacted by proposed dredging. NMFS disagrees with the statement that no direct impacts to protected species are anticipated. We suggest deleting "no direct impacts to protected species are anticipated."
NMFS PRD		Exec Summ/iv/30	Livergood/PRD	DEIS states, "the West Indian manatee population may have less forage available due to removal of seagrasses." NMFS notes that adult green sea turtles, protected under the ESA, also forage on seagrasses and may be indirectly affected due to loss of foraging habitat.
NMFS PRD		Exec Summ/iv/30 & 31	Livergood/PRD	DEIS states, "No long-term impacts to water quality are anticipated due to turbidity monitoring and dredge shut-down protocols." Please specify what is the trigger for a dredge shut down for this particular project.
NMFS PRD		Exec Summ/iv/34-36	Livergood/PRD	DEIS states, "USACE has proposed the following: (a) mitigate for the removal of 4.01 acres of seagrass and (b) the loss of 1.16 acres of mangroves in the project footprint (including within the channel and resulting side slopes) through use of an ongoing habitat improvement project at West Lake Park." The text "including within the channel and resulting side slopes" seems to refer to mangroves, but presumably this text should refer to seagrass impacts. Suggest moving this text up so it reads "(a) mitigate for the removal of 4.01 acres of seagrass (including within the channel and resulting side slopes)..."
NMFS PRD		Exec Summ/iv/41-44	Livergood/PRD	As per the DEIS, USACE proposes to mitigate for the loss of approximately 15.35 acres of coral reef habitat by creating 16.74 acres of high-profile artificial reef habitat and 11.39 acres of low-profile hardbottom habitat. NMFS' position is that all 15.35 acres constitutes coral reef habitat (EPH-HAPC) and designated critical habitat for elkhorn and staghorn coral. The loss of approximately 15.35 acres of elkhorn and staghorn coral critical habitat would be permanent and would not be offset by mitigation.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		2.7/47/10	Livergood/PRD	What is the estimated duration of construction?	
NMFS PRD		2.9.2.1/49/40	Livergood/PRD	In the event that a clamshell dredge is used, will the COE require the contractor to use a sealed (or closed) bucket? A sealed bucket was used during the Key West Harbor dredging project in order to reduce the loss of dredged material from the bucket, thereby reducing turbidity in the water column. NMFS recommends use of a sealed bucket as a best management practice for this project.	
NMFS PRD		2.9.2.1/51/2	Livergood/PRD	DEIS states "Silt curtains may be deployed around the dredge if water quality standards cannot be met using operational controls." NMFS recommends silt curtains not be used in offshore areas where they are ineffective and may damage trust resources if they become detached and mobile.	
NMFS PRD		2.9.2.2/52/49-51	Livergood/PRD	DEIS states "A project-specific biological assessment has been developed for the Port Everglades project that includes the use of a hopper dredge as a construction technique (Appendix F)." NMFS received the biological assessment (BA) in 2004. The BA does not include up-to-date impact estimates for Johnson's seagrass (NMFS 2011 and DCA 2009) nor does it include species listed (elkhorn and staghorn coral) and critical habitat designated (for elkhorn and staghorn coral) since 2004.	
NMFS PRD		2.9.2.2/58/1-15	Livergood/PRD	In the event that a cutterhead dredge is used, will the dredge spud down within the project footprint? Does the COE anticipate spudding impacts to benthic resources located outside of (i.e., adjacent to) the project footprint? NMFS supports the avoidance/minimization measures listed on page 58 of the DEIS (i.e., use of surge buoys and restricted anchor placement).	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	2.9.3.1/64/16-32	Livergood/PRD	DEIS states "The primary environmental impact of spudding or hydrohammer is noise and vibration. This constant pounding would serve to disrupt marine mammal behavior in the area, as well as impact other marine species...Using the punch barge will also extend the length of the project...Punch barging was previously attempted, unsuccessfully, at Port Everglades in 1981...The operation was very noisy and the vibration of the chisel on bottom caused direct impact to nearby structures, including homes (Alan Sosnow, pers. comm.)." Based on the preceding, is the COE eliminating spudding, hydrohammer, and punch barging from further consideration?
NMFS PRD	2.9.3.2/71/33	Livergood/PRD	DEIS states "Because of the potential duration of the blasting and the proximity of the inshore blasting to a seasonal manatee high use area (Port Everglades FPL discharge canal), a number of issues will need to be addressed." What is the potential duration of the blasting?
NMFS PRD	2.9.3.2/74/21	Livergood/PRD	Will the contractor be required to do pre-blasting charges (this was done in the Miami Harbor phase II project)?
NMFS PRD	2.9.5/76-81/35-50 (p.76) and 7-22 (p.79) and 1-17 (p.81)	Livergood/PRD	NMFS understands the purpose of the proposed "environmentally friendly bulkheads" (i.e., to minimize erosion to mangrove habitats from large ship wakes); however, the DEIS lacks sufficient information to fully evaluate potential effects on listed species from the bulkheads themselves and from construction of the bulkheads. For example, will the submerged riprap be placed in water that is less than 1 meter deep? Will the bulkheads be designed with breaks in the riprap that are large enough to permit access by juvenile sawfish? Will the use of barges and/or the proposed piles impact Johnson's seagrass? Will the submerged riprap impact Johnson's seagrass? Will there be a areas impact mangroves? Will the proposed blasting be confined? Will there be a monitoring plan for protected species? Will the proposed dredging for the sideslope excavation impact Johnson's seagrass?

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		3.5.2/87/46	Livergood/PRD	DEIS states that Type 1 mangroves provide "minimal benefits to wildlife or protected species..." What is the basis for this statement? No citation is provided. Based on reviewing the DEIS and the EFH Assessment (Appendix H), NMFS understands that Mangrove Assessment Area #2 is part of the proposed action. As per the DEIS, Mangrove Assessment Area #2 is comprised of Type 1, 2, 3, and Type 4 mangroves associated with John U. Lloyd State Park (DEIS, pp. 87-88). Red mangroves are present within Type 1-4 mangrove communities (DEIS pp. 87-88). Red mangroves and shallow water less than 1 meter in depth provide habitat for smalltooth sawfish, particularly small and very small juveniles (74 FR 45353). It is unclear whether smalltooth sawfish are able to access red mangrove habitats that fall under Types 3 and 4. Please include a statement in the next version of the DEIS that clarifies whether gaps are currently present in the riprap of adequate size to allow smalltooth sawfish access to Type 3 and 4 mangrove areas. In addition, please include a statement in the next version of the DEIS stating whether shallow water habitat (less than 1 meter in depth) adjacent to red mangroves would be impacted by the proposed action and if impacts are proposed, please quantify impacts to shallow water habitats.	
NMFS PRD		3.5.2/88/8-22	Livergood/PRD	Figure 43 in the DEIS is pulled directly from the EFH Assessment (see Figure 1 in EFH Assessment); however, in Figure 1, the legend is labeled "Seagrass Distribution 2006." This label was deleted from Figure 43 in the DEIS. It is not clear why the label was deleted. NMFS recommends re-inserting the label so it is clear to the reader that both Figure 43 in the DEIS and Figure 1 in the EFH Assessment depict seagrass distribution in 2006 within the Port Everglades study area.	
NMFS PRD		3.6.1.2/94/1	Livergood/PRD		

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		3.6.2/101/42-44	Livergood/PRD	DEIS states, "Three first terrace sites FTL 4, FTL 5, and FTL 6 are known to have unusually high coral cover and FTL 6 is dominated by <i>Acropora cervicornis</i> ." These Broward County monitoring stations are not located on the "first terrace" they are located on the nearshore ridge complex (Ken Banks, Broward County, pers. comm. via e-mail on 6-21-11). "First terrace" should be replaced with "nearshore ridge complex" in the DEIS.
NMFS PRD		3.7.2.1/109/26-28	Livergood/PRD	DEIS states, "Seagrass surveys conducted for the project (DCA 2000, 2001, and 2006) found that <i>H. johnsonii</i> occurs within the SAC and DCC." NMFS requests that the DEIS be updated to reflect the 2009 survey effort as well as past survey efforts. As per the DCA 2009 survey report, <i>H. johnsonii</i> was also found in the NTB (see Figure 5 in DCA 2009 report).
NMFS PRD		3.7.2.2/109/40-41	Livergood/PRD	DEIS states smalltooth sawfish were once common in Florida as detailed by the draft Smalltooth Sawfish Recovery Plan (NMFS 2006). Please update the DEIS to reflect the Final Recovery Plan, which was published in the FR on Jan. 21, 2009 and is available at http://www.nmfs.noaa.gov/pr/pdfs/recovery/smalltoothsawfish.pdf
NMFS PRD		3.7.2.13/123/42-43	Livergood/PRD	DEIS states, "NMFS PRD leadership agreed that a modified methodology for surveying for <i>Acropora</i> spp. in 13 federal navigation channels within <i>Acropora</i> spp. critical habitat was warranted." NMFS notes that this may have been discussed at a previous meeting but an agreement (such as an MOA) was never made in writing.
NMFS PRD		3.7.2.13/124/Figure 48	Livergood/PRD	The nearshore ridge complex is notably absent from the <i>Acropora</i> spp. survey area even though the ridge complex contains suitable substrate essential to the conservation of elkhorn and staghorn coral (i.e., the essential feature) and the ridge complex is located north and south of the channel within the 150-meter indirect impact area as shown on Figure 48 in the DEIS. NMFS requests an explanation as to why portions of the nearshore ridge complex located within the indirect impact area were not surveyed for elkhorn and staghorn coral.
NMFS PRD		4.3.2/142/Table 22	Livergood/PRD	In Table 22, the impact calculation for <i>H. johnsonii</i> (sum of areas containing only HJ and areas of mixed SAV with HJ) is 3.57 acres. Does this calculation reflect the best available information (i.e., the EFH Assessment also referenced as NMFS 2011 and DCA 2009)? Based on the best available information, NMFS believes potential direct effects to <i>H. johnsonii</i> are approximately 4.05 acres. The DEIS should be updated to reflect the best available information.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		4.4.2.2/145/2-3	Livergood/PRD	<p>DEIS states "This hardbottom provides an important habitat for many fish and invertebrate species." In addition to providing habitat for fishes and invertebrates, coral reefs provide foraging and resting habitat for at least two species of sea turtles (hawksbill and loggerhead sea turtles). Juvenile, subadult, and adult hawksbills use coral reefs for foraging and refuge habitat (NMFS 1993). Loggerhead sea turtles are also associated with coral reefs (NMFS and USFWS 2008). Recommend that the DEIS be updated to reflect the importance of coral reef habitat for sea turtles.</p> <p>DEIS states "Dredging would result in the removal of up to 3.57 acres of mixed or monoculture Johnson's seagrass habitat where it occurs along the SAC and Widener." NMFS requests an up-to-date estimate (based on 2009 survey data) of the total acreage of areas that contain <i>H. johnsonii</i> (i.e., Seagrass Assessment Areas 2, 4, and 5, based on 2009 survey data). For the purposes of quantifying adverse effects on <i>H. johnsonii</i>, NMFS requests that the impact estimate be based on implementation of the Recommended Alternative, as described in the DEIS. Based on the best available information (NMFS 2011 and DCA 2009), NMFS believes that the proposed action is likely to adversely affect approximately 4.05 acres of mixed and monoculture <i>H. johnsonii</i> beds. The DEIS should be updated to reflect the best available information.</p>
NMFS PRD		4.5.1.3/149/19-21	Livergood/PRD	<p>DEIS states "Changes in bottom depth through deepening and widening efforts with the Port may limit the amount of available habitat suitable for Johnson's seagrass recolonization." NMFS concurs and would like to add that deepening beyond 3-4 meters - which is the maximum depth of occurrence observed for <i>H. johnsonii</i> (NMFS 2007, Kenworthy 2000, and Hammerstrom et al. 2006) - is likely to impede post-dredging recolonization of areas that currently support <i>H. johnsonii</i>.</p> <p>DEIS states that the COE's impact estimate for <i>H. johnsonii</i> is based on the analysis contained in their 2004 Biological Assessment (BA), which estimates a maximum impact of 3.57 acres of mixed and monoculture <i>H. johnsonii</i> beds. NMFS notes that both the BA and the impact estimate contained therein are very likely outdated and the estimate should be superseded by the best available information (NMFS 2011 and DCA 2009). Based on the best available information, NMFS believes that the proposed action is likely to adversely affect approximately 4.05 acres of mixed and monoculture <i>H. johnsonii</i> beds. The DEIS should be updated to reflect the best available information.</p>
NMFS PRD		4.5.1.3/149/22-24	Livergood/PRD	<p>DEIS states "Changes in bottom depth through deepening and widening efforts with the Port may limit the amount of available habitat suitable for Johnson's seagrass recolonization." NMFS concurs and would like to add that deepening beyond 3-4 meters - which is the maximum depth of occurrence observed for <i>H. johnsonii</i> (NMFS 2007, Kenworthy 2000, and Hammerstrom et al. 2006) - is likely to impede post-dredging recolonization of areas that currently support <i>H. johnsonii</i>.</p> <p>DEIS states that the COE's impact estimate for <i>H. johnsonii</i> is based on the analysis contained in their 2004 Biological Assessment (BA), which estimates a maximum impact of 3.57 acres of mixed and monoculture <i>H. johnsonii</i> beds. NMFS notes that both the BA and the impact estimate contained therein are very likely outdated and the estimate should be superseded by the best available information (NMFS 2011 and DCA 2009). Based on the best available information, NMFS believes that the proposed action is likely to adversely affect approximately 4.05 acres of mixed and monoculture <i>H. johnsonii</i> beds. The DEIS should be updated to reflect the best available information.</p>
NMFS PRD		4.5.1.3/149/29-35	Livergood/PRD	<p>DEIS states "Changes in bottom depth through deepening and widening efforts with the Port may limit the amount of available habitat suitable for Johnson's seagrass recolonization." NMFS concurs and would like to add that deepening beyond 3-4 meters - which is the maximum depth of occurrence observed for <i>H. johnsonii</i> (NMFS 2007, Kenworthy 2000, and Hammerstrom et al. 2006) - is likely to impede post-dredging recolonization of areas that currently support <i>H. johnsonii</i>.</p> <p>DEIS states that the COE's impact estimate for <i>H. johnsonii</i> is based on the analysis contained in their 2004 Biological Assessment (BA), which estimates a maximum impact of 3.57 acres of mixed and monoculture <i>H. johnsonii</i> beds. NMFS notes that both the BA and the impact estimate contained therein are very likely outdated and the estimate should be superseded by the best available information (NMFS 2011 and DCA 2009). Based on the best available information, NMFS believes that the proposed action is likely to adversely affect approximately 4.05 acres of mixed and monoculture <i>H. johnsonii</i> beds. The DEIS should be updated to reflect the best available information.</p>

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD		4.5.5.2/154/9-10	Livergood/PRD	<p>The COE's position, as stated in the DEIS, is that the loss of sea turtle foraging habitat from the proposed action would be offset by the proposed mitigation (i.e., creation of artificial reefs). NMFS disagrees with the COE's position. We do not believe that the creation of artificial reefs would offset the permanent loss of foraging and resting habitat for sea turtles.</p> <p>As a Conservation Measure, NMFS recommends that the dredge contractor be required to use shields on offshore dredge equipment lighting. This may help to avoid or reduce the potential for sea turtles to become disoriented.</p>
NMFS PRD		4.5.5.2/154/35-37	Livergood/PRD	<p>DEIS states "USACE made a determination that the potential impacts to North Atlantic right whales from the project are so unlikely as to be discountable in the Biological Assessment...Based on this information, NMFS issued a concurrence with USACE's determination of may affect, not likely to adversely affect for the proposed project..." We have two comments. First, we recommend that the text "NMFS issued a concurrence with USACE's determination of may affect, not likely to adversely affect for the proposed project" be deleted based on the fact that NMFS has not issued an opinion for the proposed project. Furthermore, both the 1995 and 1997 South Atlantic Regional Biological Opinions issued by NMFS to the COE for hopper dredging activities (and beach nourishment) from North Carolina through Florida East Coast concluded that increases in vessel traffic associated with hopper dredging is likely to adversely affect right whales and humpback whales. The 1995 BO states, "While dredging itself is not likely to be a problem (for whales), the transit of hopper dredges between borrow, channel, and disposal areas is likely to result in increased vessel traffic in the vicinity of humpback and right whales...ship strikes are one of the primary human-caused sources of mortality for both humpback and right whales, and increased vessel traffic may increase the likelihood of whale/vessel interactions." In the 1995 BO, NMFS concluded that right whales and humpback whales may be adversely affected due to increased vessel traffic associated with hopper dredging and disposal of dredged material, but severe impacts can be avoided through continued cooperation between dredge operators and endangered species observers during the seasons whales may occur in the project area.</p>
NMFS PRD		4.5.8/162/11-15	Livergood/PRD	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	4.5.10/163/37-39	Livergood/PRD	See previous comment. This same comment applies to humpback whales. The DEIS (page 169) states that a decision was made in consultation with NMFS not to relocate <i>Acropora</i> spp. colonies if any are identified during pre-construction surveys. We believe this may be a typographical error. NMFS has no recollection or record of agreeing not to relocate <i>Acropora</i> spp. colonies. In fact, this contradicts a previous commitment made by the COE. In a letter dated October 18, 2006, from the COE to NMFS, the COE committed to relocating elkhorn and staghorn coral colonies if such colonies were identified during pre-dredging relocation surveys and reinitiating ESA Section 7 consultation with NMFS (since relocation would constitute take). While we understand that no <i>Acropora</i> spp. colonies have been identified in the direct or indirect impact area to date, it is possible that <i>Acropora</i> spp. colonies exist in the project area and have not been identified by any surveys to date. Therefore, we believe the approach that the COE outlined in their October 18, 2006, is prudent and we consider the COE's commitment to re-locate any <i>A. cervicornis</i> or <i>A. palmata</i> colonies (should any be identified during relocation surveys) to be part of the proposed action.
NMFS PRD	4.5.14.2.2/169/27-28	Livergood/PRD	DEIS states "Although there is published literature concerning the effects of sedimentation and turbidity on coral reefs throughout the world, there is a paucity of peer reviewed published data from many recent dredging events that have taken place in southeast Florida." NMFS recommends the COE support the first part of this statement by citing peer-reviewed, published literature on the known effects of turbidity and sedimentation on corals (e.g., Telesnicki and Goldberg 1995, Rogers 1983 and 1990, Dodge and Vainys 1977, Philipp and Fabricius 2002). Furthermore, most of these studies (with the exception of Philipp and Fabricius 2002) examined the effects of sedimentation or turbidity on Caribbean corals and the findings would be relevant for southeast Florida since the species assemblages on Caribbean reefs are similar to those in southeast Florida reefs. Regarding the second part of the statement (i.e., there is a "paucity of peer reviewed published data from many recent dredging events in southeast Florida"), NMFS knows of at least one peer-reviewed study in Broward County, Florida (Jordan et al. 2010). In this study, the sedimentation was associated with beach nourishment and dredging activities adjacent to reefs just south of Port Everglades in Segment III. NMFS recommends citing this study in the DEIS.
NMFS PRD	4.5.14.2.2/169/35-37	Livergood/PRD	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	4.5.14.2.2/170/1 6-19	Livergood/PRD	<p>DEIS states "A review of four [dredging] projects [in south Florida, including the Florida Keys] found that using Best Management Practices for turbidity and sedimentation control (e.g., ceasing dredging when turbidity levels exceed permitted standards) are protective of the coral and hardground environments surrounding south Florida sand borrow sites and navigation channels." NMFS notes that the COE permit for the Key West project included a more stringent turbidity limit (15 NTU) than what is normally required in the state of Florida. The basis for this requirement was research conducted by Telesnicki and Goldberg (1995) on two Florida coral species (<i>Dichocoenia stokesii</i> and <i>Meandrina meandrites</i>). The researchers subjected laboratory corals to turbidity ranges of 7-9, 14-16, and 28-30 NTU and measured the corals' photosynthetic and respiratory responses. Corals exposed to 14-16 NTU were "significantly different" from controls beginning with day 4 in <i>D. stokesii</i> and day 3 for <i>M. meandrites</i>. In both cases, this level of turbidity produced a P:R ratio very close to 1.0 after 3-4 days and less than 1.0 after 6 days. Mucus production was noticeable at this level (14-16 NTU) of turbidity. The researchers concluded, "While other species of scleractinians may have different reactions to turbidity, our data suggest that the 29 NTU standard is not conservative and should be re-evaluated." These researchers' findings are relevant to the Port Everglades project. Due to the presence of corals both within and in close proximity to the project, NMFS believes that a more conservative turbidity standard is warranted for the Port Everglades project and other dredge and fill projects in southeast Florida in close proximity to coral reefs.</p>
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COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	4.5.14.2.2/173/1 3-16	Livergood/PRD	<p>Page 173 of the DEIS states, "The examples of adverse effects of turbidity and sedimentation on coral species often cited by resource managers are commonly projects in third world countries without the strict water quality protections that are in place in the U.S." The DEIS further states that these water quality protections are also protective of coral species, including <i>Acropora</i> spp. and its designated critical habitat, located near dredging operations. No citation is provided for this statement. NMFS supports Telesnicki and Goldberg's findings. Specifically, we believe the 29 NTU turbidity standard used in Florida may not adequately protect corals and should be re-examined for dredge and fill projects near coral reefs.</p>	
NMFS PRD	4.5.14.2.2/173/3 7-39	Livergood/PRD	<p>The DEIS mentions Caroline Rogers' work in Puerto Rico. Rogers examined the sublethal and lethal effects of sedimentation on five Caribbean coral species, including elkhorn coral (<i>Acropora palmata</i>) and staghorn coral (<i>Acropora cervicornis</i>). Rogers found that elkhorn coral was the least tolerant of the species she tested. Immediately after a single application of sediments (200 mg cm⁻²), the three elkhorn coral colonies released fine strands of mucus. After 6 days, algae were already growing on the smothered portions, both on the bleached sections of the corals and on the sediment accumulations. These colonies never recovered.³ While elkhorn coral was found to be the least tolerant of the species she tested, staghorn coral fared better, presumably due to its cylindrical branches and almost spherical morphology. NMFS believes it is misleading to lump elkhorn and staghorn coral together when discussing sedimentation effects. In addition to discussing the effects of sedimentation on staghorn coral, the DEIS should mention the less favorable results of Rogers' experiments on the more sensitive elkhorn coral.</p>	
NMFS PRD	4.5.14.2.2/173/4 9-50	Livergood/PRD	<p>DEIS states "we believe adverse effects to <i>A. cervicornis</i> from increased sedimentation will be insignificant. This determination is consistent with NMFS' previous findings in NMFS 2009." The NMFS 2009 citation is missing from the literature cited. It is unclear what document the COE is referencing here. Please add this citation to the literature cited.</p>	

³ Rogers, C. 1983. Sublethal and Lethal Effects of Sediments Applied to Common Caribbean Reef Corals in the Field. Marine Pollution Bulletin, Vol. 14, No. 10, pp. 378-82.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS PRD	4.7/178/14-15	Livergood/PRD	DEIS mentions the Ocean Express Pipeline and the Calypso project in the Cumulative Impacts section. These projects were never constructed and are no longer relevant.	
NMFS PRD	6.2/189/19-24	Livergood/PRD	DEIS states that consultation was initiated with NMFS upon completion and submittal of the Biological Assessment (in 2004). It also references NMFS' biological opinion as an appendix. As previously requested, please remove references to NMFS' biological opinion since NMFS has not yet issued an opinion on this project. In addition, we have not initiated consultation because we do not have all of the information needed to begin consultation.	

COMMENTS REVIEW MATRIX, *cont'd.*

NOAA NMFS HCD Comments
 Interim DEIS
 (VERSION 2: July 7, 2011)
 PORT EVERGLADES FEASIBILITY STUDY DRAFT EIS
 COMMENTS REVIEW MATRIX

These comments supplement the issues addressed in our letter dated July 7, 2011

AGENCY	COMMENT No.	SECTION/ PAGE/Line	COMMENTOR/ OFFICE	COMMENT	RESPONSE
NMFS SERO				It remains difficult for NMFS to fulfill our responsibility as a cooperating agency (or the intent of 40 CFR 1501.6 and 1508.5) due to the District's reluctance to substantively address the comments we provided during our review of the initial EIS in March 2008. To illustrate this point, less than 20% (approximately 33 out of 180) of our comments are fully addressed in the latest version of the EIS. NMFS invested considerable time in the 2008 review and in this review, and as a cooperating agency, we fully expect the District to carefully consider our comments and recommendations. In this regard, please address all the comments listed below, in addition to the comments we provided in March 2008. The latter set of comments is not re-stated here.	
NMFS		Page ii, lines 35-41	HCD	The IDEIS states that USACE will mitigate for the direct removal of 10.37 acres of complex, high-profile, reef habitat through the creation of approximately 16.74 acres of high-profile, artificial reef habitat, and mitigate for the direct removal of 4.97 acres of less complex, low-profile hardbottom habitat by creating 11.39 acres of low-profile hardbottom.	
NMFS		Page iv, line 5	HCD	The terms "high-profile" and "low-profile," have not been used to characterize the coral reefs in the project area. While we understand CESAJ has used these terms on other projects, they are absent from the best available scientific information that characterize the coral reefs in Florida, therefore CESAJ should not continue to use the terms. There also seems to be an assumption that a low-profile coral reef provides lower ecological services than a high profile coral reef. In the absence of information to justify this, NMFS cannot agree with this assumption.	
NMFS		Section 1.3, page 18, 31	HCD	It is our understanding that EPA has not yet approved the ODMDS expansion and the existing capacity cannot accommodate this amount of dredge material, therefore statements such as "dredge disposal will occur at the Offshore Dredged Material Disposal Site west of the Port" are pre-decisional and should be removed until a final decision has been made.	
NMFS			HCD	This section is helpful in describing the project need for the post-Panamax vessels, however more detail on the next generation of oil tankers and cruise ships expected to call on the Port. Please provide the length,	

COMMENTS REVIEW MATRIX, *cont'd.*

				<p>breadth, and maximum draft and width of the next generation of oil tankers and cruise ships – similar to what is provided for the cargo containers. Other references are made to the “future design fleet” however the detail on the design is only provided for post-panamax vessels.</p> <p>In section 2.5.2.1 the trucking alternative is eliminated from further consideration partially because of the design consideration of Aframax (deep-draft petroleum vessels) however the design specifications for the new generation of this vessel type that are expected to call on Pt Everglades are not provided. This information is needed for NMFS to fully evaluate the alternatives.</p>	
NMFS	1.3, page 18	HCD		<p>(NMFS identified this as a deficiency in our 2008 review of the IDEIS as well)</p> <p>For data quality purposes a citation should follow the following sentence, otherwise it should be removed: Additionally, NOAA has recognized the unpredictable currents and resultant safety issues at the Port Everglades entrance channel in its annual publication for mariners, “The Coast Pilot”.</p>	
NMFS	Missing from the EIS	HCD		<p>A crucial missing piece of information is how far out into the coastal ocean the ebb tide plume is typically advected. NOAA AOML has some data in hand from the ADCPs they have deployed in shallow water in this area, the flows are about evenly divided between north and south (close to shore). Interestingly, the southern directed flows are often more energetic. CESAJ should fully evaluate and study how the plume behaves once it leaves the channel. In considering the fate of materials introduced into the waters of the Port Everglades channel it should be noted that the flow patterns in the channel during the flood tide and the ebb tide are somewhat different.</p> <p>During ebb tide, flow velocities are sufficiently high in the Port Everglades channel that any materials introduced into the channel will be quickly advected seaward to the coastal waters. Momentum will propel these waters eastward for some distance until the ambient coastal currents redirect the flow to (typically) the north or to the south. (Some preliminary data collected by NOAA AOML in this area suggest that, nearshore, coastal currents are roughly, evenly divided between southern flow and northern flow. Further from shore, the currents are more predominantly northern directed.</p> <p>During the flood tides, near surface (depth < 3m) velocities in the channel are often significantly less than the velocities at deeper depths and in some cases, a weak seaward surface flow persists during the landward flood tide flow at depth. Surface waters therefore, may not be driven inland as might be expected if the flow was not vertically stratified. This condition may allow surface water to accumulate in the basin until the next ebb tide or possibly still be transported seaward during the flood tide.</p>	
NMFS	Section 1.4, Page 21	HCD		<p>The purpose of this Environmental Impact Statement is to “provide full and fair discussions of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment” (NEPA.</p>	

COMMENTS REVIEW MATRIX, *cont'd.*

				regulations 40 CFR 1502.1).	
NMFS			Section 1.5, Related Documents	HCD	CESAJ has stated that, as a project sponsor, they are a proponent of the project. It appears that this position has limited the ability of CESAJ to provide "full and fair discussions." The document NMFS HCD prepared is referenced and sections pasted in several sections of the document, please add the following citation to the list: NMFS 2011. Characterization of Essential Fish Habitats in the Port Everglades Expansion Area, 45 pp.
NMFS			Section 1.6, "Study team"	HCD	Less than 20% of the comments NMFS provided in version 1 of the EIS were fully accepted in version 2. Therefore, NMFS feels it is misleading to refer to us as part of a "study team." Several sections of the EIS, i.e., sections that characterize the coral reefs in the project areas and the mitigation plan, would be substantively different if we were actually part of a study team. Please refer to NMFS as a cooperating agency and identify the sideboards of our involvement – i.e., from our October 2007 letter, "providing technical assistance on how impacts to threatened and endangered species and to essential fish habitat (EFH) should be appropriately identified and mitigated". Furthermore, the term "study team" is not used in any section other than this one, therefore there seems to be little value to identifying one.
NMFS			Section 1.8, lines 27-28	HCD	(NMFS identified this as a deficiency in our 2008 review of the EIS as well) The following sentence seems to be misplaced: "This document serves to initiate formal consultation with NMFS under the provisions of the Magnuson-Stevens Act for potential adverse effects to Essential Fish Habitat (EFH)." The section is named "Permits, Licenses, and Entitlements" and the EFH consultation requirement does not fall under this heading. Suggest re-wording the section heading or deleting.
NMFS			Section 2.1 Objectives	HCD	This section should discuss how the planning objectives have changed over time. According to the information provided, the planning process started in 2001, however the planning objectives have changed substantially in 2004 and 2007. Since the selection and elimination of alternatives is so closely tied to the objectives, more detail should be provided on how objectives have changed over time and the drivers for the change.
NMFS			2.2.2, Measures Considered for Use in Plan Alternatives	HCD	The EIS states that some of the measures (project components) independently meet all the objectives, other measures meet the objectives when considered combined with other measures, and some measures, e.g., lighting or the north turning basin, the EIS does not state if the objectives are or are not met. After each measure, the EIS should clearly identify with objectives will be met.
NMFS			2.5.2.2, Lighting Alternative	HCD	The conclusion that USCG homeland security issues are significant to the point that eliminating the Lighting Alternative is warranted is not supported by an analysis in the EIS. The EIS inaccurately portrays the memorandum as USCG recommending against Lighting, when in fact the memorandum advised there is a risk associated with these activities. Please provide more detail and necessary revisions to this section.
NMFS			2.5.2.2, Lighting Alternative	HCD	For data quality purposes, the EIS should cite the actual USCG memorandum and not a private consulting firm's website as the citation.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS		2.5.2.2, Lightening Alternative	HCD	The EIS describes elimination of the Lightening Alternative is partially justified because of issues with small vessels (not enough anchor chain, effects of sea state and winds). However, the Lightening Alternative would only be relevant to larger vessels that cannot access the port due to depth and width constraints. The analysis should be revised and updated accordingly.
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	More text, a figure, or a table should be provided to further describe how three acres of hardbottom and reef habitats were eliminated.
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	"Planners reduced the width of the terminus (i.e., the width of the channel at the point where vessels would enter the channel) from 1000 feet to 800 feet. This reduced the impacts to hardbottom and reef habitats by approximately three acres."
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	Coral transplantation is planned for an unidentified number of corals greater than 25 cm in diameter or height. In order for NMFS to accept this as a mitigation measure, a detailed plan that includes the number of corals, specific relocation sites, monitoring and performance measures must be provided for our review.
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	The size class for the relocation of corals (25 cm) is not substantiated. Other CESAJ authorized projects (Broward Segment III, SAJ-1999-5345) have successfully relocated corals at a much smaller size class. Monitoring reports from this project substantiate the need to relocate scleractinian corals at smaller size classes (6, 7, 8, 9, 10 cm diameter). The corals relocated from this project had a 98% survival success rate at 18-months post-transplantation (NSUOC, 2006).
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	Nova Southeastern University Oceanographic Center (NSUOC). 2006. Stony Coral Transplantation Monitoring. Fourth Monitoring Report: 18 Month Post-Transplantation Monitoring Event, 40 pages.
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	The EIS states that the reduction of the time to complete the project is a mitigation measure. Up to this point in the EIS there has been no discussion on this measure. Specifically, what has changed to reduce the construction time?
NMFS		2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: assurances that the actual cost of all resource agency approved compensatory mitigation and associated monitoring be included in the budget for the project. This cost should also include contingency mitigation and monitoring.

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Relocation of octocorals with a strong central spine (of the genera <i>Gorgonia</i> , <i>Enicea</i> , <i>Plexaura</i> , <i>Plexaurella</i> , <i>Muricea</i> , or <i>Pterogorgia</i>).	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Through this EIS process, we have learned that CESAJ defines "coordinate" differently than NMFS. Commitments are needed to ensure that CESAJ will work with NMFS and other resource trustees so that our <u>substantive input</u> is included in mitigation and monitoring plans that are relevant to our trust resources.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of the compensatory mitigation plan.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Performance award for completing the project on time and without injury to resources, similar to Key West Harbor Dredging.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of blasting plan and associated biological monitoring (fish kills).	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of biological monitoring plans.	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of plan to monitor (before, after, control, impact) for indirect impacts, i.e., the coral reef habitats deeper than -36 that CESAJ does not believe will be directly impacted.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of plans to monitor (before, after, control, impact) for indirect impacts, i.e., the seagrass habitats that would be impacted through equilibration of side slopes, sedimentation, turbidity.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of resource awareness training for all contractors and subcontractors.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of coral reef sedimentation monitoring plan.	
NMFS	2.7, Summary of Measures to Avoid and Minimize Impacts to Natural Resources	HCD	NMFS recommends other mitigation measure be included in the EIS including: Commitments to work with NMFS and get NMFS approval of coral reef turbidity monitoring plan.	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	2.9.1, overview of Construction of Recommended Plan (2E)	HCID	For data quality purposes, the actual Act should be the citation and not a personal communication citation in "USACE does not specify types of equipment and construction methods within its specifications due to the requirements of the Competition in Contracting Act, that requires Federal agencies to limit how specific specifications are written to prevent limiting competition among contractors (C. Tolle, USACE-SAJ Contracting Officer, pers. comm.).
NMFS	2.9.3.2, Confined blasting, page 65	HCID	In order for NMFS not to consider this as a dredge material disposal option, CESAJ should further explain under what circumstances (including rock specification) the following would occur: The harder, consolidated rock obtained from inside the port may be used in the construction of artificial reefs for mitigation.
NMFS	2.9.3.2, Confined blasting, Page 71	HCID	The EIS should acknowledge that some of the assumptions (i.e., that blasting causes minimal effects to biological resources) may not apply in this case since: The San Juan Harbor project's heaviest delay was 375 lbs per delay and in Miami it was 376 lbs per delay. Based on discussions with USACE's geotechnical engineers, it is expected that the maximum weight of delays for Port Everglades will be larger since the rock is much harder than what is seen at the Port of Miami.
NMFS	2.9.5, Other Construction Details, page 76	HCID	In our version 1 comments, we requested design specifications and a map of areas where the "environmentally-friendly bulkheads" are planned. CESAJ indicated "partial concurrence" with this comment. Please provide a map of these areas.
NMFS	2.9.5, Other Construction Details, page 76	HCID	The drawing provided (figure 36) is not sufficient to show that (as stated in the EIS), "the rip-rap would allow sufficient water to pass through the rocks to continue flushing of mangroves located behind them and allow juvenile fishes access to the mangroves. Notches in the rip rap, similar to those at the JUL mangrove areas, may also be able to be installed to allow greater flushing and subsequent access by juvenile flies." We note that the notches are also not shown on the drawing and these will be critical to determine if fish ingress and egress is possible.
NMFS	2.9.5, Other Construction Details page 76, line 37	HCID	It is not accurate to state "NMFS... developed an "environmentally-friendly bulkhead (EFB)..." We request the following change (in italics): FWS and NMFS developed <i>the concept of an EFB</i> .
NMFS	3.2, Land Use, page 81, line 45	HCID	For data quality purposes, the most recent census data should be included in the EIS
NMFS	3.5.1, Upland habitat, Page 85	HCID	Fig 39 is not included in the EIS
NMFS	3.5.2, Wetlands, Page 86, line 30	HCID	The report NMFS HCD prepared should be referred to as "Characterization of Essential Fish Habitat in the Port Everglades Expansion Area" or (NMFS 2011). It should not be referred to as an "EFH analysis" (Appendix H)

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	3.5.2, Wetlands, Page 86, line 30	HCD	In the comment above, appendix G (not H) should be referenced.	
NMFS	Page 86, Line 44 Page 88, lines 24-25 page 89, line 38 page 90, line 8 page 91, lines 8, 27, and 47 And anywhere else in the document	HCD	Please change "NMFS EFH Assessment (Appendix H)", to "Characterization of Essential Fish Habitat in the Port Everglades Expansion Area" or (NMFS 2011). Also please list the accurate appendix, where referenced.	
NMFS	3.5.2, Wetlands Figure, 40, page 87	HCD	Please change the caption to: Mangrove Assessment Areas Hatching indicates mangrove habitat and numbered arrows point to assessment areas identified by colored polygon. Figure from NMFS 2011 (and modified from DCA 2001).	
NMFS	3.5.2, Wetlands Page 87, line 25	HCD	This parentheses should include reference to figure 40 and figure 41	
NMFS	3.5.2, Wetlands Figure 41, page 88	HCD	Please add the following to the figure caption: (figure from NMFS 2011)	
NMFS	3.5.2, Wetlands	HCD	The mangrove <i>bays</i> referred to in this section is not clear. Is a <i>type</i> a habitat characterization, a particular area, or both?	
NMFS	Several places in the document	HCD	Some revisions were made to the final report (NMFS 2001). Please make sure any sections that have been cut and pasted are from the final version sent to CESAJ on June 3, 2011.	
NMFS	3.6, Marine Resources, Page 92, lines 17-18	HCD	For data quality purposes, the date should be included in all personal communication references	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS		3.6.1.1, Marine Resource Investigations, lines 11-14	HCD	<p>From the EIS: "The 1999 environmental baseline surveys for seagrasses occurred within the project area, which started approximately 1,200 feet north of the Port Inlet south, along the AIWW, to approximately 1,000 feet south of the DCC and along the DCC to Port Denison (DC&A 2000) (Figure 43)."</p> <p>"Port Denison" is not a feature that NMFS is familiar with (nor is it identified in figure 43). Please describe where this is located. NMFS can also add to figure 43, if CESAJ would like.</p>	
NMFS		3.6.1.1, Marine Resource Investigations	HCD	DCA 2000 is missing from the literature cited	
NMFS		3.6.1.1, Marine Resource Investigations	HCD	<p>The EIS states "In 2006 seagrass surveys were conducted in the same project area as 1999 surveys (not including areas further south than ~1,000 feet south of the DCC) (DC&A 2006)."</p> <p>This sentence should be revised to state: In 2006 seagrass transects were placed in areas where seagrass had been previously documented in the 1999 surveys. Transects that did not contain seagrass in 1999 were not resurveyed in 2006. In addition, the 2006 survey did not include areas if the AIWW located more than ~1,000 feet south of the DCC (DC&A 2006).</p> <p>This distinction is important because it is unknown if any areas that were unvegetated in 1991 recruited seagrass in 2006. This is depicted in figure 2 in DCA 2006.</p>	
NMFS		3.6.1.1, Marine Resource Investigations	HCD	<p>In 2009, seagrass surveys were conducted in the same project area as 2006 surveys (not including areas further south than ~1,000 feet south of the DCC) (DC&A 2009; see Appendix D).</p> <p>This sentence should be revised to state: In 2009 seagrass transects were placed in areas where seagrass had been documented in the 2006 surveys (not including areas further south than ~1,000 feet south of the DCC) (DC&A 2006).</p>	
NMFS		3.6.1.1, Marine Resource Investigations	HCD	<p>If in 2006 and 2009, reconnaissance surveys were performed for the entire project area, the project area, survey approach, and survey conditions (visibility, etc.) should be described.</p> <p>Please add to the caption: (table from NMFS 2011, Appendix G)</p>	
NMFS		3.6.1.1, Table 8	HCD		

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	3.6.1.2, <i>Seagrass Species Biology and Ecology</i> and figure 43	HCD	Please add to the caption: (figure from NMFS 2011, Appendix G)	
NMFS	3.6.1.3, <i>Local Seagrass Biogeography</i> page 96 lines 34-35	HCD	Please change "NMFS EFH Assessment (Appendix H)" to "Characterization of Essential Fish Habitat in the Port Everglades Expansion Area" or (NMFS 2011). Also please list the accurate appendix, where referenced.	
NMFS	3.6.1.4, <i>Water Quality and Local Seagrasses</i> page 96, line 16	HCD	This line refers to NMFS 2011 as Appendix A, please list the accurate appendix, where referenced.	
NMFS	3.6.2, Hardbottom Communities	HCD	This section should be renamed to "Coral Reef" or "Hardbottom and Coral Reef". Several publications (see Reef Terminology section of our letter and Rohmann et. al 2005, in the journal "Coral Reefs") term the feature that is described in this section as "Coral Reef." Not naming it as such appears to be an attempt to avoid calling the feature a reef. Rohmann, S., Hayes, J., Newhall, R., Monaco, M., Grigg, R. 2005. The area of potential shallow-water tropical and subtropical coral ecosystems in the United States. <i>Coral Reefs</i> . 14 pages	
NMFS	3.6.2, Hardbottom Communities	HCD	The first paragraph in this section largely refers to what the coral reef system is not; NMFS recommends this section be revised to characterize the corals reefs in the project area. If CESA wants to point out differences between high latitude coral reefs and corals reefs to the south that should be accomplished in another section (not the introductory paragraph in the section that describes coral reefs).	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS		3.6.2, 3.6.2, Hardbottom Communities page 99, lines 8-9	HCD	<p>The characterization of nearshore hardbottom communities off southeast Florida does not include the best scientific information. In particular the statement "These hardbottom areas are comprised of exposed rock with a fine covering of sand" is out-dated and does not reflect the best available information on this habitat type (e.g., CSA 2009 – CESAJ served on the technical advisory team for the preparation of this report).</p> <p>Continental Shelf and Associates. 2009. Ecological Synthesis of Nearshore Hardbottom Habitats in Southeast Florida, 267 pages.</p> <p>Nearshore hardbottom habitats are generally describes as the hardbottom features in 0 to 4 meters water depth (CSA 2009). The portion of the EIS refers to shallow colonized pavement in the nearshore hardbottom as well, which is not accurate.</p> <p>"This habitat is very ephemeral in nature and the species associated with this habitat must be able to quickly recover from the stresses imposed by the environmental conditions." This is an overgeneralization and should be updated with the best available information as found in CSA 2009 (full reference provided in the preceding row).</p>	
NMFS		3.6.2, 3.6.2, Hardbottom Communities page 99, lines 7-13 Page 103-104	HCD	<p>For data quality purposes, the following statement should be followed by a citation or deleted: "These communities can be expected to recolonize these areas after future dredging events, as they have done so in the past"</p>	
NMFS		3.6.2, 3.6.2, Hardbottom Communities page 99, line 43	HCD	<p>Since this section is under revision, we do not see the value in providing line-by-line comments. However if the goal of this section is to provide a characterization of the coral reef habitats in the project area, we recommend CESAJ adopt a similar approach as in the seagrass section which includes use of relevant sections of NMFS 2011.</p>	
NMFS		3.6.2, 3.6.2, Hardbottom Communities page 101-103	HCD	<p>Regardless, this is an important component of the EIS and we recommend CESAJ coordinate this section with cooperating agencies for review prior to the public version of the EIS.</p>	

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	3.6.2, 3.6.2, Hardbottom Communities page 103 Lines 48-49	HCD	For data quality purposes, we recommend CESAJ incorporate more recent literature in the EIS. This section states: "These hardbottom communities have been characterized many times in the past (Dodge 1991; Seaman 1985)." Update literature can be found in NMFS 2011. All the references cited in NMFS 2011 were provided to CESAJ in June 2011.
NMFS	3.6.4, Essential Fish Habitat	HCD	The EFH section is incomplete and "under review". Since this section is under revision, we do not see the value in providing line-by-line comments. However if the goal of this section is to provide a characterization of the coral reef habitats in the project area, we recommend CESAJ adopt a similar approach as in the seagrass section which includes use of relevant sections of NMFS 2011.
NMFS	3.7.2.1, <i>Johnson's Seagrass</i> , page 109 line 23-26	HCD	Additionally, this is an important component of the EIS and we recommend CESAJ coordinate this section with NMFS for review prior to the public version of the EIS. The northernmost range of Johnson's seagrass has been extended to 21.5 km north of Sebastian Inlet (Vimstein and Hall 2009).
NMFS	3.10, Hazardous, Toxic, and Radioactive Waste, lines 4-5	HCD	Vimstein, R. W., and Hall, L. M. 2009. Northern range extension of the seagrasses <i>Halophila johnsonii</i> and <i>Halophila decipiens</i> along the east coast of Florida, USA. <i>Aquatic Botany</i> 90: 89-92. This section states: "Sediments sampled within the OEC, IFC, NTB, MTB, and STB have been tested and found suitable for ocean disposal." For data quality purposes, please provide citations from the studies and include the full reference in the literature cited section.
NMFS	3.17, Economics and Logistics, Section Economics and logistics	HCD	This section should be expanded in scope to include economic benefits that natural resources that would be negatively affected provide. Information from: Johns, G. M., Leeworthy, V. R., Bell, F. W. & Bonn, M. A. (2001) <i>Socioeconomic Study of Reefs in Southeast Florida</i> . Final Report. Hazen and Sawyer Environmental Engineers & Scientists Fonseca, M.S., W.J. Kenworthy, G. W. Thayer. 1998. Guidelines for the Conservation and Restoration of Seagrasses in the United States and Adjacent Waters. U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Coastal Ocean Office, 1315 East-West Highway, Silver Spring, Maryland 20910. 222 pp. Web: http://www.cop.noaa.gov . Fonseca, M., Kenworthy, J., Julius, B., Shuttler, S., and Fluke, S. 2000. Handbook of Ecological Restoration. Davy and Perrow, eds. Cambridge University Press. Chapter 7: Seagrasses, 23 pages

COMMENTS REVIEW MATRIX, *cont'd.*

NMFS	3.19 Navigation Safety	HCD	This section is under development. An evaluation of NOAA PORTS to increase navigation safety at the port should be included in this section.	
NMFS	4.1, Environmental Consequences	HCD	This section states "See section detailing effects to Essential Fish Habitat where "water column" is noted in order to review effects on surface waters."	
NMFS	4.3, Wetlands	HCD	It is unclear where this information is provided It is unclear how CESAJ determined 1.16 acres of mangrove would be dredged (direct impact). Also, the EIS does not quantify the indirect impacts to mangroves that would result from equilibration of the side slopes or sedimentation and turbidity. Please update this section accordingly.	
NMFS	4.3, Wetlands Page 142	HCD	Figure 51 depicts that the mangroves in the turning notch will be dredged. This contradicts information in the EIS stating that this component of the project has been eliminated.	
NMFS	4.7, Cumulative Impacts	HCD	This section presents a narrow review of cumulative impacts. Please add a summary table of habitat impacts by project and habitat type. Please include the habitat impacts for all of the activities that are referred to by reference as well.	
NMFS	4.7, Cumulative Impacts	HCD	CESAJ's conclusion on cumulative impacts, is not supported by any analysis. Please provide the analysis used to determine "USACE anticipates that any cumulative impacts due to past and future projects at the Port and within its vicinity are negligible and not significant."	

Attachment 2

Review of Severe Impacts to Coral Reef and Hardbottom in the Federal Channel
that Would Result from Expansion of Port Everglades
July 31, 2013

Prepared by:
Kurtis Gregg, NOAA Contractor
Brian Walker, PhD, Nova Southeastern University
Jocelyn Karazsia, NOAA National Marine Fisheries Service

Summary: NOAA's National Marine Fisheries Service (NMFS) and Nova Southeastern University characterized the coral reef impacts that would result from the Port Everglades Expansion Project and conclude 21.66 acres of coral reef located in the federal channel will be severely impacted by the planned expansion. This estimate of direct impacts is approximately 6.49 acres larger than the estimate in the draft Environmental Impact Statement (EIS) prepared by the U.S. Army Corps of Engineers (USACE). Coral reef communities in the channel would be directly impacted through: (1) removal by the dredge, (2) coral fragments and dredged material including rubble and sediments moving downslope or down current abrading and shearing coral reef organisms from the substrate, and (3) fractures in the reef framework, lithified coral and underlying rock destabilizing attachment of coral reef organisms. The latter two impacts create an unstable coral reef environment resulting in lower coral abundance and fewer large coral colonies. The steeply sloped, eastward facing spur-and-groove reef habitats are particularly at risk from the downslope movement of sediment and rubble. The draft EIS describes a tentatively selected plan that includes expanding the Outer Entrance Channel from the existing width of 500 feet to 800 feet and deepening the channel from approximately -42 feet Mean Low Water (MLW) to -57 feet MLW. USACE's estimate of direct impacts to coral reef habitats, approximately 15.17 acres, is limited to removal by the dredge and the draft EIS further concludes there will be no impacts to coral reef communities outside the dredged footprint. Figure 1 depicts the areas at-risk of fracture impacts, and it may be possible to minimize a portion of the 8.16 acres of severe impacts at Port Everglades by stabilizing the seafloor immediately following the dredging, however, such reef stabilization is not proposed in the draft EIS.

Introduction: Channel creation or widening may result in a total loss of coral reef organisms and structure (Walker et al. 2012; PBSJ 2008). Dredging impacts may include reef fracturing from static and dynamic loading during dredging activities (Maharaj 2001; PBSJ 2008); fractured material eroding during storms (NOAA 2002; Edwards and Gomez 2007); rubble or sediment moving downslope and shearing or burying coral reef habitats (Edwards and Gomez 2007; Collier et al. 2008); and chronic sedimentation. Unstabilized rubble can delay recovery of an injury area for decades or prevent recovery of impacts to corals altogether (Edwards and Gomez 2007). Gilliam and Moulding (2012) found the increased rubble at coral injury sites significantly lowered the number of stony coral species, the percent cover and density of stony corals, and the size of the largest coral colony present. The same study found increased coral rubble significantly lowered the biomass of sponges and the number of genera and percent cover for octocorals. While rubble may be suitable for coral recruitment, it is not suitable substrate for continued coral colony growth or reef development (Edwards and Gomez 2007; Gilliam and

Moulding 2012). Lastly, coral reef injury sites have lower rugosity, which is an important habitat parameter for finfish (Walker et al. 2009, Pittman and Brown 2011), with fish abundance and species richness higher on more rugose reefs.

Three approaches have been used to quantify and characterize the direct impacts that would occur to coral reef habitat from expanding the Port Everglades federal navigation channel. Each approach is briefly described below and results provided in Table 1:

- Walker et al. (2008) quantifies impacts to the Outer Reef and the Middle Reef using available habitat maps and the proposed channel expansion area. This analysis assumes that all coral reef and hardbottom habitats within the channel expansion footprint, regardless of depth, would be directly impacted.
- The draft EIS concludes only the coral reef habitats located within the federal channel expansion area and shallower than -57 feet MLW would be directly impacted.
- This report concludes the coral reef habitats located within federal channel and in water depths shallower than -57 feet MLW would be directly impacted by the dredge removing the corals and underlying substrate. In addition to these impacts, the coral reef habitats deeper than -57 feet MLW would also be adversely affected by coral fragments and dredged sediments moving downslope or down current shearing coral reef organisms and by fractures in the rock and lithified coral propagating into the reef framework destabilizing the attachment of coral reef organisms.

Methods: Coral reef habitats seaward of the Inner Reef were examined in a GIS. GIS layers used in this assessment include:

- impact maps provided by the USACE
- bathymetry provided by Dr. Brian Walker (Nova Southeastern University)
- benthic habitat maps provided by Nova Southeastern University
- LIDAR digital elevation model surface provided by Nova Southeastern University
- hill-shaded LIDAR images provided by Nova Southeastern University

Coral reef habitats were delineated by Dr. Brian Walker using these GIS layers. Habitat classifications are based on Walker et al. (2008), which is based on the NOAA hierarchical classification scheme used in other NOAA mapping efforts in the Atlantic/Caribbean and described in Kendall et al. (2001) and Kendall et al. (2006).

Results: Two linear reefs are located within the assessment area: the Linear Reef-Middle and Linear Reef-Outer (Figures 1 and 2). Linear-Reef Middle is composed of one habitat type, referred to as linear reef. The Linear Reef-Outer is composed of colonized pavement, linear reef, and spur-and-groove habitats (Figure 2). In addition, 0.498 acres of previously undocumented coral reef or hardbottom habitat occurs west of this reef and appears to be a western extension of the colonized pavement (Figure 2). Each of these three areas is discussed below in greater detail.

Linear Reef-Middle located in water depth greater than -57 feet MLW: This habitat consists of the eastern side of the Linear Reef-Middle habitat from the proposed dredged depth of -57 feet to approximately -67 feet MLW at the eastern edge and includes 2.144 acres of steeply sloped reef face habitat (ranging from near vertical to approximately 3:1 slope) downslope from the proposed dredged channel (Table 4). NMFS characterizes the physical impact that would occur

as fractured reef framework, substrate scarring, erosion of fractured reef framework, increased rubble, displacement and shearing of biota, rubble burial or partial burial of coral reef, rubble and sediment movement downslope, rubble abrasion of coral reef, sedimentation (Table 2). NMFS also expects that fish assemblages would negatively affected by turbidity and exhibit lower species richness and lower abundance. In addition, NMFS expects reduced number of stony corals, reduced stony coral percent cover, reduced largest coral colony size, reduced sponge biomass, reduced octocoral percent cover, reduced octocoral genera, and adverse effects to corals from increased sedimentation and turbidity. Furthermore, the landscape scale negative impacts that would occur include habitat fragmentation, reduced edge habitat, and reduced topographic complexity.

Linear Reef-Outer, Colonized Pavement greater than -57 feet MLW: This habitat is located on the western side of the Linear Reef-Outer habitat, from -57 feet MLW to approximately -64 feet MLW and includes 1.582 acres of moderately sloped (greater than 3:1) reef habitat (Table 4). The proposed elevation of -57 feet MLW will be similar to the depth of the adjacent unconsolidated sediments, which will result in chronic sedimentation impacts to reef habitats due natural sand transport. NMFS expects the impacts to be the same for Linear-Reef Middle (Table 2).

Linear Reef-Outer, Spur and Groove greater than -57 feet MLW: The eastern face of the Linear Reef-Outer spur-and-groove habitat includes 3.914 acres of steeply sloped (the reef generally ranges from near vertical to approximately 3:1, high-complexity, coral reef habitat downslope of the limits of dredging (Table 4). This habitat slopes steeply from the existing elevation of -45 feet MLW to approximately -76 feet MLW. NMFS expects the impacts in this area to be the same as in other linear reef areas (Table 2).

Previously unmapped hardbottom/boulders in depths greater than -57 feet MLW: Previous mapping was based on a one-acre minimum mapping unit, thus patches of coral reef habitat smaller than one acre were not delineated. The current effort used a smaller minimum mapping unit and found 0.087 acres of hardbottom/boulders adjacent (east) of the Linear Reef-Middle (Table 3), and a 0.498-acre western extension of Linear Reef-Outer (Table 4) within areas previously mapped as sand. Although in situ confirmation of these areas is lacking, topographic signatures in LIDAR-based bathymetry indicate that these areas are likely hardbottom or boulders that include coral reef communities.

Discussion: NMFS expects severe impacts to 21.66 acres of coral reef habitat from expansion of the Port Everglades Outer Entrance Channel, 8.16 acres of the impacts will be to coral reef habitats deeper than -57 feet MLW, which are not included in the draft EIS (Tables 3 and 4). The steeply sloped, eastward-facing reef spur-and-groove habitats are particularly at risk due to the downslope movement of sediment and rubble. While these 8.16 acres of impact are outside the dredging footprint, the impacts are nonetheless severe. The physical and biological impacts to this habitat type include but are not limited to fractured reef framework, increased rubble, reduced topographic complexity, fish assemblage lower species richness and abundance, reduced number of stony coral species, and reduced stony coral and octocoral percent cover (Table 2). The final EIS should include these areas as direct impacts. Tables 3 and 4 also include the addition of 0.59 acres of previously unmapped hardbottom or boulder habitats and correction of

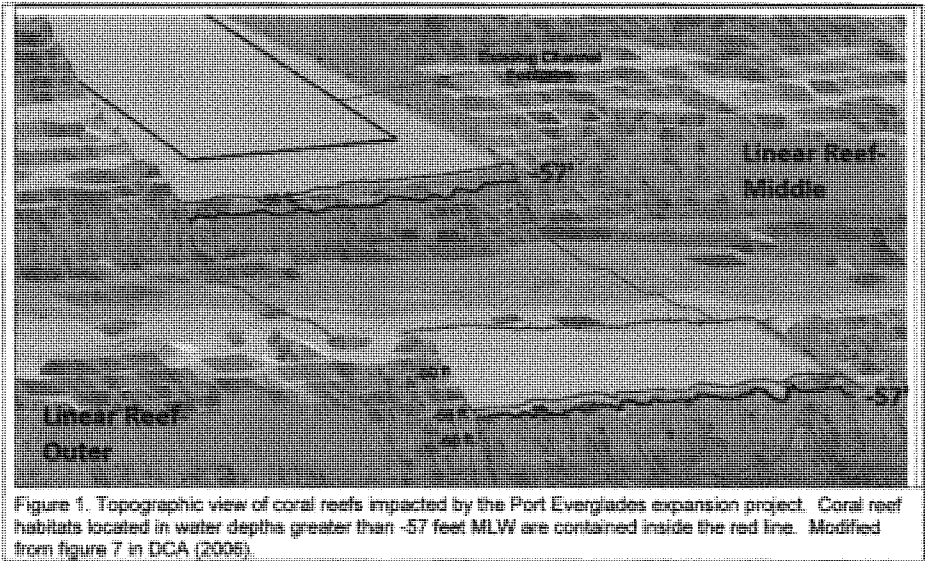
inaccurate estimates of impact areas to mapped habitats. In addition to these habitat impacts, NMFS expects fish assemblages to become significantly smaller and species richness to decline due to the loss of topographic complexity resulting from the project. Further, the increased width of the proposed channel will extend the area of reduced habitat complexity and reduced cover for reef fish, resulting in greater habitat fragmentation (Caddy 2008). The reduced cover provided to fish as a result of dredging the habitat could result in increased predation on managed species and other motile organisms that cross the expanded channel.

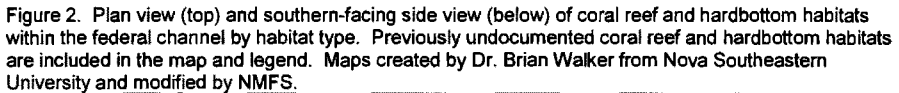
Chronic impacts to coral reefs from sedimentation and turbidity after dredging can have a greater impact than acute stress (Rogers 1979). Indirect impacts from the Port Everglades Expansion project are estimated to be 117.49 acres, based on an unverified assumption that sedimentation and turbidity impacts will be limited to a 150 meter mixing zone around the channel. Research has shown the vicinity of Port Everglades has a very complex and dynamic hydrologic regime (Stamates et al. 2013). Dredging activities in the vicinity of Port Everglades resulted in a turbidity plume greatly exceeding the 150 meter mixing zone that has been used as the basis for calculating indirect impacts in the USACE assessment (Figure 3). Indirect impacts to coral reefs differ from direct impacts in temporal and spatial scales but may be as severe as direct impacts. Relying on an unverified assumption that sedimentation and turbidity impacts only occur within the 150 meter mixing zone is expected to under estimate the extent and magnitude of indirect impacts from the project.

Recommendations:

1. USACE should update the EIS and EFH Assessment for the Port Everglades Expansion Project to reflect 21.66 acres of direct impacts to coral reef located in the federal channel.
2. Indirect impacts should be examined using GIS information and hydrographic modeling, with a supporting literature review, to determine the extent and magnitude of indirect impacts.
3. The compensatory mitigation plan should describe how direct impacts of 21.66 acres and an as yet undetermined amount of indirect impacts to coral reef habitats would be fully offset.
4. USACE should modify the dredging plan to include, as an impact minimization measure, substrate stabilization to reduce the amount of coral reef habitat adversely affected by coral fragments and dredged rubble and sediments moving downslope or down current, abrading and shearing coral reef organisms and by fractures in the reef framework, lithified coral and underlying rock destabilizing the attachment of coral reef organisms.

Attachment 2





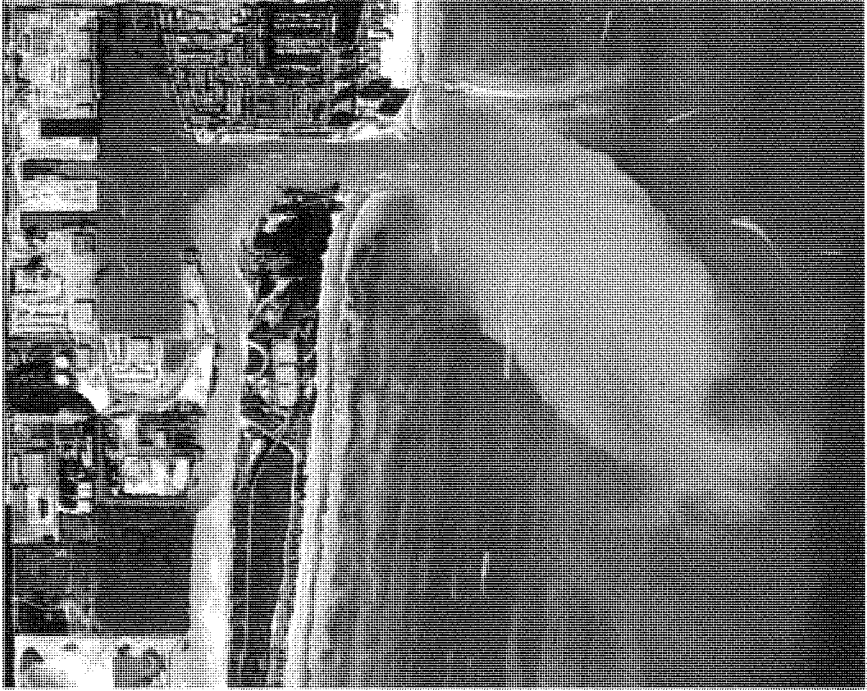


Figure 3. Dredging operations in at Port Everglades in 1981 (top) and 2013 (bottom). Sources: Stamates et al. 2013 (top) and Dr. Brian Walker, Nova Southeastern University (bottom). Both photos show turbidity plumes in excess of 150 meters from the channel.

Table 1: Results from three approaches to describe the direct impacts that would occur to coral reef habitat within the federal channel from Port Everglades expansion.

Study Characterization	Direct Impacts	Direct impacts deeper than -57 feet MLW
Walker et al. (2008)	20.34 acres	Included in direct impact calculations
USACE (2013)	15.34 acres	Included within indirect impacts injury category within and 150 meters outside federal channel
Present Study	15.56 acres	6.11 acres

Table 2: Expected impacts to coral reef and hardbottom habitat types in water depths greater than -57 feet MLW and previously unmapped habitats in the Port Everglades federal channel.

Category of impact expected	Linear Reef Middle >57 ft MLW	Linear Reef Outer, Colonized Pavement >57 ft MLW	Linear Reef Outer, Spur and Groove >57 ft MLW	Previously unmapped hardbottom >57 ft MLW	Previously unmapped hardbottom <57 ft MLW
Physical Impacts					
fractured reef framework	X	X	X		
substrate scarring	X	X	X	X	X
erosion of fractured reef framework	X	X	X		
increased rubble	X	X	X	X	X
displacement and shearing of biota	X	X	X	X	X
rubble burial or partial burial of coral reef	X	X	X	X	X
rubble and sediment movement down slope	X	X	X	X	X
rubble abrasion of coral reef	X	X	X	X	X
sedimentation	X	X	X	X	X
Biological Impacts - Fish					
fish assemblage lower species richness	X	X	X	X	X
fish assemblage lower abundance	X	X	X	X	X
turbidity	X	X	X	X	X
Biological Impacts - Benthic					
reduced number of stony corals	X	X	X	X	X
reduced stony coral percent cover	X	X	X	X	X
reduced stony coral density	X	X	X	X	X
reduced largest colony size	X	X	X	X	X
reduced sponge biomass	X	X	X	X	X
reduced octocoral percent cover	X	X	X	X	X
reduced octocoral Genera	X	X	X	X	X
sedimentation	X	X	X	X	X
turbidity	X	X	X	X	X
Ecological Impacts - Landscape					
habitat fragmentation	X	X	X		
reduced "edge" habitat	X	X	X		X
reduced topographic complexity	X	X	X	X	X

Table 3: Coral reef impacts within the federal channel by habitat type in water depths less or equal to -57 MLW. Table modified from Walker et al. (2008) and Karazsia and Wilber (2011). Updates to impact estimates from previous analyses resulted from incorporation of higher resolution bathymetry and improved GIS analyses.

Habitats within the Federal channel	Type	Modifiers	Area (ft ²)	Acres (ac)	Type ac
Coral reef and Colonized hardbottom	Outer Reef	Spur and Groove	16,800	0.386	8.764 ¹
		Linear Reef-Outer	179,395	4.118	
		Colonized Pavement-Deep	185,560	4.260	
	Middle Reef	Linear Reef-Middle	202,388	4.646	4.733 ²
		Previously Unmapped Hardbottom/Boulders	4,102	0.087	
Inlet Channel Floor	Inlet Channel Floor	Inlet Channel Floor	2,341,644	28.59	53.76
Soft Bottom	Sand	Sand	1,228,497	28.20	28.20

¹ USACE (2013) estimates 10.10 ac; Walker et al. (2008) estimates 13.54 ac

² USACE (2013) estimates 5.07 ac; Walker et al. (2008) estimates 6.80 ac

Table 4: Coral reef impacts within the federal channel by habitat type in water depths greater than -57 MLW.

Habitats within the federal channel deeper than -57 MLW	Type	Modifiers	Area (ft ²)	Acres (ac)	Type (ac)
Coral reef and Colonized hardbottom	Outer Reef	Spur and Groove	170,481	3.914	6.016
		Colonized Pavement	68,927	1.582	
		Linear Reef - Outer	947	0.022	
		Previously Unmapped Hardbottom/Boulders	21,598	0.498	
	Middle Reef	Linear Reef-Middle	93,398	2.144	2.144

Literature Cited

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Attachment 3

Hardbottom and Reef Community Mapping

The EIS does a poor job outlining exactly what was done to determine the areas of impacts to the reef communities. It mentions that Dial Cordy mapped the area using video cameras and benthic assessments, however no mapping protocols were provided to determine how the mapping was performed. Almost all of the figures showing the reefs (Figs. 6, 51, 73, and 74) depict polygons created by Nova Southeastern University for FWC and FL DEP without citation. Only Figure 59 in the EIS cites the habitat maps. No discussion is provided on how these polygons were drawn or the criteria and purpose behind them.

All mapping efforts are contingent upon their own objectives and scope. The results directly depend on the methodology, scale, and classification scheme developed to meet the mapping objectives. The maps used by the USACE created by NSU were developed for a county-wide mapping of benthic habitats. Due to the scale of mapping reefs county-wide and budgetary constraints, there were compromises made in the map scale. Ideally maps would be created at the finest scale possible. Limits were placed on the Broward mapping effort to draw polygons at a 1:3000 scale with a minimum mapping unit of 1 acre. This has implications on the results. The limitation on the polygon scale means that edges won't be precise at scales finer than 1:3000. This effects the amount of area calculated from the polygons. Because it was not economically feasible (outside of the budget) to trace every intricate small feature at the finest scale, limitations of the minimum mapping unit (polygon size) were set to 1 acre. The limit on minimum mapping unit means that features less than 1 acre were not included in the map. This also effects the amount of habitat area calculated by the polygons. Finally the classification was designed around what habitats could be depicted at the scale and minimum mapping unit using the remote sensing datasets at hand. The primary remote sensing dataset was lidar from 2001 collected by Broward County. This was supplemented by aerial photography where possible, mostly in the nearshore. Therefore broader classifications were used to depict the environment than what might be used with different technology or on a project of smaller scale.

In the mid-2000s, members of the Port Everglades Research Group (FWC and NSU) recommended the offshore reefs within the Port Everglades project footprint should be mapped at a finer scale. Apparently the USACE did not take this advice into consideration as it was not reported in Appendix E3, the Reef Group Recommendations Report. Although the NSU county-wide maps met their objectives well and were measured to be accurate at a large scale, a finer-scale map would have produced better results to determine impacts around Port Everglades. For example, Broward County is planning a sand bypass project on the north side of Port Everglades. Although the NSU maps were available, the county decided to perform a finer scale mapping for the project area. This resulted in a much finer-scale mapping effort with a scale and classification fitted to the project objectives. Figure 1 shows a comparison of these results. The sand bypass polygons are the black outlines on top of the county-wide colored map. The edges of features changed significantly as well as habitat classifications and polygon sizes. These differences were due to a change in the scope of the mapping effort and the finer-scale mapping criteria used. A similar result would be expected from a finer-scale mapping around Port Everglades.

Attachment 3

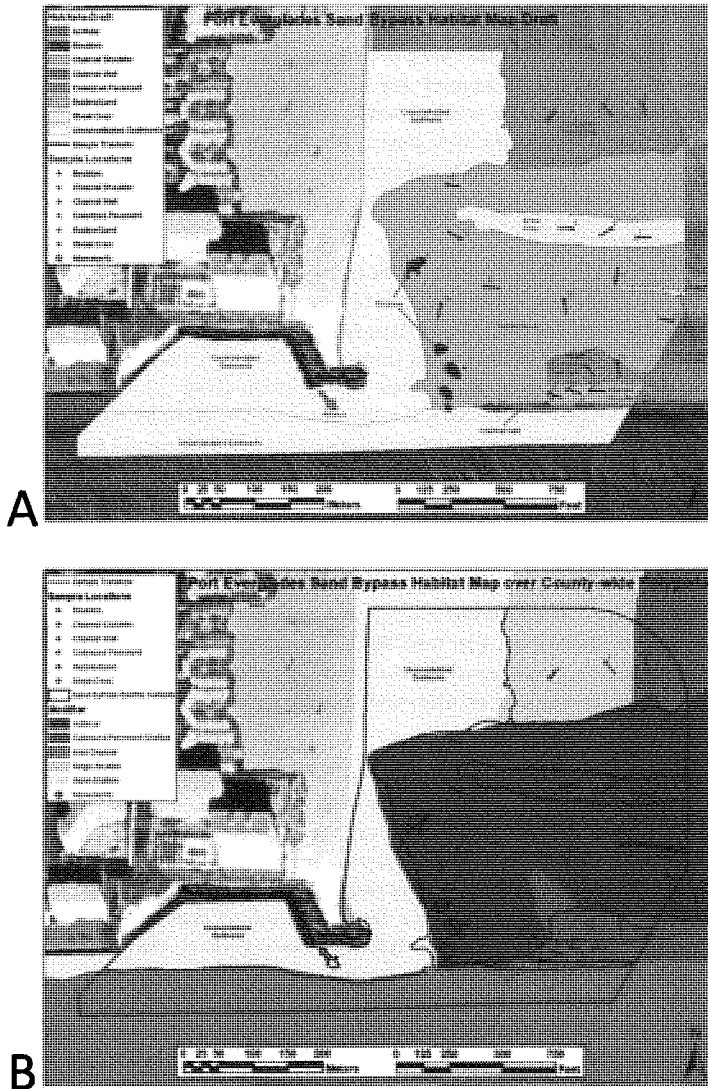


Figure 1. A. Final fine-scale sand bypass map. B. Sand bypass map overlain on the larger-scale county-wide NSU map. The finer-scale map shows more defined habitat edges, smaller features, and a classification scheme designed for the specific area of interest. It is likely that a finer-scale map of Port Everglades project would likely benefit in a similar way.

Attachment 3

Benthic Habitat Impacts

As stated above, the county-wide habitats are not a precise representation of the Port Everglades project footprint and may not depict the habitats at the most appropriate scale. However, we use them here for comparison to the USACE methodology and results to determine impact areas for mitigation.

The EIS does not do a good job explaining how benthic habitat impact areas were determined. The best we can tell, the county-wide polygons were clipped to depth contours in the lidar data and the area shallower was summed for direct impacts. Proposed alternative 2E (TSP) has several areas listed for impacts based on the selected depth. Although this was done for 5 depths we focused here on the -59 as it also pertains to the Port Everglades EIS Appendix 2E – Mitigation. Much of the following discussion may likely apply to the impacts at other depths as well.

Appendix 2E did not explain the methodology behind calculating the impacts areas for mitigation well. One confusing aspect was on page 12 it states “Scenario 2, i.e., in the event of no cable and anchor impacts, would result in 16.64 acres of impact to the middle and outer reef combined, of the project is dredged to the recommended alternative – 57 feet total dredge depth ($50+7+1+1 =$ authorized depth (ft) + required underkeel clearance + required overdredge (ft) + allowable overdredge (ft)).” This is confusing because, aside from grammatical errors, it states -57 ft depth yet parenthetically adds up to -59. We assume -59 to be the appropriate contour to allow for comparable results.

Before evaluating the habitat areas for direct impact, mapping data were inspected to see if all habitats were captured in the county-wide NSU maps. In 2008, Broward County conducted a repeat lidar survey with higher resolution and better processing techniques. These data depicted the seafloor better than the 2001 data. A visual inspection of these data showed that several apparent hardbottom features were not included in the original 2004 NSU maps. It was also apparent that some of the habitat edges needed adjusting due to a difference in map scale. New polygons were created to delineate the new features evident in the lidar data. Since this was not a funded effort, no groundtruthing was performed on these areas, however the researcher performing the interpretation (Dr. Brian Walker) has over 10 years’ experience translating bathymetric data into benthic habitats throughout southeast Florida with greater than 90% accuracy depicting hardbottom habitats. The areas are labeled “Previously Unmapped Hardbottom/Boulder” in the figures. Next the -59 ft contour was created from the 2008 lidar digital elevation model to use for the polygon edge. Separate non-overlapping hardbottom habitat polygons were depicted above and below this line and areas were calculated for each. Figure 2 depicts the final map of direct impacts within the channel including the previously unmapped areas.

Next, the potential direct impacts from the cutterhead dredge anchoring operation was determined by clipping the anchor impact areas to the updated map polygons and calculating the acreage of each habitat (Figure 3). This was not limited to certain depths like the previous analysis.

Finally, the indirect impacts were calculated for a scenario with anchoring (Figure 4) and without anchoring (Figure 5) in a similar manner.

Attachment 3

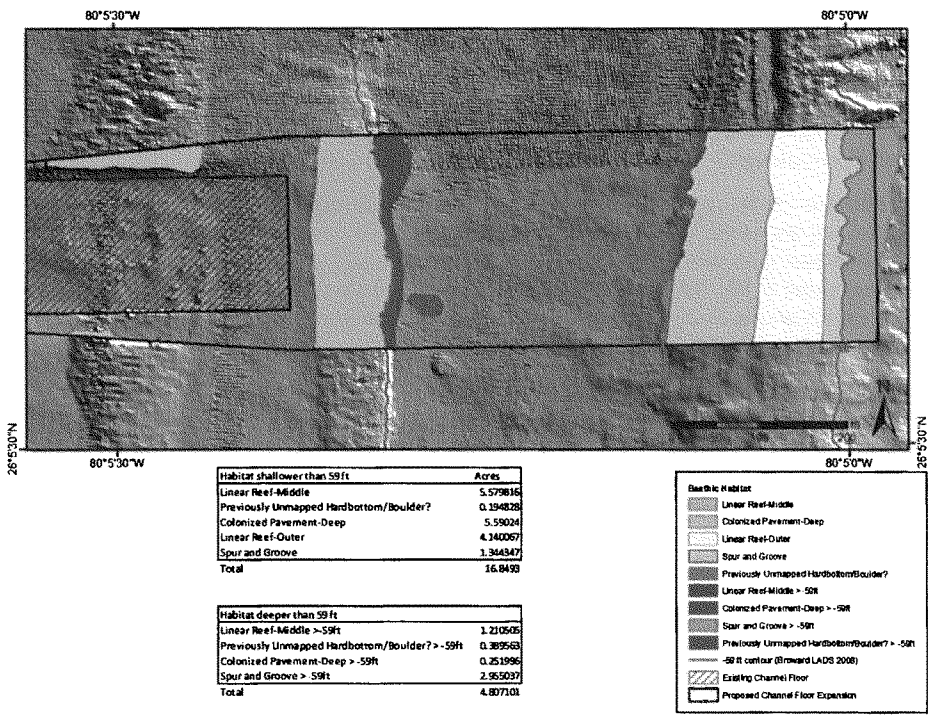


Figure 2. Updated habitat map with refined edges and previously unmapped hardbottom features within the proposed channel expansion area depicted. The red line is the 2008 lidar -59 ft contour. Areas are tabulated for all habitats shallower than -59 ft (top) and deeper than -59 ft (bottom).

Attachment 3

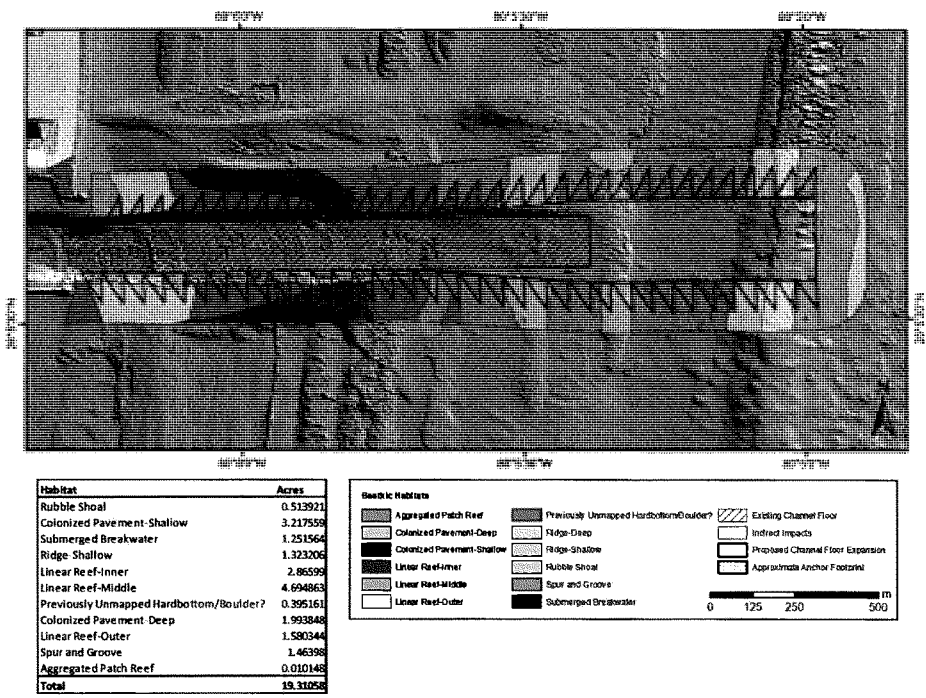


Figure 3. Updated map showing the potential anchoring impacts from a cutterhead dredge operation (habitats within triangles only). This map includes refined edges and previously unmapped hardbottom.

Attachment 3

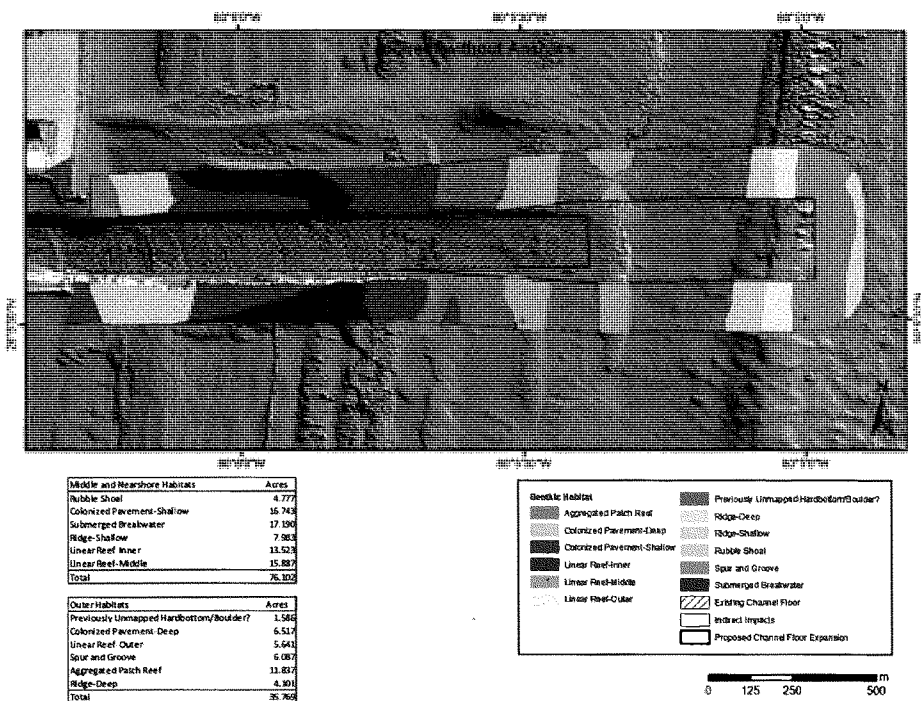


Figure 4. Updated map showing the potential indirect impacts dredge operation for scenario without anchoring. This map includes refined edges and previously unmapped hardbottom.

Attachment 3

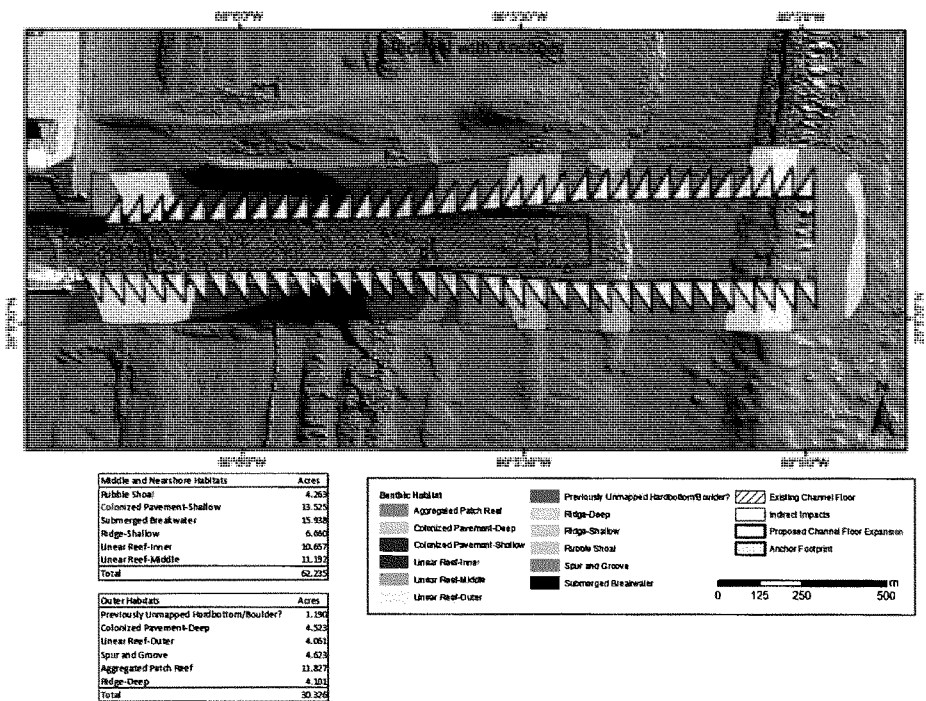


Figure 5. Updated map showing the potential indirect impacts from a cutterhead dredge operation with anchoring (habitats outside of triangles only). This map includes refined edges and previously unmapped hardbottom.

The results of our analysis differ from the EIS. Direct impacts in the channel shallower than -59 ft were 16.85 acres as compared to 16.64 acres reported in the EIS Scenario 1. Anchoring would create an additional 19.31 acres of impacts for a total of 36.16 acres for Scenario 2. The EIS reports 33.12 acres of impact for Scenario 2 which is 3.04 acres less.

The EIS reported Indirect impacts to the Outer Reef in Scenario 1 as 32.65 ac while we calculated 30.33 ac. We also found Scenario 1 Middle Reef impacts (62.24 ac) to be lower than reported in the EIS (63.46 ac). For Scenario 2 the EIS reported indirect impacts for Outer and Middle reefs as 37.69 ac and 75.55 respectively, while our analyses found 35.77 ac and 76.1 ac respectively.

Data Integrity

The habitat mapping and impact area determination for the EIS and the appendices was not conducted consistently or properly. Reported impact areas were not consistent in the EIS and supporting documents which brings into question the reliability of the reported impacts and the mitigation

Attachment 3

estimations based on those numbers. The EIS and Appendix 2E use the -59 ft contour as the worst case scenario which are split into 2 depending on if anchoring will occur. On p. 177 and Table 19 of the EIS, it is reported that 16.66 acres of reef will be removed. Appendix 2E reports that 16.64 acres will be removed (p.12). Furthermore Table 1 Scenario 1 direct impacts total 16.43 acres. The HEA tables report 16.64. Given three values for the same impact does not instill much confidence that the correct value is being used. Should the HEA tables have used 16.66 acres?

Some of the discrepancies may have been from inexperienced GIS technicians. This also supports the idea that the habitat impacts were not calculated properly. After obtaining a polygon of the impacts from the USACE in Feb 2013 named “plan_2e_resource_impacts_sp83e.shp”, it was noted that polygons contained overlaps and gaps (Figure 6). These errors would propagate errors in the area calculations and subsequent HEA analyses and proposed mitigation amounts. There does not appear to have been any quality control steps taken to ensure data integrity.

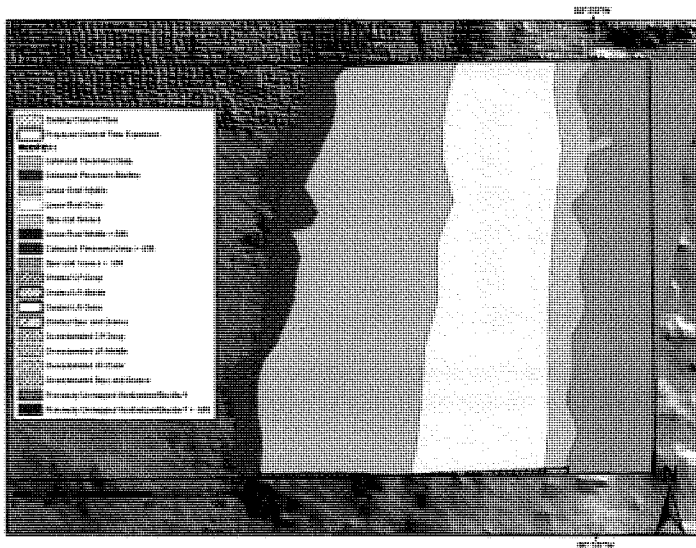


Figure 6. Map of outer reef polygons supplied by USACE in Feb 2013 showing sloppy polygon delineation with overlaps and gaps.

Cumulative Impacts and Historic context of PE hardbottom communities

The draft EIS minimizes previous losses of hardbottom due to port construction activities by equating the proposed impacted amount (which is wrong according to Appendix 2E) to a percent of all the hardbottom in Broward County. Equating it to a percent makes the impacts seem much less. What's more relevant is the actual amount lost. Walker et al. (2012) published a peer-reviewed paper on the estimated historical losses of port and shipping activities in SE FL. They estimated that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef due to improper

Attachment 3

dumping of spoil material. Using county-wide mean coral density (2.6 m^{-2}) and percent cover (3.75%), historically PE development has impacted 6,149,000 corals equating to 180 acres of live tissue area. Using these same numbers, the direct impacts for scenario 1 will impact 380,000 corals with 1.36 acres of live cover and scenario 2 will impact 177,000 corals with 0.63 acres of live cover.

Furthermore the EIS does not describe any cumulative impacts for hardbottom. Although the effect of impacting 6 million corals is difficult to measure, it surely must've had some impact on surrounding communities. In addition, the burial of 178 acres of Outer Reef due to improper spoil disposal had a lasting effect on the system. This spoil remains in place today where rocks of all sizes are piled on the reef. These likely shift during high energy events and continually impact the local community. This is why the communities in the Dial Cordy 2009 benthic assessment are lower than the controls at the previously impacted sites.

Walker, B. K., Gilliam, D. S., Dodge, R. E., & Walczak, J. (2012). *Dredging and shipping impacts on southeast Florida coral reefs*. Paper presented at the Proceedings of the 12th International Coral Reef Symposium, 19A Human impacts on coral reefs: general session, Cairns, Australia, 9-13 July 2012.

Attachment 4

July 21, 2013

Dear Tom and Jocelyn,

I've revised my comments to NOAA based on an analysis of the Appendix E2 Cost Analysis document of the DEIS that I did not have previously. Please disregard prior comments. The attached is still a working draft and may change based on the meeting in the coming week, but I think are pretty near final.

Best

Dick

draft

Comments for NOAA's consideration for inclusion in their review of the ACE DEIS on:

DEIS Appendix E: Port Everglades Navigation Improvements- Draft Comprehensive Mitigation Plan and Incremental Cost Analysis

And

DEIS Appendix E2: Mitigation Requirements Analysis for Hardbottom Resources Associated with Port Everglades Harbor Navigation Improvements

Comment Summary:

The DEIS gives details of the ACE's decision on extent of impact (direct and indirect) from dredging, and using their "modified" Habitat Equivalency Analysis (HEA), the type of and amount of the ACE chosen mitigation (boulders).

- The ACE uses incorrect amounts (areas) of impact, including by neglecting areas that will be directly impacted below the 57' dredging depth.
- The ACE uses an inappropriate 0% discount rate in its "modified" HEA. The HEA is an economic model and not intended to be used with a zero discount rate.
- The ACE choice of mitigation is boulders with coral transplants. These will not provide services upon maturity equivalent to those of the natural reef. The ACE has incorrectly assumed they will.
- The HEA inputs and results in Appendix E2 and not the same as those of the Cost Analysis.
- Many of the DEIS HEA input parameters used by the ACE are not supported by the best available science.

Attachment 4

- The inputs chosen by the ACE for their HEAs underestimate amount of mitigation required.
- An Alternate HEA has been developed as part of these comments using: corrected direct impact areas for the Outer and Middle Reefs to include the area below 57'; 3% discount rate; and corrected equivalence that boulders upon maturity reach 50% of services of the natural reef.
- The ACE DEIS HEA for Scenario 2 in the DEIS Appendix E Cost Analysis requires 32 acres less mitigation than the more correct Alternate HEA.
- Accordingly ACE project mitigation costs are significantly underestimated by using the underestimated mitigation amount.
- Table 9 of the Cost estimate there is no justification given for using a much small \$ amount for cost per acre of boulders with transplants.
- The ACE plan lacks input from the ACE's independent technical review performed by Battelle
- The NOAA recommended mitigation program is scientifically valid and preferred.
- The NOAA recommended mitigation program is more cost efficient than the ACE version, had ACE calculated their HEA with correct inputs.
- NOAA should be given responsibility for impact analysis, determination of mitigation type and amount, and implementation of the resultant program.

Introduction

The entire DEIS, including the Mitigation/HEA Appendix E2, and the Mitigation Cost Analysis is extensive and complex. It is not possible to provide a complete analysis in the short comment period allowed.

The comments here will review aspects of the ACE impacts and mitigation findings, identify concerns, recalculate the HEA to show an example of appropriate amount of the ACE mitigation type using more proper inputs, and discuss other issues.

ACE DEIS Impact & Mitigation:

The ACE DEIS in Appendix E2 presents results (for -57' dredging) for 5 categories of impact:

- Direct removal of Outer and Middle reef/hardbottom,
- Direct impact from placement of anchors and cables
- Direct impact to the channel wall
- Indirect effects of sedimentation and turbidity to the Middle Reefs.
- Indirect effects of sedimentation and turbidity to the Outer Reefs.

The results are framed in two scenarios. The scenarios are identical with the exception that Scenario 1 includes an estimate of direct impacts from Anchor and Cables while Scenario 2 does not include Anchor/Cable impacts. This is because the ACE states they do not yet know which

Attachment 4

type of dredge will be used and the type of dredge will affect the degree of Anchor and Cable image. Scenario 1 is stated to be the worst-case effects and Scenario 2 is the least case effects for this category of injury.

Only results for Scenario 2 are presented in the ACE DEIS Appendix E Cost Analysis and Direct impact from Anchors and Cables are omitted. The Cost Analysis uses different HEA assumptions for the Direct removal impact.

The ACE states that mitigation for only the direct impacts on the Outer and Middle reef will be conducted initially. Mitigation for other impacts (Anchor and Cable direct and other impacts from sedimentation/turbidity) will be conducted after a post-hoc survey is accomplished to quantify that impact.

The comments to follow a detailed discussion of results of the DEIS Appendix E Cost Analysis Scenario 2 four categories of Impact in Scenario 2: direct impact to the Outer and Middle Reefs, Direct to Mid Channel Wall Impacts, Indirect Outer reef impacts and Indirect impacts all other habitats.

Scenario 1 potential direct Impact from Anchors and Cables while not included in the DEIS Cost Analysis will also be discussed.

Habitat Equivalency Analysis (HEA) to Determine Amount of Mitigation.

There are many parameters that need to be included in an HEA to best determine the amount of compensation necessary. The following table provides the HEA parameters and their values used for the ACE DEIS HEA (of Appendix E Cost Analysis) and for the Alternate HEA calculated for these comments.

Nearly all ACE parameter values are used in the two HEAs. There are three that change in the Alternate HEA. These are highlighted in Yellow.

TABLE 1

INJURY: Direct to Mid Outer Reefs	HEA Input
Pre-injury service level	100%
Degree of service lost of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	15%
Injury recovery time to equilibrium (years)	50
COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%

Attachment 4

Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	30y 0%-100%, then 20y at 100%
COMMON to INJURY & COMPENSATORY	

INJURY: Direct to Channel Wall	HEA Input
Pre-injury service level	100%
Degree of service lost of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	95%
Injury recovery time to equilibrium (years)	26
COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%
Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	26

INJURY: Indirect Outer and All Other Habitats	HEA Input
Pre-injury service level	100%
Degree of service lost of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	98%
Injury recovery time to equilibrium (years)	3
COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%
Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	50

COMMON Parameters to INJURY & COMPENSATORY	HEA Input
# of injured area units	ACE, NOAA
Date of Injury/ Date of Compensatory Action	2012
Discount rate per time unit	0%, 3%
Shape of recovery trajectory/ trajectory to equilibrium =	Linear
Value-injured/value restored= 1/	1., .50
End of HEA Calculations	Non-In perpetuity, i.e, to times shown above

The only parameter values that are different between the ACE HEA and the Alternate HEA are the:

- Extent of impact

Attachment 4

- Discount Rate
- Equivalence of the impact area (natural reef) to the compensatory action (the boulders).

Other values for other HEA parameters should be considered and will be discussed later.

Amount of Impact

The ACE as discussed by NOAA and others has used an incorrect amount of acreage impact for Middle and Outer Direct Impact (and for potential Anchor/Cable impact). The ACE only considers the direct impact amount ABOVE 57 depth. Nevertheless, habitat will be destroyed below 57' and needs to be included. For Middle and Outer Reefs there are significant deeper than 57' reef portions that will be directly affected by dredging generated rubble and subsequent rubble mobility. NOAA provides a cogent analysis that the reef areas below 57' should be treated as direct injury.

The ACE has determined the amount of Outer and Middle reef area to be destroyed above 57' to be 15.17 acres. NOAA has determined that impact to the Middle and Outer reefs when taking into account the amount of affected reef area below 57' is a total of 21.65 acres. The corrected acreage impacts have an increase of over 5 acres in direct impact to Middle and Outer Reefs.

Discount Rate

Use of 0% Discount Rate

The DEIS states that by law the ACE is permitted to only use a 0% discount rate in their HEA calculations.

However, page 29 of the DEIS Appendix E2 has the following statement:

"As previously stated, Under Office of Management and Budget Circulars A-4 and A-94 (Regulatory Analysis and Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, respectively), when federal agencies are determining costs and benefits of a federal water resources development project, no discounting should occur (emphasis added). Specifically Circular A-94 states "Specifically exempted from the scope of this Circular are decisions concerning water resource projects (guidance for which is the approved Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies." The Port Everglades Feasibility Study, and all of the components of that study, falls under the aforementioned water resource principles and guidelines."

The statement seems to clearly indicate that the current project under consideration is exempt from the "no discounting" rule. This would mean discounting is permissible. Review of

Attachment 4

circulars A-94 and A-4 does not seem to require the Corps use a 0% discount rate. In fact the circulars discuss the use of a variety of non-zero discount rates.

The HEA method was designed to be used with a finite discount rate. The use of a finite discount rate is discussed in any HEA explanation in the literature. A good example is the document by Ray (Ray, G. L. 2007. Habitat equivalency analysis: A potential tool for estimating environmental benefits. EMRRP Technical Notes Collection (ERDC TN-EMRRP-EI-02). Vicksburg, MS: U.S. Army Engineer Research and Development Center). The explanation clearly cites the HEA's use of and NOAA's rationale for a finite discount rate.

The mitigation document (DEIS Appendix E2) in fact also explains the need for using a finite discount rate on page 2: *"Therefore, the quantities of ecological services occurring at different times are not valued on an equivalent basis and must be adjusted before they can be compared in a meaningful way. This adjustment process, known as discounting, permits one to examine quantities occurring at different times on a comparable basis."*

Use of 3% Discount Rate

It is common practice to use a 3% Discount Rate (DR) in an HEA. NOAA (and others) recommends this amount in published literature. The HEA prepared of the DEIS does not utilize a discount rate (more properly it uses a 0% discount rate) for the calculations. The ACE refers to their method as the "modified HEA". Use of a 0% Discount Rate will provide a lower amount of mitigation in comparison to results using a Discount Rate above 0%.

The Alternate HEA presented below uses a 3% Discount Rate as recommended by NOAA.

It is noted that the ACE uses a Discount Rate of 3.75% in their Economic Analysis of the DEIS.

Degree of Equivalency Between Natural Reef and Mitigation (Boulders)

The assumptions of an HEA require that the type of compensatory action (= mitigation) chosen be equivalent to the habitat being injured. The DEIS clearly states this necessity in Appendix E that the services of the habitat of injury should be *"ecologically equivalent to the service that will be provided by the replacement habitat"*. Otherwise a factor must be applied to create equivalency.

The DEIS choice of mitigation for impacts to the reef are piles of boulders. The DEIS assumes that the compensatory action choice of boulders, upon maturity, will have identical services as the natural reef to be impacted.

There is literature which indicates that artificial reefs, including those composed of boulders, are not equivalent to those of natural habitat. For example, Miller et al. (2009) documented an

Attachment 4

overall lack of similarity between natural reef and artificial reef assemblages. Gilliam (2012) concluded the length of time boulder reefs require to mitigate lost reef resources in southeast Florida, assuming a total loss of the impacted community from events such as dredging, exceeds the age of the oldest boulder reef assessed in this study (17 years). Kilfoyle et al. (2013) show nearshore natural and artificial hardbottom habitats have dissimilar usage by the early life history stages of species managed under the fishery management plan for snappers and groupers. Statistically significant higher abundances occurred on natural nearshore hardbottoms compared to the artificial habitat

While the above references do not specify the exact degree of dissimilarity, it is safe to say there is not 100% equivalence. This assumption is valid in the “smell test” of logic. A pile of boulders is not a coral reef and will not over time become a coral reef. Therefore the boulders will provide lower degree of habitat services compared to those of a coral reef.

A more reasonable approach would be to consider that the ratio of the services of the natural reef to a pile of boulders upon reaching equilibrium) would be on the order of $1.0/0.50 = 2.0$. In other words, upon maturity boulders would provide 50% of the services as the natural reef.

Table 1 below gives the results of the ACE Appendix E Cost Analysis HEA compared to the Alternate HEA using corrected impact numbers for all categories, a 3% Discount Rate, and corrected equivalence of natural reef to boulders:

Attachment 4

Table 1: Comparison of ACE DEIS Cost Analysis HEA to Alternate HEA

Scenario 2 Impact Amount & Mitigation Requirement in acres For dredging to -57'	ACE DEIS IMPACT -57	ACE DEIS MITIGATION	NOAA Corrected Impact -57'	ALTERNATE MITIGATION Using NOAA Corrected IMPACT, 3% DR, & Reef/Comp ratio= 1/.5= 2
Impact in Acres Category				
Middle and Outer Reef Direct Impacts	15.17	19.05	21.65	50.103
Middle Reef Channel Wall Impacts	0.36	0.32	0.36	0.61
Direct Anchor and Cable Impacts	0	0	0	0
Outer Reef Indirect Impacts -Construction	37.69	0.04	41.78	0.155
Middle/nearshore Impacts – Construction	75.55	0.08	78.25	0.289
Total Requirement		19.49		51.158

For Scenario 2, the DEIS Cost Analysis HEA results in 19 mitigation acres. The Alternate HEA results in 51 acres.

DEIS Cost Analysis HEA results are near 32 acres underestimated.

The DEIS ACE “modified HEA” underestimates the mitigation required by using an incorrect 0% discount rate, a lower than accurate impact area, and an incorrect comparison of the level of services of the boulders upon maturity as compared to a natural reef.

The clear driver in the total Requirement is the amount of impact to the Middle and Outer Reefs. Results for the other categories are lower than appropriated due to poor choice of other input values and should be recalculated using more correct values to be discussed later.

Cost Calculation

Attachment 4

The main DEIS document states on page 259 "The total estimated cost for this alternative, which includes the cost of coral translocation, is estimated at \$20.13M. Details can be found in Appendix E comprising the mitigation plan and related sub-appendices."

Appendix E Cost estimation is NOT easily found on the Web version of the DEIS. However, it is on the CD version.

Had proper inputs to the ACE DEIS HEA been used the amount of mitigation required and associated costs would have been much higher and much greater than the costs of NOAA's preferred alternative. This is illustrated below in Table 2

Table 2: Mitigation Cost Comparisons of ACE result to the Alternate HEA

	Cost with ACE Table 8	Cost with Corrected Area	Cost with Corrected Area & Cost/Acre
Total mitigation area (acres) required to offset impacts	19.49	51.16	51.16
Cost per Acre	\$588,524	\$588,524	\$1,225,000
Coral Relocation (Not more than 12,235 colonies) (included above)	\$8,662,380	\$8,662,380	\$8,662,380
Total Mitigation Cost	\$20,132,713	\$38,771,267.84	\$71,333,380.00

In the DEIS Appendix E Cost Analysis, the last column of Table 8 presents an area of 19.49 acres of mitigation multiplied by a cost of \$588,524 per acre plus \$8,662,380 for a total cost of \$20,132,713. This is shown above in Table 2 in column 1.

With proper HEA inputs of the Alternate HEA, the mitigation area should be 51.16 acres. Using the ACE cost estimate \$588, 524 per acre plus \$8,662,380, the revised total cost is: \$38,771,268.

The Cost/Acre figure of \$588, 524 in the ACE DEIS Cost Estimate Table 8 provided for boulder mitigation and coral transplants is not justified. This figure stands in stark contrast to the cost/acres of other and similar options which are \$1.2M. Without justification, the \$588, 524 number appears artificially deflated. Instead, using the \$1,225,000 cost /r acre estimate provided in Table 8 for essentially the same mitigation (boulders with coral transplants placed on top of tires), the total cost is **\$71,333,380.!**

It should be noted that the DEIS stated the cost of the NOAA NMFS mitigation recommendation is estimated to cost approximately \$35.6M to \$42.3M (including risk contingencies). **Hence the NOAA NMFS plan is significantly less than the ACE plan had it been correctly calculated.**

Attachment 4

Indirect Impact Mitigation Calculations

The DEIS in Appendix E2 and in the Cost Estimate say that amount of mitigation (and hence the costs) for indirect Impacts will not be calculated prior to construction. Surveys will be taken after construction to determine the amount of impact and this will be used to determine the amount of mitigation. The ACE then takes an inconsistent approach and in fact estimates indirect impact and potential direct impact.

In DEIS Appendix E2, the ACE HEA Scenario 1 includes direct impact from the Anchors and Cables that may be needed depending on the type of dredge as well as the indirect from sedimentation and turbidity. It also includes the direct impact from the Channel Wall as well as the indirect from sedimentation/turbidity. In the Cost Estimate, however, the impact from Anchors and Cables is excluded.

There are several problems with this approach.

First the Anchors and Chains impact should be included as a contingency. The ACE has had enough experience with dredging to be able to reasonable include a probability factor about the kind of dredge to be used. The amount of Anchor and Chair mitigation as shown in Table 17 of Appendix E2 is large (7.83 acres) and would be even larger if calculated with the correct inputs. The ACE has inexplicably considered the impact on the footprints to be only 50%. It would likely be 50% with complete removal of all living organisms. A more correct 100% injury as well as the other inputs used in the Alternate HEA (3% discount rate, proper equivalence of boulders to natural reef) should have been used to calculated possibly needed mitigation.

Second the impacts associated with sedimentation and turbidity have been predicted by the ACE to be miniscule (2%) and only to last 3 years. The dredging itself is predicted by the ACE to last up to 5 years. There is likely to be injury associated with the sedimentation and turbidity, it will not instantly be healed upon cessation. There will be lasting effects. Hence the mitigation for these categories is substantially underestimated. The DEIS uses too low of an estimate of impact (2%) and recovery time (3 years) for their HEA. These estimates should be revised upwards (e.g on the order of 15% and 50 years) to be more accurate and thus to provide for contingency funds for mitigating likely indirect impacts.

The ACE state the amounts of indirect impacts will be determined by post-construction monitoring and these will determine the amount of mitigation. However, it is unclear if the DEIS cost estimate includes sufficient amounts of funds to be available if for mitigation if needed.

Attachment 4

An accurate estimate of the amount of direct impacts of Anchor and Cables and indirect impacts of sedimentation and turbidity should be conducted so that accurate costs can be determined and contingency funds made available to secure additional mitigation if needed.

Support for NOAA mitigation plan

The DEIS Appendix E2 includes “5.2.3 Preferred Reef Mitigation Alternative 2 (NMFS-Developed Plan)”

NOAA NMFS has been a cooperating agency with USACE for development of the Environmental Impact Statement (EIS) and has independently estimated that the tentatively selected plan impact. NOAA NMFS recommends mitigating these impacts by propagating coral colonies at in-water and land-based nurseries and then outplanting the colonies to suitable recipient sites in Broward County’s offshore waters. NMFS estimated that this approach would require approximately 20 years to complete and would cost approximately \$35.6M to \$42.3M (including risk contingencies). This cost is less than the ACE plan when the ACE plan calculated correctly.

NOAA NMFS’s recommendation is preferable to the ACE plan and is based on successful and scientifically valid coral propagation and enhancement programs in Atlantic and Caribbean waters, including those of the project area, Broward County.

The plan involves establishing a stock coral population in on-land and off-shore nurseries. The physical and genetic origin of each coral will be tracked to ensure that both nursery and outplanting operations are scientifically responsible. Regular maintenance will be performed on nursery structures and the corals. When nursery corals have grown to an appropriate size for high probability of survival on natural reefs (e.g., usually requires 12 to 18 months), the corals will be outplanted.

Species to propagate and outplant will include staghorn coral and other species based on findings from recent coral restoration studies, historical survey data, and results of monitoring.

Recipient sites would include those to maximizes likelihood of survival and minimize risk from human disturbances.

NOAA will also include replacement of lost 3-dimensionality using corals and artificial reefs in their plan.

In addition to eventually establishing those colonies on recipient sites, NOAA NMFS assumes that additional coral translocation will occur as an impact minimization measure and that such costs will be included in the budget for minimization.

Attachment 4

The NOAA program including coral propagation and outplanting program is based on existing NMFS coral recovery programs, partnership with local resource agencies (e.g., FDEP), academic institutions (e.g., NSUOC), and others in Florida. The alternative is designed to maximize the chances of successful coral reproduction; larval transport; settling and colonization areas; and genetic mixing. The proposal is consistent with the NMFS Acropora Recovery Strategy (under development) and for other coral species proposed to be listed under the Endangered Species Act.

NOAA should be given responsibility for impact analysis, determination of mitigation type and amount, and implementation of the resultant program.

Inaccuracies and Inconsistencies:

The Abstract results of the main DEIS is not consistent with those presented in DEIS Appendix E2.

The Appendix E2 HEA inputs are inconsistent with the HEA inputs of the Appendix E Cost plan.

Indirect Impact Monitoring

Monitoring for determination of the extent of indirect impacts is insufficient to accurately determine effects. The proposed sampling design presented is sketchy and does not provide a power analysis that will allow determination of sample size needed to detect differences of various amounts.

Battelle

P 4 of the DEIS states“... the outcomes presented in this report were calculated with input values selected by USACE in consultation with DC&A. DC&A, in associated with the Battelle Memorial Institute, developed these input values for these HEAs using peer-reviewed scientific literature, ...”

There is no reference given to Battelle contribution. Battelle did review the Corps mitigation plan and found issues with Corps choice of parameters.

Time for recovery

P4 Corps states“ For the purpose of the Port Everglades HEA, the method employed by the Corps uses a Landscape HEA with stony corals as the representative proxy for the entire habitat

Attachment 4

affected. While stony coral coverage is <1% in the project footprint and vicinity (Gilliam *et al.* 2004, DC&A 2008), we did not use a proportional analysis to calculate the coral impacts. Instead, the losses are calculated as the amount of time it would take for the slowest-growing members of the ecosystem, in this case the stony corals, to recover to baseline, for the entire project footprint."

This is worth noting for discussion of recovery rates. The ACE has used 50 years for direct impacts and for the compensatory action (boulders) to reach maturity. These time estimates are likely underestimated given the age of oldest corals in the vicinity in excess of 100 years. 100 years for recovery is preferred.

Counting Avoidance Minimization as Mitigation

The Corps is assigning their 50 year recovery rate to boulders by including a factor due to transplantation of corals from the impact area to them. In the Cost Estimate a time of 30 years to maturity (100% is assigned that persists to 50 years.

This time reduction is inappropriate. The first step in impact analysis is avoidance and minimization. Avoiding impact by removing corals from the impact site minimizes impact. As an example, one way to determine the reduction of injury impact would be to calculate the total number of corals that would be killed from the Direct Impacts to the Outer and Middle Reefs.

DEIS Appendix E2	Corals Killed with no removal
Middle Reef Corals	10,801.0
Outer Reef Corals	89,943.0
Total	100,744.0

DEIS Cost Estimate	Corals to be Removed
Mid & Outer Reefs	12,235.0

% impact reduction	12.14%
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Using information from the DEIS Appendix E2, the total number to be killed is 100,744. The DEIS Cost estimate indicates up to 12,235 would be removed. Thus this would be a 12% reduction of impact.

Attachment 4

Even if the translocated corals are used for reduction of time to maturity for the ACE choice of mitigation, such credit for discussion purposes at the Core groups meetings was only 10 years.

For a conservative approach, assume that the correct recovery rate is 75 years. Taking off 10 years for the contribution to recovery rate would be a recovery period of 65 years. This was used as a reasonable assumption by the Core Group.

It is telling that the DEIS uses 50 years in Appendix E2 and 30 years in the Cost Estimate. This gives the appearance of juggling the recovery figures as HEA inputs to minimize HEA outputs.

Attachment 5

		Size (Acres)	Project	Relative Functional Gain (RFG)	Mitigation Credit (FC)	Management Items
I. Master Plan - ESTIMATED MITIGATION CREDIT FOR WEST LAKE PROJECT						
A. Physical Habitat Alteration						
1	Structural habitat along the Intracoastal Waterway ICWW	1.9	Structure/ fill			
2	Mangrove protection and enhancement by riprap placement	24.0	Enhancement	0.26	6.24	
3	Supplemental structural habitat along Dania cut-off Canal	2.0	Structure/ fill			
4	Mangrove protection by riprap supplement	8.0	Enhancement	0.26	2.08	
5	Nuisance/Exotic Plant Control	8.4	Enhancement	0.11	0.92	
6	Spoil island and exotic dominated upland areas conversion					
6a	Mangrove	24.2	Creation	0.42	10.43	
6b	Mud Flat/tide pool	7.0				
6c	Channel	8.6	Creation	0.65	0.14	
6d	Seagrass	8.0	Creation	0.16	1.28	Seagrass
6e	Maritime Hammock	13.4	Creation	0.23	3.08	
7	Mangrove creation from Dania cut-off canal open water	22.0	Creation	0.24	0.42	
B. Land Acquisition (within existing park)						
1	Outparcel Acquisition					X
2	Vacate utility easements					X
3	Vacate FIDM easements					X
4	Outparcel Acquisition (OUTSIDE IMPROVEMENT AREAS)	23.3	Preserv.	0.06	1.40	
C. Habitat Improvements						
1	Creation of Mantee Protection Areas					
1a	Seagrass/manatee protection area in Whiskey Creek (WC)	9.0	Preserv.	0.03	1.0	Seagrass
1b	Seagrass/manatee protection - ICWW south of Dania Beach Blvd.	21.0				Seagrass
2	Enhance/protect bird nesting, and feeding habitat					X
3	Establishment of Osprey towers					X
4	Mud flat/tide pool creation from Brazilian pepper areas in Dania Salt Marsh	1.5	Restoration	0.22	0.33	
5	Protect/preserve sea okeye fields from exotic invasion	10.0	Enhancement	0.22	2.20	
D. Hydrologic Improvements						
1	Dania Salt Marsh (DSM)/flushing channel improvements	3.5	Enhancement	0.22	0.77	
2	Desilt existing culverts					X
3	Increase number of or upsize culverts					X
4	Desilting channels/ongoing maintenance dredging					X
E. Miscellaneous Improvements						
1	Remove the barges at Whiskey Creek (expose bottom for SAV recruitment)	0.5	Enhancement	0.08	0.04	Seagrass
	TOTAL	174.30				
	Mangrove Mitigation Credits				20.57	
	Seagrass Mitigation				2.22	
	Other Mitigation Credits				17.45	

US Army Corps
of Engineers

File # SAJ-2002-72(IP-LAO)

ATTACHMENT 6 (NOTE: This refers to the Corp's file)

Attachment 6

Seagrass UMAM data done by transect numbers**Landscape**

PE-8 - 8

PE 10 - less connectivity, smaller bed less fish and wildlife service benefits. Landscape score – 6

PE-1 - 8

P34 – Landscape 8

PE 33 – Landscape 6

P35 – Landscape 6(lumped with PE10)

P32 – (0.acres) Landscape 6 (lumped with PE10) *2

PE24/PE25 (0.6 acres) - Halodule wrightii; sparse coverage – Landscape – 8

PE-19 – Johnsonii bed - .05 acres – very small; next to John U Lloyd park – 6

PE-17 – .13 acres/.05 acres - larger bed – mixed species; higher community level - 7

PE-12, 13, 14, 15 - .84 bed; larger bed; across from Westlake park – 8. Health dense beds; high contiguous

D16 – 7

Water

Water area #1

Transects - #8, 10, 1, 35, 34, 35 – Water score – 7

Water area #2

Transects - #33, 32 – Water Score – 8

Water area #3 –

Transects #25, 24, 19, 17 – Water Score – 6

Water area #4 -

Transect – 12, 13, 14, 15 – Water Score – 8

Water area #5 – Dania CutOff Canal

Transect D16 – Water Score – 6

water quality changes every 6 hours.... In and out – every 6 hours. Poor water quality followed by good water quality.

Sand bottom is a limiting factor; light is major limiting factor.

Community Structure -

Jocelyn completely disagrees with the way this section was scored, will formally address

PE-8 – Sparse bed – 4

PE-10 – 3-4% coverage; not as much diversity; solitary shoots w/no coverage – 2

PE-1, 2, 3 – 10% coverage; abundance is .3 (impact area); solitary blades.... Center of bed is 5% with edges very sparse – 3

PE-35 – 1% coverage – 2 (just like 10)

PE-34 – 25% coverage johnsonii – just under 5% density – 7.

PE 33 – no grass found in the quadrats - 2

PE 32 – higher coverage than PE 35 – 22% quadrants and 1.75% numerous shoots – 5-25% cover – 4

PE 24-25 – *Halodule wrightii*; few shoots, $\frac{1}{4}$ to $\frac{1}{8}$ coverage – 3

PE-19 – no grass found in quadrats – 2

PE-17 – 5

PE – 12, 13, 14, 15 – 8 (bed across channel from 12, 13, 14, 15)

D16 - 2



United States Department of the Interior



OFFICE OF THE SECRETARY

**Office of Environmental Policy and Compliance
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303**

ER 13/0465
9043.1

August 13, 2013

Ms. Terri Jordan-Sellers
U.S. Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, FL 32207

Re: Comments on the Draft Environmental Impact Statement (DEIS) for Port Everglades
Harbor Navigation Improvements; Broward County, Florida

Dear Ms. Jordan-Sellers:

The U.S. Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for Port Everglades Harbor Navigation Improvements in Broward County, Florida. We have no comments at this time.

If you have questions or need additional information, I can be reached at (404) 331-4524 or via email at joyce_stanley@ios.doi.gov.

Sincerely,

Joyce Stanley, MPA
Regional Environmental Protection Specialist

cc: Jerry Ziewitz – FWS
Gary Lecain - USGS
Anita Barnett – NPS
Chester McGhee – BIA
OEPC – WASH



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

August 20, 2013



Alan M. Dodd
District Commander
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code: 2007-FA-1548

Project: Port Everglades Harbor Navigational
Improvements

County: Broward

Dear Colonel Dodd:

In accordance with the Fiscal Year 2003 Transfer Fund Agreement between the U.S. Fish and Wildlife Service (Service) and the U.S. Army Corps of Engineers (Corps), the Service provided to the Corps a draft Fish and Wildlife Coordination Act (FWCA) report in March 2005, for the Port Everglades Harbor navigation project (Port Project), Broward County, Florida. This draft report was provided in accordance with the FWCA of 1958, as amended (48 Stat.401; 16 U.S.C. 661 et seq.) and under the provisions of section 7 of the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 et seq.), to provide an evaluation of environmental effects of navigation improvements to Port Everglades. The Service concluded implementation of the recommended project plan may impact fish and wildlife resources directly and indirectly as a result of dredging and/or blasting activities. The fish and wildlife resources likely to be directly and indirectly affected included seagrass, low relief hardbottom, high relief coral reefs, rock/rubble habitat, and shallow sandy bottom habitat.

The Service provided extensive recommendations in the 2005 draft FWCA report to further minimize or avoid possible adverse effects of the Port Project on fish and wildlife resources. Specifically, the Service suggested the following to compensate for the temporal loss of function and value of the impacted habitats:

1. Increase the mitigation ratio (*e.g.*, to 3:1) for mangroves if the 8.48 acres in the conservation easement cannot be avoided;
2. Increase the mitigation ratio for impacted seagrass habitat from 1:1 to 3:1 for a total of 15 acres;
3. Develop a Seagrass Monitoring Plan that contains success criteria that are consistent with Fonseca et al. (1998);

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4. Create a 51-acre mitigation reef to compensate for direct impacts to high and low relief hardbottom reef habitat;
5. Provide adequate mitigation for the temporal loss of function and value associated with the low relief hardbottom habitat located within the previously dredged channels, particularly the channel walls;
6. Continue to seek alternative methods to mitigate for reef impacts through the Port Everglades Reef Group; and
7. Develop a comprehensive (pre, during, and post project) environmental monitoring program to verify that project impacts occurred within the levels anticipated and to ensure that the mitigation areas are performing to a level where habitat replacement values are maintained.

In addition, the Service recommended inclusion of the following items in the project plan to further minimize and reduce potential adverse effects of blasting on listed species:

1. The Florida Fish and Wildlife Conservation Commission (FWC) and Service must review a blasting proposal prior to any blasting activities. The blasting proposal must include information concerning a watch program and details of the blasting events. This information must be submitted in writing at least 30 days prior to the proposed date of the blast(s) to the FWC, OES-BPS, 620 South Meridian Street, Tallahassee, Florida 32399-1600 and to the Service's South Florida Ecological Services Office, 1339 20th Street, Vero Beach, Florida 32960. At a minimum, the proposal should include the following information:
 - 1a. A list of observers, qualifications, and positions for the watch, including a map depicting the proposed locations for the boat or land-based observers; and
 - 1b. The amount of explosive charge proposed, the explosive charge's equivalency in TNT, how it will be executed (depth of drilling, in-water, etc.), a drawing depicting the placement of the charges, size of the safety radius and how it will be marked (also depicted on a map), tide tables for the blasting event(s), and time tables (days and times) for blasting event(s);
2. A formal watch coordination meeting must be held at least 2 days prior to the first blast event. Attendants should include the designated observers, construction contractors, demolition subcontractors, and other interested parties such as the Service, FWC, and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries). All participants will be informed about the possible presence of manatees, dolphins, sea turtles, or whales in nearshore areas, and that civil or criminal penalties can result from harassment, injury, and/or death of a listed species;
3. The watch program should begin at least 1 hour prior to the scheduled start of blasting to identify the possible presence of manatees, dolphins, sea turtles, or whales, if applicable. The watch program shall continue until at least 0.5 hour after detonations are completed;

4. The watch program shall consist of a minimum of six observers. Each observer shall be equipped with a two-way radio that shall be dedicated exclusively to the watch program. Extra radios should be available in case of failures. All of the observers shall be in close communication with the blasting subcontractor in order to halt the blast event if the need arises. If all observers do not have working radios and cannot contact the primary observer and the blasting subcontractor during the pre-blast watch, the blast shall be postponed until all observers are in radio contact. Observers will be equipped with polarized sunglasses, binoculars, a red flag for backup visual communication, and a sighting log with a map to record sightings. All blasting events will be weather dependent. Climatic conditions must be suitable for optimal viewing conditions, as determined by the observers;
5. The watch program shall include a continuous aerial survey to be conducted by aircraft. The event shall be halted if an animal(s) is spotted within 300 feet of the perimeter of the safety zone or the danger zone as defined by the Corps in their project description. An "all-clear" signal must be obtained from the aerial observer before detonation can occur. The blasting event shall be halted immediately upon request of any of the observers. If animals are sighted, the blast event shall not take place until the animal(s) move out of the area under their own volition. Animals shall not be herded away or harassed into leaving. Specifically, the animal must not be intentionally approached by project watercraft. If the animal(s) is not sighted a second time, the event may resume 30 minutes after the last sighting;
6. The observers and contractors shall evaluate any problems encountered during blasting events and logistical solutions shall be presented to the Service and the FWC. Corrections to the watch shall be made prior to the next blasting event. If any one of the aforementioned conditions is not met prior to or during the blasting, the watch observers shall have the authority to terminate the blasting event until resolution can be reached with the Service and FWC;
7. If an injured or dead marine mammal or sea turtle is sighted after the blast event, the watch observers shall contact the Service at 772-562-3909 and the FWC through the Manatee Hotline at 1-888-404-3922. The observers shall maintain contact with the injured or dead marine mammal or sea turtle until authorities arrive. Blasting shall be postponed until the Service and FWC can determine the cause of injury or mortality. If blasting injuries are documented, all demolition activities shall cease. A revised plan shall then be submitted to the Service and FWC for approval; and
8. Within 14 days after completion of all blasting events, the primary observer shall submit a report to the Service and FWC providing a description of the event, number and location of animals seen and what actions were taken when the animals were seen. Any problems associated with the events and suggestions for improvements shall also be documented in the report.

Since the 2005 draft FWCA report was completed, the Port Project has been modified as outlined in the Corps' June 28, 2013, Draft Feasibility Report and Environmental Impact Statement (EIS) (Figures 1 and 2). Modifications to the proposed project under the current Tentatively Selected Plan (TSP) include:

1. Extending the Outer Entrance Channel (OEC) 2,200 feet seaward with an 800-foot width, and deepening the existing 500-foot wide OEC from 45 to 55 feet;
2. Deepening the Inner Entrance Channel from 42 to 48 feet;
3. Deepening the Main Turning Basin (MTB) from 42 to 48 feet;
4. Widening the rectangular shoal region southeast of the MTB by approximately 300 feet and deepening it to 48 feet;
5. Widening the Southport Access Channel (SAC) in the proximity of berths 23 to 26 (the knuckle) by approximately 250 feet and relocating the U.S. Coast Guard (USCG) facility, a General Navigation Feature (GNF), easterly on USCG property;
6. Shifting the existing 400-foot wide SAC approximately 65 feet to the east near berth 26 to the south end of berth 29 to transition from the knuckle area widening to the existing Federal channel limits;
7. Deepening the SAC from approximately berth 23 to the south end of berth 32 from 42 to 48 feet;
8. Deepening the Turning Notch (TN), including the Port Authority planned expansion, from 42 to 48 feet, with nearby widening including: widening the eastern edge of the SAC 100 feet along a 1,845-foot stretch parallel to the SAC, and widening the western edge of the SAC for access to the TN from the existing Federal channel near the south end of berth 29 to a width of approximately 130 feet at the north edge of the TN;
9. Other GNFs; and
10. Environmental mitigation.

Construction will be accomplished through a combination of traditional dredging methods and the use of explosives inshore and offshore. Unconsolidated and consolidated material generated during dredging will be deposited within approved offshore and/or upland disposal sites. Expansion of the offshore Ocean Dredged Material Disposal Site (ODMDS) is required, and analysis for selecting an ODMDS footprint is currently underway.

FISH AND WILDLIFE RESOURCES

This section is provided in accordance with the FWCA of 1958, as amended (48 Stat. 401; 16 U.S.C. 661 *et seq.*) to address other fish and wildlife resources in the project area.

Seagrasses

The Corps estimates a total of 4.01 acres of seagrass (3.57 acres of Johnson's seagrass [*Halophila johnsonii*] and 0.44 acre of other seagrass), and 1.16 acres of mangroves will be impacted as a result of the Port Project. As compensation for these impacts, the Corps evaluated three mitigation alternatives for functions of seagrass habitats lost due to the implementation of the TSP, but only one alternative was feasible based in part on the Incremental Cost Analysis. Following detailed analyses and cost assessments, the Corps proposes the following:

1. To use 1 mangrove and 2.4 seagrass functional units from an on-going habitat enhancement and restoration project at West Lake Park (WLP).

The WLP project includes previously permitted restoration, enhancement, and preservation of like habitats in this County-operated, State-owned natural area located to the south of the Port Project. The WLP project does not comprise a mitigation bank, and its use for mitigation is not available for purchase by the public or private entities. Credits (units of increased ecological functional value) compiled in association with the existing WLP permit (for restoration/enhancement activities) are specifically limited for use as mitigation for Broward County projects (and further, specifically the Port Project and airport expansions). Broward County (the local sponsor) will bear the responsibility for construction, monitoring, and success of mitigation at WLP. The estimated costs for mangrove wetland enhancements and seagrass restoration WLP are \$238,000 and \$4.84M, respectively.

Hardbottom reef habitat

The Corps estimates that a total of 15.23 acres of hardbottom reef habitat will be impacted due to implementation of the TSP. As compensation for these impacts, the Corps evaluated nine potential mitigation alternatives to offset unavoidable impacts to reefs and hardbottom habitats. Of those nine alternatives, four were found to be feasible and subjected to an Incremental Cost Analysis. Only one preferred alternative was determined to be cost-effective.

Where restoration and enhancement of reef resources are not available for use as mitigation, hardbottom creation has traditionally been offered (in this geographic area and where similar habitats are affected) as compensation for impacted habitats and lost ecosystem functions. The preferred alternative consists of the following:

1. Creation of approximately 12.57 acres of high-profile, artificial reef habitat to mitigate for the direct removal of approximately 10.10 acres of complex, high-profile, linear and spur/groove reef habitat; and
2. Creation of 6.92 acres of low-profile hardbottom to mitigate for the direct removal of approximately 5.07 acres of less complex, low-profile hardbottom habitat (colonized pavement).

Based on pre- and postconstruction monitoring, additional mitigation may be provided due to any detectable, incidental, direct impacts of dredging equipment and indirect impacts on hardbottom habitats due to turbidity and sedimentation.

For the preferred alternative for reef/hardbottom mitigation, the configuration of artificial reef materials will resemble, in profile and in functionality, to the maximum extent practicable, those habitats impacted. Since new reef impacts would take place at water depths of approximately 40 to 45 feet (middle reef terrace) and 50 to 55 feet (outer reef terrace) for the proposed channel expansion, the Corps has suggested these two depth zones be used as mitigation sites to achieve in-kind mitigation. The use of in-kind mitigation immediately adjacent to the impact site is one of the major benefits to this mitigation alternative. Also, the amount of high-relief reef and low-relief hardbottom could be created in proportion to the impacted sites, unlike many of the other mitigation options examined by the Corps. The Corps examined the mitigation reefs associated with the Port of Miami expansion in 1993 (the last deepwater port expansion with mitigation creation available for assessment) to determine if the mitigation reefs provided similar habitats, species assemblages, and functions as the impact area. After 7 years, it was determined the mitigation reefs (without any transplants of corals to the mitigation reef) did provide similar habitats, species assemblages, and functions. Other benefits of this mitigation option include the relative stability (on the seafloor) of quarried or dredged limestone/rock; relative ease of construction; and relative low cost.

The preferred alternative involves the deployment of limestone that has either been quarried and transported to the mitigation area, or dredged from the channel construction areas. The piles will be configured into rows that are parallel to the existing reef tracts. Two layers of boulders will comprise these piles, given a vertical dimension of approximately 6 to 8 feet of relief. Low-relief areas will comprise only one layer of boulders. Similar structures will be constructed near the Port of Miami in 2013. Based on outcomes from that effort, the Corps will be able to improve on design and material specifications for Port Project mitigation.

The interval required to reach substantial functional productivity of this alternative is estimated to be 30 to 50 years. However, with the transplantation of corals from the impact site to the rock reef infrastructure, the interval may be shortened to 23 to 30 years. As proposed, coral colonies greater than 4 inches in diameter (up to 12,235 colonies) and free of disease and boring sponge would be translocated from the impact area to the mitigation sites, which would be prepared in advance of dredging.

The total estimated cost for this alternative, including the cost of coral translocation, is estimated at \$20.13M.

The NOAA Fisheries, Southeast Regional Office, a cooperating agency with the Corps for development of the EIS, independently estimated that the TSP would impact 137.83 acres of coral, coral reef, and hardbottom (20.34 acres of coral reef in the channel and 117.49 acres of coral reef located outside the channel). In May 2013, NOAA Fisheries recommended that the Corps consider mitigating these impacts by propagating coral colonies at in-water and land-based nurseries and then outplanting the colonies to suitable recipient sites in Broward County's offshore waters. NOAA Fisheries estimated that this approach would require approximately 20 years to complete and would cost approximately \$35.6M to \$42.3M (including risk contingencies).

NOAA Fisheries' recommendation is based on successful coral propagation and enhancement programs in Atlantic and Caribbean waters. Scientific based practices for nursery propagation, outplanting and monitoring have been developed and used by coral nursery managers in the Florida Keys, Broward County, Puerto Rico, U.S. Virgin Islands, and other Caribbean islands to reproduce *Acropora* spp. asexually. Typically, small fragments less than 2 inches in diameter are collected from the reef and held in an underwater or tank-based nursery environment through their juvenile life-stage. Offshore nurseries are sited based on a number of factors, including: habitat feasibility, water quality conditions, potential for future impacts, and permitting status and considerations. Once the stock nursery population is established, no more coral is collected from natural reef communities. The physical and genetic origin of each coral is tracked from fragment collection to ensure that both nursery and outplanting operations are done in a scientifically responsible manner. Regular maintenance is performed on nursery structures and the corals themselves to ensure all are free of coral competitors and predators. Once coral fragments have grown to a size where the probability of survival on natural reefs has increased to an acceptable level (this usually requires 12 to 18 months), the corals are outplanted. Decisions regarding which species to propagate and outplant, and the relative percent-cover, or relative population densities among all species, would be based on findings from the most recent coral restoration studies, historical survey data, and results of ongoing monitoring throughout the project area. Additionally, outplant recipient sites would be selected using a strategy that maximizes likelihood of outplant survival while minimizing risk from natural and human disturbances.

Using "resource-to-resource" equivalency analysis, NOAA Fisheries estimated that 195,000 to 250,000 corals need to be outplanted from nurseries to offset the impacts to coral from expanding the OEC. These costs are reflected in the budget for this alternative. In addition to eventually establishing those colonies on recipient sites, NOAA Fisheries also assumes that additional coral translocation will occur as an impact minimization measure (such costs are not included in the budget for this mitigation alternative). These include the following:

1. Relocation of all corals listed under the Act from impact areas, regardless of size;
2. Relocation of a subset of massive corals and all corals proposed to be listed under the Act that are 2 inches in diameter or larger; and
3. Relocation of all other corals greater than 4 inches in diameter.

The proposed coral propagation and outplanting program is based on existing NOAA Fisheries coral recovery programs that support the implementation of projects such as this in partnership with local resource agencies (*e.g.*, Florida Department of Environmental Protection [DEP]), academic institutions (*e.g.*, Nova Southeastern University Oceanographic Center [NSUOC]), and other coral restoration partners in Florida. One benefit of this alternative is that it is designed to maximize the chances of successful natural coral reproduction, larval transport, settling and colonization into new areas, and genetic mixing required for survival and recovery of the species. Furthermore, this proposal is consistent with the NOAA Fisheries *Acropora* Recovery Strategy (under development) and other coral conservation priorities for coral species that have been proposed to be listed under the Act. Should this alternative be selected, it will undergo full Corps review, and meet all Corps policy requirements.

In addition to NOAA Fisheries' preferred reef mitigation alternative outlined above, other discrepancies in the Corps' preferred reef mitigation alternative have been documented. Dr. Brian Walker (NSUOC) prepared a technical review of the coral reef mapping presented in the Corps' final draft EIS. In particular, he outlined discrepancies in the Corps' spatial analysis, direct/indirect impacts analysis, and data integrity. Furthermore, Dr. Walker concluded the final draft EIS did not address cumulative impacts to hardbottom reef habitat. In addition, Dr. Richard Dodge (NSUOC) prepared a technical review of the Corps' Habitat Equivalency Analysis (HEA) and summarized his comments as follows:

1. The Corps used incorrect areas of impact, including those areas directly impacted below the 57-foot dredging depth;
2. The Corps used an inappropriate zero percent discount rate in its "modified" HEA. The HEA is an economic model and not intended to be used with a zero discount rate;
3. The Corps' choice of mitigation using boulders with coral transplants will not provide services upon maturity equivalent to those of the natural reef;
4. The HEA inputs and results in Appendix E2 of the Corps' final draft EIS are not the same as those of the Cost Analysis;
5. Many of the final draft EIS HEA input parameters used by the Corps are not supported by the best available science;
6. The inputs chosen by the Corps for their HEAs underestimate the amount of mitigation required;
7. An Alternate HEA has been developed using corrected direct impact areas for the outer and middle reefs to include the area below 57 feet, 3 percent discount rate and corrected equivalence that boulders upon maturity reach 50 percent of services of the natural reef;
8. The Corps' final draft EIS HEA for Scenario 2 in Appendix E Cost Analysis E2 of the Corps' final draft EIS, requires 32 acres less mitigation than the more correct Alternate HEA;
9. Corps project mitigation costs are significantly underestimated using the underestimated mitigation amount;
10. There is no justification given for using a much smaller figure concerning the cost per acre of boulders with transplants outlined in Table 9 of the Cost Estimate;
11. The Corps' plan lacks input from their independent technical review performed by Battelle Memorial Institute;
12. The NOAA Fisheries recommended mitigation program is scientifically valid and preferred;
13. The NOAA Fisheries recommended mitigation program is more cost efficient than the Corps version, had the Corps calculated their HEA with correct inputs; and
14. The NOAA Fisheries should be given responsibility for impact analysis, determination of mitigation type and amount, and implementation of the resultant program.

Based on the discrepancies outlined above, the Service recommends the Corps mitigate in concert with the NOAA Fisheries' preferred reef mitigation alternative plan, if the plan is found to be legally sufficient, in order to resolve these issues and provide maximum protection of all fish and wildlife resources.

THREATENED AND ENDANGERED SPECIES

The Corps determined that the project "may affect, but is not likely to adversely affect" the federally endangered West Indian manatee (*Trichechus manatus*), endangered American crocodile (*Crocodylus acutus*), endangered green sea turtle (*Chelonia mydas*), threatened loggerhead sea turtle (*Caretta caretta*), endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), endangered hawksbill sea turtle (*Eretmochelys imbricata*), and endangered leatherback sea turtle (*Dermochelys coriacea*).

American crocodile

The American crocodile is a State and federally listed species. The current range of the species in the southeastern United States includes coastal and estuarine habitats in the extreme southern Florida peninsula, including Broward County. Females nest primarily on northern Key Largo and from Florida Bay to Turkey Point. Nesting begins in March and extends until late April or early May. Approximately 90 days following fertilization, eggs are buried in sand or marl nests adjacent to deep water. Adult crocodiles feed at night on schooling fish in creeks, open water, and deep channels, and are also known to eat crabs, raccoons, and water birds. At least one crocodile is known to occur within WLP and one other may be present (Ricardo Zambrano, FWC, email, November 7, 2003). However, nesting has not been confirmed in WLP.

The Corps has determined the proposed expansion and deepening of the Port Everglades Harbor as described in the TSP "may affect, but is not likely to adversely affect" the endangered American crocodile. Possible adverse effects to this species during construction include injury, mortality, or harassment, which may affect the life history of these species as a result of dredging and/or blasting activities.

The TSP includes implementation of protection measures designed to minimize possible adverse effects to frequently observed listed species such as the West Indian manatee and sea turtles; these provisions will also protect the American crocodile. Therefore, the Service concurs with the Corps' determination as it relates to adults, hatchlings, and/or juveniles of the American crocodile during dredging or blasting operations adjacent to WLP.

Sea turtles

The Service and the NOAA Fisheries share Federal jurisdiction for sea turtles under the Act. The Service has the responsibility for sea turtles on the nesting beaches and the NOAA Fisheries has jurisdiction for sea turtles in the marine environment. Our analysis will only address activities that may impact nesting sea turtles, their nests and eggs, and hatchlings as they emerge from the nest and crawl to the sea. NOAA Fisheries will assess and consult with the Corps concerning potential impacts to sea turtles in the marine environment. For further information on Act compliance with the NOAA Fisheries, please contact Ms. Cathy Tortorici, Chief of the

Interagency Cooperation Branch, by e-mail at cathy.tortorici@noaa.gov or by phone at 727-209-5953. In addition, the Corps will assess and consult with the NOAA Fisheries concerning potential impacts to foraging and swimming sea turtles, and all other marine species under their jurisdiction within the action area.

Beaches along John U. Lloyd State Recreational Area provide nesting habitat for federally listed sea turtles. In addition, other resources comprise important habitats for sea turtles. Removal of sections of hardbottom, reef, and seagrass habitats will eliminate potential foraging habitat for juvenile and adult sea turtles and refugia for hatchlings. Also, dredge activities and associated disturbances (noise, lights, etc.) offshore may interrupt the movement of turtles swimming toward or away from nesting beaches to the north or south. Specifically, the highest potential impact to sea turtles may result from the use of explosives to break/dislodge rock substrates in offshore channels. Threshold lethal pressures for sea turtles are probably similar to those of marine mammals (Corps 2000). Therefore, sea turtles in the immediate vicinity of any detonation site would likely be killed, and individuals existing within 400-600 feet of the blast would likely suffer injury.

Another possible element of the action that may affect sea turtles is the presence of light and/or noise from construction/dredging vessels anchored offshore. These factors may interrupt the movement of adult, nesting, female sea turtles swimming toward or away from nesting beaches, and may cause disorientation of hatchlings following emergence. Artificial lighting can be detrimental to sea turtles in several ways. Field observations have shown reduced sea turtle nesting on lighted beaches. Adult females rely on visual brightness cues to find their way back to the ocean after nesting and those turtles that nest on lighted beaches may be disoriented by artificial lights and have difficulty finding their way back to the ocean. Beachfront lighting has an even more profound effect on hatchling sea turtles. Under natural conditions, hatchlings, which typically emerge from nests at night, move toward the brightest, most open horizon, which is over the ocean. However, when bright light sources are visible on the beach, they attract hatchlings in the wrong direction, resulting in an increased risk of death or injury because they are more vulnerable to predators, dehydration, entrapment in debris or vegetation, and exhaustion. In addition, artificial lights often lure hatchlings or adult sea turtles onto roadways and parking lots where they are vulnerable to car strikes. However, since Port Everglades Harbor is an active facility, offshore lighting is not an unusual feature of the area, and the Port Project should not appreciably change the ambient conditions of nesting areas in the vicinity of the action. That said, the Corps will require all lighting aboard dredges and dredge support vessels operating within 3 nautical miles of sea turtle nesting beaches, be limited to the minimal lighting necessary to comply with U.S. Coast Guard and OSHA requirements. All non-essential lighting on dredges and support vessels shall be minimized through reduction, shielding, and appropriate placement of lights to reduce potential disorientation effects on nesting sea turtles approaching the nesting beaches and sea turtle hatchlings heading seaward.

The Service previously concurred with the Corps' determination for sea turtles (March 31, 2005) because no adverse direct or indirect impacts to sea turtle nesting habitat due to dredging operations are anticipated for the TSP. In addition, the Corps agreed to incorporate and implement the sea turtle conditions outlined in DEP Permit No. 0220509-007-JM.

West Indian manatee

The federally endangered West Indian manatee is found from coastal areas of Beaufort, North Carolina through Florida and the Gulf of Mexico. Manatees frequently inhabit shallow areas where seagrasses are present and are commonly found in protected lagoons and freshwater systems. In winter, they frequently move into areas where water temperatures are mitigated by spring-fed streams or power-generation plant effluent, such as the Florida Power & Light Company (FP&L) power plant in Fort Lauderdale. In general, very few manatees are present in the offshore waters from November through April; however, during the remainder of the year, manatees occasionally use open ocean passages to travel between favored habitats.

The West Indian manatee is protected under the Act and the Marine Mammal Protection Act of 1972. The State of Florida provided further protection in 1978 by passing the Florida Marine Sanctuary Act, designating the State as a manatee sanctuary, and providing signage and speed zones in Florida's waterways. Though there are not any areas within Broward County that are designated as Critical Habitat for the West Indian manatee, the waterways in Broward County support permanent and transient manatee populations. Some waterways serve as important warm water refugia and calving areas, particularly in the vicinity of the Port and the FP&L power plant.

Surveys indicate that, during winter months when temperatures decline, manatees from north and south of Port Everglades Harbor migrate to canals associated with the FP&L power plant. As many as 290 manatees have been observed near the power plant on a single day (Laist and Reynolds 2005).

Mezich (2001) hypothesizes manatee preference may be changing as recent years have shown a decrease in the number of animals using the Port power plant and an increase in the number of animals using the Fort Lauderdale plant located west of the Port. A review of the data from FP&L reports (Reynolds 2005, 2006, 2007, 2009, 2010, 2011) appears to support this belief. The growth in usage of the Fort Lauderdale plant may also be attributable to its more consistent releases of warm water and isolated location with less human disturbance than the Port Everglades plant site (Laist and Reynolds 2005).

Deutsch et al. (2003) noted the manatees that utilize the Port power plant during winter cold spells exhibit three trends in movement to access forage. As previously stated, some move south into Biscayne Bay, some move north into Lake Worth Lagoon, and some move further west toward the Fort Lauderdale FP&L plant to access freshwater forage and mangroves. Manatees typically demonstrate a diurnal feeding pattern when at the power plants. They spend the mornings into the early afternoons in the warm discharge waters at the plant, and then move away from the plant to forage since the sun has warmed the surrounding waters. As air temperatures (and subsequently water temperatures) drop, they return to the power plant discharges' thermal refuges.

During the summer months when the water warms, manatees return to the counties to the north and south to forage and reproduce. However, telemetry and aerial surveys confirm manatees are present within Broward County all year (Deutsch 2000). Broward County conducts aerial

surveys by helicopter flights throughout the year. Recent surveys conducted between 2004 and April 2011 have documented between 8 and 455 manatees in all waterways of Broward County (Broward County 2011).

FP&L is in the process of temporarily ceasing operations at the current Port power plant. Demolition of the current plant is expected to begin in 2013 and construction of the new plant is expected between 2014 and 2016, with the plant online and operational in 2016. FP&L has been preparing, with the Service and FWC, an environmental and biological monitoring plan. During construction, FP&L will maintain an "Interim Warm-Water Refuge" (IWWR), using the current warm-water discharge system, during the winter months beginning with the discontinuation of operations at the existing Port power plant and continuing until the new unit is operational. Implementation of the IWWR should result in continued manatee use of the Port Everglades plant and potentially no decrease in protection measures associated with the Port expansion project (*i.e.*, standard manatee protection measures and cessation of confined underwater rock blasting during manatee congregation periods).

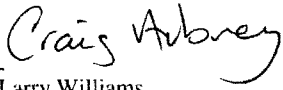
The Service concurred on March 31, 2005, with the Corps' determination for the West Indian manatee because the Corps agreed to incorporate and implement the following:

1. The Standard Manatee Conditions for In-Water-Work (FWC 2011), all manatee protection measures outlined in the final draft EIS, manatee conservation measures from the Miami Harbor Phase III project, and all manatee conditions outlined in the DEP Permit No. 0220509-007-JM;
2. The same blasting protection measures and monitoring procedures developed for the Miami Harbor Phase III project, known as the Navy Diver Protocol, plus an additional 500 feet to the safety zone. Furthermore, the Corps agreed to revise the blasting protection measures should the results of the Miami Harbor Phase III indicate the need based on input from State, Federal, and local governmental agencies; and
3. Blasting activities will be avoided during the winter months (November 15 to March 15) when manatee populations are expected to be at their highest concentration in the action area. Other dredging and construction activities may take place inside the Port Everglades Harbor during this time period, but confined underwater (CU) blasting will not be utilized during this period.

The Service recommends the Corps provide details concerning the wildlife protection measures to be implemented in the test blast program and how these measures may vary compare to all other CU blasting activities.

Thank you for your cooperation in the effort to conserve fish and wildlife resources. Should you have additional questions or require clarification regarding this letter, please contact Jeff Howe at 772-469-4283.

Sincerely yours,


for Larry Williams
Field Supervisor
South Florida Ecological Services Office

cc: electronic only

Corps, Jacksonville, Florida (Terri Jordan-Sellers)

DEP, Tallahassee, Florida (Lanie Edwards)

EPA, West Palm Beach, Florida (Ron Miedema)

FWC, Tallahassee, Florida (Kellie Youmans)

NOAA Fisheries, Palm Beach Gardens, Florida (Jocelyn Karazsia)

NOAA Fisheries, Fort Lauderdale, Florida (Kelly Logan)

Service, Jacksonville, Florida (Jim Valade)

USGS, Gainesville, Florida (Susan Walls)

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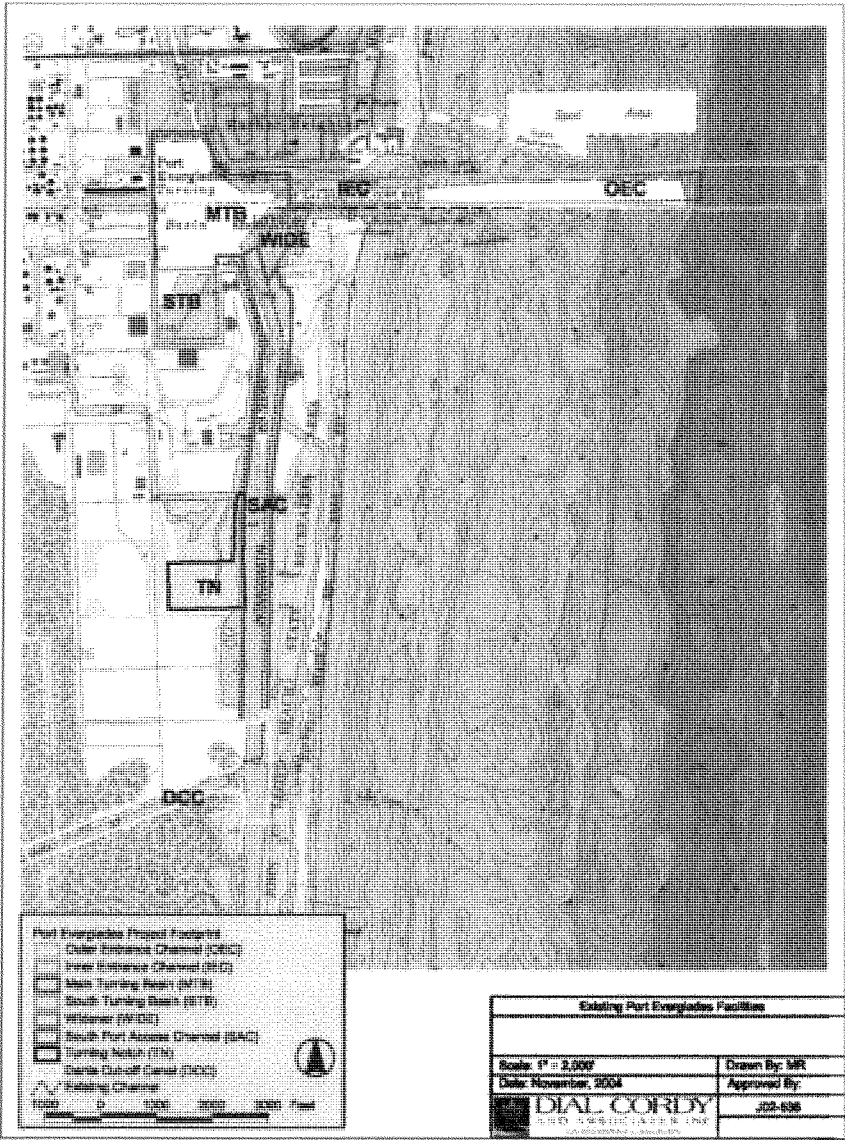


Figure 1. The Port Everglades Harbor navigation project proposed in the 2005 FWCA report.

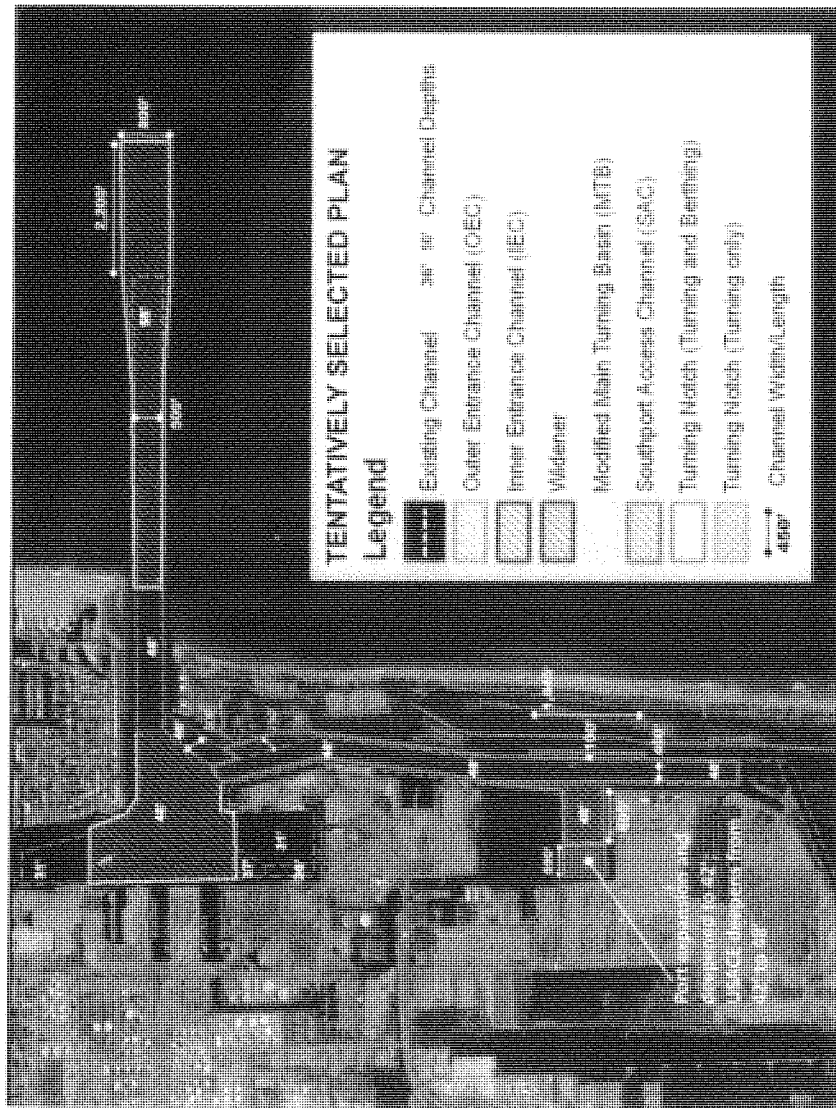


Figure 2. The proposed Port Everglades Harbor navigation project outlined in the 2013, draft Feasibility Report and Environmental Impact Statement.



BERTHA W. HENRY, County Administrator

115 S. Andrews Avenue, Room 409 • Fort Lauderdale, Florida 33301 • 954-357-7362 • FAX 954-357-7360

August 12, 2013

Alan M. Dodd, U.S Army, District Commander
U.S. Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, FL 32207

**RE: Navigation Study for Port Everglades Harbor
Draft Feasibility Report and Environmental Impact Statement – June 2013
Broward County Comments**

Dear Colonel Dodd:

On behalf of Broward County, I am pleased to forward the attached comments on the draft documents listed above. We appreciate the opportunity to review and provide input on this critically significant project for Broward County, the South Florida Region, the State of Florida, and the Nation.

In reviewing the document it was evident that the U.S. Army Corp of Engineers (ACOE) conducted a thorough analysis through the draft Feasibility Report and Environmental Impact Statement. The comments provided are intended to bring further clarification to certain items within the draft documents, with the goal of adding value to the overall project as these documents are made final.

Broward County looks forward to our continued partnership as this project moves toward completion of the feasibility phase and into planning, engineering and design. Please contact David Anderton, Assistant Director of Port Everglades, at 954-468-0144 if you have any questions or require additional information on the comments.

Sincerely,

 A handwritten signature in black ink, appearing to read "Bertha Henry".

Bertha Henry
County Administrator

Attachment

Cc: Steve Cemak, BC Port Everglades Department, Chief Executive/Port Director
Glenn Wiltshire, BC Port Everglades Department, Deputy Director
David Anderton, BC Port Everglades Department, Assistant Director
Cynthia Chambers, BC Environmental Protection and Growth Management Department, Director
David Hobbie, ACOE
Jerry Scarborough, ACOE
Cynthia Perez, ACOE
Terry Jordan-Sellers, ACOE

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Broward County Board of County Commissioners

Sue Gunzburger • Dale V.C. Holness • Kristin Jacobs • Martin David Kiar • Chip LaMarca • Stacy Ritter • Tim Ryan • Barbara Shanief • Lois Wexler
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Navigation Study for Port Everglades Harbor

Draft Feasibility Report and Environmental Impact Statement

June 2013

Broward County Comments

This document contains comments on behalf of Broward County on the Draft Feasibility Report and EIS. Comments are organized by report section, beginning with the Draft Feasibility Report, then the EIS, and finally the report appendices.

Draft Feasibility Report Comments

Executive Summary, 3rd paragraph, 1st sentence. "...Port Everglades is one of three ports in Florida receiving petroleum, is ranked 35th nationally in tonnage, and has a growing cruise ship/passenger vessel presence..."

The italicized sentence, and paragraph, grossly understates the importance of Port Everglades in terms of both cargo and cruise, as well as its economic significance to the regional economy. We believe it is important that the Executive Summary make a reasonably compelling case for Federal investment in the Port Everglades project. More compelling text to demonstrate the importance of Federal investment in improvements at Port Everglades should include the following:

- 1) As a cargo port, Port Everglades is ranked 31st nationally in total tonnage, is ranked second among Florida port in terms of foreign trade tonnage and domestic trade tonnage, and is the largest Florida Atlantic coast ports in terms of total tonnage (source: Waterborne Commerce Statistics Center, 2011 data).
- 2) Port Everglades is an internationally important cruise port. It is the 3rd busiest cruise port in the world and U.S., as measured by total annual multi-day passengers;
- 3) The cruise industry is vitally important to the port. In 2012, Port Everglades had 838 cruise ship calls, including 199 calls by cruise ships longer than 1,000 feet and 344 calls by Post-Panamax size cruise ships. Port Everglades also homeports the largest cruise vessels in the world, RCI's Oasis Class, with lengths of nearly 1,200 feet, passenger capacities of 6,300 and a crew of more than 2,000.
- 4) Port Everglades is a major regional economic engine, generating (in FY 2012):
 - a. 28,100 direct, indirect and induced jobs,
 - b. \$1.7 billion in personal income,
 - c. \$2.9 billion in business activity,
 - d. \$0.59 billion in local purchases, and
 - e. \$160 million in state and local taxes.
- 5) In addition, related port users throughout Florida generate substantial economic activity. These include manufacturers and wholesale and retail distribution firms, which use Port Everglades but may also use other ports and therefore are not totally dependent on Port Everglades. These related port users generate:
 - a. 173,300 jobs,
 - b. \$6.1 billion in personal income,
 - c. \$22.8 billion in business activity, and
 - d. \$0.57 billion state and local taxes.

Source: The Local and Regional Economic Impacts of Port Everglades – FY 2012 Final Report

Executive Summary, Page iii, last paragraph, “Discussions include assessed impact acreages, functional assessment output, *and potential compensation derived from the proposed mitigation alternatives.*”

The meaning of the italicized clause is not clear.

Executive Summary page iii: Costs and Benefits of the Tentatively Selected Plan

The benefit-cost ratio for the TSP of 1.59 is inconsistent with the 1.57 on page 73 of the Economics Appendix.

Executive Summary page iv: Table A

The B/C ratio of 1.59 and AAEQ Benefits of \$24,820,000 are inconsistent with the 1.57 and \$24, 480,000 on page 73 of the Economic Appendix.

Executive Summary, Table A: Tentatively Selected Plan Costs and Benefits

There are several aspects of this Table that are confusing / potentially misleading:

- 1) Not all the line items listed as included in the subtotal GNF are General Navigation Features (e.g., LERRRDs are not GNF)
- 2) Expansion of the ODMDS is specifically mentioned in the text but cost is shown as \$0 in the table. This needs to be further explained.
- 3) Not sure why utility relocations are listed below the cost sharing subtotal rather than shown earlier in the table where allocation to either Federal or non-Federal costs can be clearly displayed (this is a 100% non-Federal cost).
- 4) Construction management (S&I) costs of \$1.3 million (0.5%) look extremely low relative to the total project first costs (\$282 million). Since S&I costs typically range from 5 to 7.5% of project first costs, this bears explaining.

1.3 STUDY PURPOSE AND SCOPE (GOALS AND OBJECTIVES)

This section should mention the impacts of channel width restrictions on large cruise ships.

Page 6, 1.4.2 Adjacent Facilities ...The port has adequate access to the Florida East Coast Railway links, with future plans for an intermodal container transfer facility and railway lines.

The italicized statement is out of date. Construction of the ICTF is underway and will be completed in July 2104 prior to implementation of the TSP.

Page 11, Table 6: Port Everglades Federal Navigation Reports

Study Type column contains “PE” entries, while footnote defines as “PA”

Page 11, 1.5.2 Previous Alternative Formulation Briefings . An Alternative Formulation Briefing (AFB) was conducted in 2001 and 2005 for the Feasibility Study but resulted in a recommendation to conduct further study. Several factors contributed to the need for re-formulations including changing conditions in the methodology for calculating transportation benefits, which resulted in the need for a new economic analysis.

Note AFBs should be plural, not singular. More importantly, is the italicized rationale an accurate reason for both the 2001 and 2005 reformulations? Also, should the most recently completed economic reanalysis also be mentioned?

Page 16: 2.1 General, first paragraph

Need to update to FY 2012 economic benefits of Port Everglades of approximately \$26.7 billion annually, supporting almost 201,400 jobs.

Page 16, 2.1 GENERAL... "Port Everglades is the second busiest multi-day cruise port in Florida with approximately 42 different cruise ships visiting in 2012, representing 15 cruise lines."

This gives a somewhat misleading impression. Port Everglades is also the 2nd busiest multi-day cruise port in the world, since the top 3 busiest cruise ports in the world are all located in Florida. To give a proper impression of the intensive use of Port Everglades by the cruise industry you may also wish to mention that those 42 different cruise ships had 838 calls in 2012, 344 of which were by Post-Panamax size cruise ships.

Page 19: 2.2.9 Salinity

Update name to Broward County Environmental Protection and Growth Management Department (BCEPGMD).

Page 20: 2.2.10 Littoral Processes

Recommend that the discussion of the Sand Bypass Project be updated to its current status.

Page 20, 2.2.11 Historic Conditions

The discussion in this section is disjointed. It starts in 1927, moving through 1940s, then shifting back to the 19th century, then back to the 1920s. It also shifts from Port history to region, then back to Broward County. It also stops in the 1950s. As a result, it does not portray a coherent image of the Port or the region it serves.

Page 21, Federal Navigation Project, "...Maintenance dredging occurred in 2013 and the next even..." "The estimated volume above design depth is approximately 160,000 cy."

Italicized word should be "event" not "even".

Add what volume was dredged during the 2013 maintenance dredging. Also, what is meant by the sentence "The estimated volume above design depth is approximately 160,000 cy." Does this mean that the project is not currently being dredged to its full design depth and width?

Page 25, 2.3.3 Local Areas of Particular Concern. "... (mostly owned by the state but managed by the county)"

Correct spelling to "managed"

Page 39: Last paragraph

Description of Midport is outdated. Revise to: "Along with berthing, Midport provides: 1 Panamax gantry crane, one mobile harbor crane, a refrigerated warehouse, several acres of open yard area for containers and neobulk storage, and 8 dockside buildings (Terminals 18, 19, 21, 22, 24, 25, 26, and 29)

that are used for passenger facilities. The berth areas adjacent to these terminals are used for both cruise and cargo operations.”

Page 41, 2.4.2 Cargo Movements and Fleet Composition. “Total vessel calls during the period of 1993 to 2010 have declined primarily due to a reduction in passenger cruise ship calls.”

To put this reduction in perspective, however, it is suggested that you add: “There are a couple of factors related to this. First, is the elimination of daily cruises to nowhere and second is that the total number and proportion of post-Panamax vessel calls has significantly increased over this same period, reflecting a shift over time to fewer but significantly larger vessels within the port complex.”

Pages 41-42: 2.4.2 Cargo Movements and Fleet Composition

Update last paragraph to reflect current cruise line use as follows: “Multi-day cruises include Princess Cruises, Holland America Line, Carnival Cruise Line, Cunard Lines, Celebrity Cruises, Royal Caribbean Cruise Line, Cunard, Seabourn, and Silversea Cruises. Daily cruises include the Balearia Caribbean service to Freeport, Bahamas.”

Page 42, top paragraph, “... Cruise ship trends at Port Everglades are changing and are trending toward larger capacity vessels on the order of 3,000 passengers

Reflecting the size of RCI’s Oasis Class, change italicized to “3000 to 6000 passengers”

Page 42, 2nd paragraph, “The cruise market has been shifting from day trips to longer voyages and larger vessels. As such, this is not a sign in market decline, but rather a market shift in the type of cruising, and thus a decrease in daily vessel calls.”

Suggest change to:

“The cruise market has been shifting from day trips by smaller cruise ships to longer voyages by larger vessels. As such, this decrease in daily vessel calls is not a sign of market decline, but rather a market shift in the type of cruising to higher value, multi-day cruises on the largest, newest vessels deployed in the cruise industry.”

Page 42, last paragraph, “There is a trend for container vessels calling at deeper sailing drafts inbound and outbound. For example, container vessel calls with 35-foot sailing draft or greater increased from 35 inbound in 2004 to 104 inbound in 2008. The increase in deeper draft vessels correlates with the increase in number of larger Panamax container vessels calling the port.”

This paragraph is out of date. Please update to more current 2011 or 2012 vessel calls and include both Panamax and post-Panamax container vessels.

Page 43, first paragraph, The major global services for container vessels calling on Port Everglades are deployments to and from Australia (AUST), the Far East (FE), Europe (EU), the Mediterranean (MED), and South America (SA). Most of the larger container vessels’ calls were either associated with services for the Far East or South America. The FE and MED calls declined in number from 2006 to 2008 due to the global recession. The AUST calls in the same time period remained the same, and the SA calls increased

This paragraph is also out of date. Please update to more current 2011 or 2012 vessel calls to reflect recovery in vessel calls since the 2006-2008 recession.

Page 43, 2nd paragraph, “Analysis of Port Everglades compound annual growth rates from 1998 to

2012 showed petroleum tonnages peaking in 2005 and then declining after 2005. Cement peaked in 2006 and then declined. Table 14 provides more details."

"The growth in cargo tonnage is indicative of south Florida population growth over this temporal period of analysis."

Table 14 does not provide details on historic growth rates – it displays the CAGR projections for future years. A table showing historic growth rates for different commodity types would be useful, however; and should be added to the document.

"tonage" should be "tonnage"

Also, please review data and revisit the last statement. We believe that growth rates for tonnage, esp. containerized tonnage, have significantly exceeded growth rates for south Florida population (rather than being indicative of..). This is significant in projecting future growth rates, esp. in the out years, if population is to be used as a predictive variable.

Page 45, Table 15: Cruise Passangers and Total Tonnage by Type (2012)

"Passangers" should be "Passengers". Also, TEUs or tonnage inbound and outbound should be shown.

2.4.2 Cargo Movements and Fleet Composition

General Comment. Overall, this section is somewhat disjointed. More importantly, it does not give a coherent and comprehensive view of commodity movements at Port Everglades. Critical items not presented include:

- Description of hinterlands for primary commodities, including competitor ports
- Description of primary commodities on each of the major container services (origins and destinations) and historic growth of same
- Description of cargo recovery & growth since end of 2006-2008 recession
- How generic "economies of scale" paragraph applies in particular to Port Everglades
- Interaction between cruise and cargo at Port Everglades (port operations, joint use facilities)
- Key factors affecting future cargo and fleet growth

3.4 ECONOMIC CONDITIONS.

Page 46, 2nd paragraph of Section: "The population of Florida in 2010 was 1,748,066."

1,748,066 was the 2010 population of Broward County. The 2010 population of Florida was 18,801,310 (Economics Appendix, Table 7).

"The urbanized counties that make up Port Everglades' south Florida hinterland have projected growth rates that are close to one-half of the rates for the whole state."

Check your math and revisit this statement. According to population projections in Economics Appendix, Table 7, south Florida hinterland projected growth rates appear to be 98-99% of projected state growth rates. If the statement is intended to mean that the anticipated growth in south Florida population represents nearly one half of the total expected state growth, then that figure is closer to one third and the sentence should be rewritten to clarify that meaning.

3rd paragraph of Section: "Container tonnage continued to grow through 2008, but too has since declined. The contalner tonnage historical growth rates, further discussed In the Economic Appendix section 2.0, were generally more conservative than other major U.S. contalner ports such as Savannah Harbor, reflecting that Port Everglades is a regional hinterland largely confined geographically to the southern part of Florida."

The referenced container tonnage historical growth rates are not presented either in this section or in the referenced section 2 of the Economic Appendix. The conclusion drawn – that Port Everglades is a regional port with a regional hinterland, and therefore likely to experience lower growth - is a critical assertion and should be supported with data and analysis that lends credibility to this conclusion. The historic growth rates should also be presented in order to provide a basis of comparison with the projected future growth rates presented later in the report.

Page 47, 1st paragraph, “The projected growth rate for containerized cargo is three percent as outlined in the Port Master Plan (2006). A factor that will affect this rate is the resumption of discontinued container services by Panamax vessels with one service expected to begin in 2010. The Port is projected to attract additional Post-Panamax service in 2016, greatly increasing the volume of containerized cargo.

This paragraph is out of date and appears to be a holdover from a much earlier, pre-2010 version of the draft Feasibility Report. Projected container growth rates presented in the Economic Appendix, Table 23, for 2017 to 2029 range from 3.81% to 4.24%. There are both Panamax and Post-Panamax services currently calling at the Port in 2013. Also note misspelling of “serice” – should be “service”.

Page 47, 3.5 WITHOUT PROJECT CONDITIONS. 5th bullet “...as futher described

Misspelling. Should be “further”

Also, please update description of the status of the turning notch project.

Page 49, First Paragraph, “Mediterranean Shipping Company's MSC Maeva...”

This paragraph seems to be out of place. It would fit more appropriately within 3.4 Economic Conditions, as an indicator of the size of vessels in the future containership fleet; rather than in Section 3.5 Without Project Conditions, following a discussion of the turning notch project.

Also, it would bear mentioning that this is a 8,100 TEU capacity vessel and that vessels of this class are now calling (rather than is projected to call) on Port Everglades on a regular basis.

Page 51, 4.2 PROBLEMS AND OPPORTUNITIES. Existing problems include:

- **navigational safety concerns: inadequate width and depth of the channel to accommodate future vessel fleets, leading to potential collisions, allisions, and groundings, and”**

Note that there is inadequate depth and width for the existing vessel fleet, not just the future fleet. This leads to operational inefficiencies and increased transportation costs in addition to the other problems listed. Also, most readers will not know what “allisions” means. This is not defined until page 57.

Existing problem definitions in this section are somewhat vague and difficult to follow. Suggest you replace these with the problem definitions contained in the Economic Appendix Section 3.4.

Page 58, The primary problems at Port Everglades are related to container ship operations in the Federal navigation channel leading to the Southport container terminal and cruise ship operations in the Federal navigation channel leading to two of the Port's cruise terminals.

Mention should be made of petroleum cargo vessel light loading problems as well, since a significant portion of the benefits to be described later in the report come from petroleum vessels.

Page 59, 2nd paragraph, 2nd sentence: “There are by-passing restrictions on vessels transiting the South Access Channel, which stop all Panamax and Post-Panamax vessel traffic in the South Access Channel, when Panamax vessels are moored alongside.

After “alongside” add “berths 25, 26/27, and 29.”

Page 61, Table 17: Study Objectives Objective 1 Decrease costs associated with vessel delays from congestion, channel passing restrictions, and berth deficiencies at Port Everglades through the year 2067.

Do not believe “berth deficiencies” belongs in this objective. Any berth deficiencies are being resolved by Port Everglades as part of capital improvements under the without project conditions.

Page 62, 4th paragraph, The unpredictable cross-currents are an existing problem as presented earlier in this section and is considered a planning constraint.

Unpredictable cross-currents are a problem that needs to be addressed in the formulation of alternatives, but is not a constraint that limits formulation.

Page 65, 4. Trucking. Vessels that cannot be accommodated at the port would be redirected to other ports. The commodities would then be trucked to Port Everglades as needed or other locations as needed. This measure could reduce port congestion so it met objective 1.

Trucking is really a misnomer for this non-structural alternative. It is really vessels bypassing Port Everglades to load/offload at another, less cost effective, port. Commodities are then transported to their ultimate hinterland origin/destination by whatever land-based transportation method is appropriate from the alternative port. You can note that this alternative is currently being implemented on container services that have recently left Port Everglades due to channel depth restrictions.

Page 65, 5. Off-Loading Cargo. It would increase port congestion because at least two vessels would be entering rather than the original, larger vessel...It is not likely to decrease costs because two vessels have to be used which increases delays and operating expenditures

Note that the italicized statements about requiring at least two replacement vessels is only true in cases where the larger vessel would be loading/unloading its entire cargo at a non-depth constrained Port Everglades. Typically, this would be the case for point-to-point bulk services only. The typical container vessel (at least ones large enough to require increased channel depth) is on a liner service that only loads/unloads a portion of their cargo at any given port on its rotation. For these container vessels, this alternative would take the form of transshipping all or a portion of their Port Everglades-bound cargo at another port onto a smaller (but less efficient) vessel.

Page 66, 6. Light-Loading Vessels. This measure would limit the capacity of the vessels that could enter the port.

Suggest rewording italicized sentence to “This measure would limit the ability of vessels entering the port to load to their full capacity.

Page 66, 7. Lightering Vessels. The two main commodities that would require lightering at Port Everglades are containers and petroleum. Petroleum lightering is a more common practice in the Gulf of Mexico and not in the Atlantic.

The concept of off-shore lightering is typically not applied to container vessels. Transshipment of containers to smaller vessels typically occurs at alternative transshipment ports (such as Jamaica or Manzanillo).

Also, please note that petroleum lightering is common in the north Atlantic, and occurs most notably in the Delaware Bay, New York Harbor, Long Island Sound, Narragansett Bay, and Chesapeake Bay. Lightering is typically done at a designated anchorage or protected off-shore or near-shore area however, none of which are available in close proximity to Port Everglades.

Also note that the larger vessel that is lightered is still required to enter the harbor, as is the smaller lightering vessel, resulting in congestion problems from additional vessels and safety issues associated with the larger tankers, similar to those problems discussed for container vessels under 6. Light Loading .

Page 66, 8. Off-Shore Petroleum . This measure would build an off-shore facility for the petroleum vessels. ... This measure meets objective 2 to decrease transportation costs.

While this measure might decrease the waterborne leg of transportation costs, it would significantly increase the landside leg, and very likely increase total transportation costs, as well. There is also an increased environmental risk of oil transfers offshore.

Page 66: 9. Alternate Rail

The paragraph incorrectly indicates that there are no rail cars designed to transport petroleum related products. While it is accurate that some of the refined petroleum products entering Port Everglades are not normally shipped by rail, the primary reason that use of rail to provide petroleum products to south Florida is not feasible is due to the volumes required and the lack of rail infrastructure to deliver those volumes.

Page 76, Plan NS-3: Clear Bearthed Vessels

Misspelling. "Bearthed" should be "Berthed"

Plan NS-6: Light-Loading Vessels

Carrying less cargo per transit equates to increased transportation costs due to increased transit for delivery of the goods. As such, Plan NS-6 was eliminated as a viable option.

Plans NS-4 (Trucking), NS-7 (Lightering Vessels), and NS-8 (Off-Shore Petroleum) were carried into the next level of detailed analysis and are evaluated in section 4.7.1.

The logic for inclusion and exclusion is not consistent. If the rationale for the elimination of Plan NS-6 is increased transportation costs, then Plans NS-4, NS-7 and NS-8 should also be eliminated for the same reason. Trucking increases transportation costs by landing cargo at a less cost effective port location. Lightering increases transportation costs due to a second cargo handling and use of an additional vessel. Off-shore petroleum increases transportation costs due to the additional construction costs of vessel unloading and piping/pumping infrastructure.

Page 82: Disposal Options

The temporary disposal site for dredged material between Slips 2 and 3 no longer exists. Recommend deletion of the last 2 sentences of that section and replace it with: "A temporary site for upland material not suitable for offshore disposal that could be staged, dried, and then transported offsite for landfill capping or other use is located on the port in the southwest corner of Southport. That site has been used by the port for maintenance dredging material."

Page 82, 3rd paragraph. An Environmental Assessment (EA) is being prepared in coordination with the Environmental Protection Agency (EPA) to address the ODMDS expansion. The final report is scheduled to be completed winter 2013.

Is an incomplete DMMP without an approved disposal area sufficient to accommodate project dredge volumes and O&M quantities considered sufficient for approval of the Feasibility Report? Since upland sites are no longer available, what is the alternative if the ODMDS expansion is not approved? Has that possibility been factored into the cost risk analysis?

Lightering Plan: Lightering vessels is when part of the commodity is off-loaded outside of the port onto smaller vessels for entry into shallower ports. The two main commodities that would require lightering at Port Everglades are containers and petroleum. Petroleum lightering however, is more common practice in the Gulf of Mexico and not in the Atlantic, and is thus further evaluated

See earlier comment regarding Atlantic Coast lightering.

Page 83: Utility Relocations in Port Everglades

Revise the first sentence to "Utility investigations indicate that Florida Power and Light (FPL) cables are laid on the existing channel bottom along the SAC." FPL has confirmed that the cable across the IEC was removed in 1987.

Page 90-105, 4.8 FINAL ARRAY OF ALTERNATIVE PLANS

General Comment: We find this section of the report to be very confusing and unnecessarily complicated. Specific concerns include the following:

- The structural measures were grouped into six different plans based on structural characteristics, environmental impacts, and *economic units*. What is meant by an "economic unit"? Does this mean project segments that are independent and so should be incrementally justified?
- Table 24 is understandable, however, the un-numbered Figure on page 92 is not, without additional description. The text provided on Page 91 confuses more than it elucidates.
- Page 94. What is the intent of the list of features beginning with Plan 1B, some of which are highlighted and others light shaded? Are the light shaded items not included in this (and later) alternatives? If so, please state at the beginning of this section.

Page 106, 4.9.1 Environmental Operating Principles

"The USACE Environmental Operating Principles (EOP's) were developed in ... These EOP's were revisited in 2012 with more emphasis on proactively implementing these *principals*."

Italicized words are misspelling and wrong word. Should be "implementing" and "principles"

Page 106, 5. Consider the environment in employing a risk management and systems approach throughout life *cylcies* of projects and programs.

Italicized word should be "cycles"

Page 108, 5.1 2nd paragraph, With each foot of increased depth at Port Everglades, containership costs increase as more cargo is moved per call. However, the gross cargo volume increases at a greater rate than the increased voyage related costs, and therein lies the benefit to deepening, as mentioned before.

Suggested rewrite, "With each foot of increased depth at Port Everglades, the costs per containership

increase as more cargo is moved per call. However, the gross cargo volume increases at a greater rate than the increased voyage related costs, resulting in a lower cost per TEU transported and fewer ships are required to deliver the same total volume of cargo to the Port. This is the source of the deepening benefits.”

Pages 113 and 116: Table 29 and Table 30

The Average Annual TCS Benefits of \$24,480,000 for the TSP 48'+Widening alternative in Table 29 doesn't match the AAEQ Benefits of \$24,820,000 in Table 30. These should be the same.

Page 114, Table 29: Alternative Depths Analysis

How is it that Interest During Construction (IDC) increases as a percentage of total first costs as depth increases, from 7.8% (46') to 12.9% (51'). Is the length of the construction period consistently greater as depth increases?

Why are there no TCS benefits beyond 49 feet? What is the maximum vessel operating draft restriction that gives rise to this result? If the TPV of TCS is the same for 49 – 51 feet, how is it that the Avg. Annual TCS benefits increase (albeit slightly)?

Page 116: Table 30

The B/C ratio of 1.59 and AAEQ Benefits of \$24,820,000 are inconsistent with the 1.57 and \$24, 480,000 on page 73 of the Economic Appendix.

Page 119, Table 33: Construction Phasing

How is the 8 year construction start phasing consistent with the project base year of 2017 cited earlier in the report? Schedule should be aligned with the ACOE target for completion of construction in 2017.

Page 121, 7.1 OPERATIONS AND MAINTENANCE CONSIDERATIONS, 2nd paragraph, The increase in maintenance costs over the existing O&M was determined using FY 11 costs and a 4.375% interest rate over the 50-year period of analysis. The existing project has an AAEQ cost of \$183,106 and the proposed project AAEQ cost is \$218,385. The annual O&M costs increases by \$35,279. This increase in cost is based on the increase in material needing to be removed from the channel. The existing project needs approximately 217,000 cubic yards removed every 10 years while the proposed project will need approximately 274,400 cubic yards removed.

The calculation of incremental O&M costs appears to be out of date, based on prior years' price levels and discount rates. The costs cited for incremental O&M are not consistent with totals shown in Table 29.

Page 149 11.0 REFERENCES

The list of references seems very short and incomplete. Missing (among others) are the most recent Port Everglades Master/Vision Plans.

Draft Environmental Impact Statement (EIS) Comments

1. The diameter threshold for coral relocation should be 10cm in accordance with typical permitting criteria. The EIS alternately states the diameter threshold for coral relocation is 10 cm or 25 cm. It is recommended that all corals 10 cm in diameter or greater be relocated in accordance with typical permitting criteria.

2. Downslope reef impacts should be included in the EIS if clamshell dredging is an option for the third reef. The EIS does not account for downslope reef impacts that may occur during dredging of the upper part of the reef. Discussions with USACE staff indicate that downslope reef impacts were initially considered; they were ultimately excluded from the EIS analysis based on monitoring reports from the Miami dredging project demonstrating no downslope impacts from the use of a suction dredge. However, the EIS provides for clamshell dredging as a possible construction methodology; therefore, the potential for downslope reef impacts should be addressed unless the EIS is revised to specify the use of a suction dredge. In addition:
 - Other federal agencies and/or local regulatory/resource agencies may disagree with USACE's analysis of the extent of hardbottom/reef habitats (Section 4.4.2.2 of the Draft EIS), and which impacts could result in additional compensatory mitigation (possibly, rock/rubble habitat within the existing federal channel). There may be large rock/rubble features within the existing channel that are colonized by corals; discernible via sidescan sonar or other means. The loss of these hardbottom habitats should be accounted for, and if they are impacted, mitigation should be provided.

 - Broward County Natural Resources Planning and Management Division conducted an independent review of the project's reef impact assessment based on the GIS habitat classification mapping and anticipated project impact area. The outcome of this review essentially verified the project impacts are consistent with what is shown and discussed in the Feasibility Study and DEIS. However, as discussed above the potential for downslope reef impacts was apparently discounted by the USACE in the DEIS and needs to be discussed in the development of the final EIS document.

3. Direct and indirect impacts that may occur from turbidity/sedimentation as a result of construction practices are not fully accounted for in the EIS. The use of best management practices is mandated in the EIS to ensure proper control of turbidity / sedimentation and the USACE definition of environmental success for this project is for indirect impacts to be both minimal and indiscernible (July 23, 2013 1:00 pm public meeting). However, historic long-shore currents in the project vicinity and tidal changes at the inlet will make sediment and turbidity control difficult. Staff recommends that a contingent mitigation plan be

developed to help ensure mitigation requirements that may result from unintentional impacts are accounted for, and budgeted, in the planning phases of the project.

4. A detailed pre-construction seagrass survey should be performed to ensure that seagrass impacts are properly identified and mitigated. The EIS includes assumptions regarding impacts to seagrasses based on seagrass surveys performed by various entities from 1999 to 2009. These historic surveys may not be representative of current conditions as it is common for seagrass beds to change shape and size over time. We encourage an updated survey be completed so that the precise extent of impacts, and resulting potential mitigation burden on the ongoing West Lake Park (WLP) habitat improvement project, can be determined prior to construction. A contingency plan for mitigation should also be provided in case WLP cannot accommodate all of the required seagrass mitigation.
5. The estimates for mitigation acreages are based on assumptions and the methodology is not fully documented in the EIS. Required mitigation acreage tables for seagrass & mangrove impacts do not include the necessary Uniform Mitigation Assessment Method (UMAM) worksheets. Discussion with USACE staff at the July 23 public meeting indicated that the preliminary estimates were based on historic knowledge from permitting agencies and that a detailed analysis with UMAM worksheets and backup documentation would be performed in a later phase. The wetland delineation for the mangrove habitats in the impact area and adjacent areas (Section 3.5.6 in the Draft EIS) is out-of-date. Broward County recommends these areas be delineated as soon as possible in order to better determine the precise extent of impacts, and resulting potential mitigation burden on the ongoing WLP habitat improvement project.
6. The cost estimates for coral mitigation are not consistent with costs incurred by the County for similar projects. The mitigation plan (Table 8, page 33) lists the cost for artificial reef creation, without coral transplantation, as \$588,524 per acre. In 2003, Broward County implemented a shallow water reef creation project without coral transplantation at a cost of \$675,000/acre. Staff recommends consulting with local marine contractors to obtain a more accurate estimate to help ensure mitigation requirements may be properly accounted for, and budgeted, in the planning phases of the project. A more likely range of per acre mitigation costs is between \$800,000 and \$1 million. Staff is aware of a project currently underway in St. Lucie County where the unit cost is approximately \$833,000/acre.
7. The HEA input parameters are inconsistent with typical resource recovery. The HEA inputs assume that the damaged reef will recover to a 15% level of service in 50 years and the artificial boulder mitigation will recover to a 100% level of service. However, the proposed dredging project will remove the reef framework and in the case of the outer reef, create rubble bottom, therefore making full recovery unlikely. In addition, mature artificial reefs do not provide the same services as a natural reef. Therefore, staff recommends changing

recovery time inputs for outer reef impacts from 50 years to “in perpetuity” and adjusting recovery service level inputs for boulder mitigation to less than 100%.

8. Coral Reef mitigation sites may inhibit future County projects. The Mitigation Requirements for Hardbottom Resources Associated with Port Everglades Harbor Navigation Improvements (page 36, section 6.4.2, 2nd paragraph) contemplates utilizing existing artificial reef sites permitted by Broward County’s Natural Resource Planning and Management Division (NRPMD). Obtaining permits for these existing artificial reef sites required considerable effort by NRPMD; therefore, staff is concerned that their use by this project may entail the repetition of past permitting efforts in order to obtain new mitigation sites and/or possibly require the relocation of previously required mitigation. In addition, an alternative (Figure 8, page 39) proposes the use of sand borrow sites for mitigation which may adversely affect future beach nourishment projects. Staff recommends that the USACE coordinate with local and state regulatory agencies to identify additional sites for proposed mitigation.

9. The EIS uses a Discount Rate of 0% rather than the previously agreed upon 3%. The Draft Comprehensive Mitigation Plan (Appendix E-2, page 23, section 4.6.3) uses a discount rate of 0% with the explanation that no discounting should occur on a federal water resources project as indicated in OMB circulars A-4 and A-94. Staffs review of the referenced circulars and “Economic and Environmental Principles and Guidelines...” found no mention of the required 0% discount rate. Rather 3% and 7% were used often as examples of acceptable discount rates. The National Oceanic and Atmospheric Administration (NOAA) (1999 *Discounting and the Treatment of Uncertainty in Natural Resource Damage Assessment. Damage Assessment and Restoration Program, Damage Assessment Center, Resource Valuation Branch. Technical Paper 99-1. Silver Spring, MD, February*) uses a discount rate of 3%. This represents the public’s preference toward having a restoration project in the present year, rather than waiting until next year. In meetings for previous drafts of the EIS, the USACE agreed that 3% was appropriate while some agency staff argued for 6%.

10. Recommendation for Hardbottom/Reef Mitigation. The USACE-preferred type of mitigation proposed for impacts to hardbottom and reef habitats may not be the preferred option by other federal agencies or local regulatory/resource agencies (Section 6.2, Item 8, of the CMP/ICA). The type and amount offered by USACE appears to have the best benefit-to-cost ratio but this evaluation may be based on an underestimate of the costs for mitigation per acre as outlined in comment #6 above. Broward County, as the local project sponsor, may be liable for any costs beyond those of the “Best Buy” option if another option is selected, including that presented by NOAA/NMFS in the DEIS.
 - It is Broward County’s opinion that portions of the presented NOAA/NMFS mitigation plan in the DEIS may not be considered appropriate in-kind project mitigation; however, some of the concepts could be considered in the final

mitigation plan wherein various mitigation options are considered. It is our recommendation that the final selected coral mitigation strategy include a blend of various mitigation options, such as, artificial reef creation using rock/boulder and modules along with coral transplants; artificial reef placement on the existing “tire reef”; the potential restoration of historic grounding sites using coral transplants; and the possibility of including a test site for coral propagation from in-water and land-based nurseries.

Minor Error and Omissions

List of acronyms needs to be expanded since there are more than noted above that are not included in the Acronym List including TEU’s, FONSI, TTS, NAAQS, DERA and ROI

Reference to numbers of vessels (baseline and projected) are inconsistent throughout the document

Page XV, List of Figures

Figure 39 is not listed on the index. Figure 56 is on page 127 not page 128.

Page 81, Figure 38

Legend should indicate size of areas

Page 105, 3.6.1.3

Suggest a figure here to show areas 1-7

Page 115, Last Paragraph

Should include *Strombus gigas* since it is a protected CITES II species.

Page 118, Section 3.6.4.3

Paragraphs above and below “3.6.4.3” are the same

Page 127, Figure 56

Figure is not labeled

Page 145, Section 3.7.3.14, sentence at top of page

Delete “sand” add period and begin new sentence with “Dustan”.

Page 145, Section 3.7.3.14, 4th sentence

“Cogeners” is more commonly spelled “congeners”

Page 145, last sentence

“was” should be “were”

Page 148, Section 3.9.2, Second Paragraph, 1st sentence

“Count” should be “County”

Page 148, Section 3.9.2

Text is wrong, figure is right. Should be Figure 63.

Page 148, Section 3.9.2

Text is wrong, figure is right. Should be Figure 64.

Page 195, 1st paragraph, last sentence

Mentions sea turtles in the crocodile discussion, should be in 4.5.5

Appendix E, Page 33, Table 8

Typo on the "all others habitats row. "0.0 should be 0.0*.

Appendix E, Page 33/34, Table 8 & 9

Both tables contain the same information

Appendix E, Page 41, 2nd paragraph, last sentence

Should provide reference to appendix

Appendix E-2

The legends for Figures 1-2 should indicate acreages

Appendix E-2, Page 30, Table 14

"Vales" should be "Values"

Appendix J

Note title page, author, date, and pages are not numbered

Appendix J, Section 1.6

Stops mid-sentence

Sub-Appendix E

No author shown on title page

Sub-Appendix G

No author or date shown on title page

Acronyms are not defined

Sub-Appendix G, Title Page: Estimate for National Economic Development Plan of 48'

Referenced 1816 days which equals 4.97 years for the project, DEIS indicates project will last 3 years.

Engineering Appendix Comments

Need to ensure that the bulkhead cost in the without and with-project conditions are accurate. The Port will be implementing several bulkhead related projects prior to the with-project condition and those cost should not be included in the overall cost estimate for the project.

Page A-10: Figure A-2 Port Layout and Berthing

The map in this figure is out of date and should be replaced with our current port map.

Page A-12: Paragraph 19

In the 5th line, the FAWN station is 7 miles “west” of the port, not “east.”

Page A-29 and A-30: Paragraph 68

The last maintenance dredging occurred in 2013, not 2005. The year and quantity of material from that dredging should also be added to Table A-8.

Page A-121: Table A-19

While the ACOE may want to include this table to show a consecutively constructed project, should also add a timeline that shows the sequencing for project construction being completed within two years as was indicated during the public meetings

Pages A-124 and A-125: Figure A-79

While the ACOE may want to include this Figure to show a consecutively constructed project, should also add a Figure with a timeline that shows the sequencing for project construction being completed within two years as was indicated during the public meetings.

Page 101, Section 3.8.4

This should be revised to reflect that the only FPL cable is the one located in the Southport Access Channel.

Pages 120/121, Section 4.4

This section and associated tables should be revised to indicate a non-sequential more realistic implementation schedule that aligns with the with-project condition date of 2017.

Socioeconomics Appendix Comments

Section 4.1: Intermodal Container Transfer Facility - last sentence.

Comment: Is it necessary to take the most restrictive view of the potential impact of the ICTF on future Port Everglades cargo? The ICTF will provide a substantial competitive advantage to Port Everglades. Construction is ongoing, so there is no question of whether the facility will be operational in the base year. The Port and FEC have projections for future cargo movements. These projections should be included in the analysis.

Section 5.1 Commodity Forecast Methods and Assumptions – first paragraph

Comment: South Atlantic ports used in the analysis should be identified.

Section 6.1 Future Without-project Vessel Fleet – first paragraph, last sentence

Comment: Has the Port been consulted concerning the size of future cruise ships? As one of the world's premier cruise ports, Port Everglades often homeports the newest vessels in the world's fleet. The trend is for these vessels to be larger than their predecessors. The port is also improving landside facilities to accommodate more very large cruise ships. It may be the case that the future fleet will include a larger proportion of very large container ships than are in the existing fleet.

Section 6.1 Future Without-project Vessel Fleet – second paragraph

Comment: This paragraph could also be interpreted to indicate that Port Everglades will lose containership services and cargo in the without-project condition. The loss of services and cargo under without-project conditions is the logical result of larger vessels and alternative ports with deeper channel. This should be addressed in the analysis.

Section 7.1 Description of Final Array of Alternatives – Planning Objective #3

Comment: Planning objective #3 reads as if the objective is to increase channel safety and maneuverability for future vessels. It should be noted that all analyses are conducted on the existing fleet and not on larger future vessels, which and will likely use the port in the future under with-project conditions.

Section 8.1 Transportation Cost Savings – last sentence

Comment: Tug cost and fuel cost reductions identified earlier in the document are consistent with ER 1105-2-100. They should be included as transportation cost savings. Further, the spreadsheet models and economic analysis for these additional benefits that was provided to the U.S. Army Corps of Engineers on June 20, 2013 should immediately begin the review process so that these additional benefits may be included in the Benefit Cost Ratio as soon as possible.

Section 9 Future With-project Fleet Forecast – containership bullets

Comment: A table showing what's in and what's out (as described in the bullets) would help the reader understand and compare the fleet composition for each trade route.

Section 10 Evaluation of Alternatives via HarborSym – second sentence

Comment: This sentence is incorrect. HarborSym does not calculate total transportation costs. HarborSym calculates a sub-set of total transportation costs – for example, tug assist costs are not included, which are a component of total transportation costs.

Section 10.2 Modeling Assumptions – Table 31

Comment: Please explain how the values in Table 31 were calculated and how they are used in the model. For example, does every vessel call on the ECUS-WCSA route arrive and depart with 24.7% empty TEUs and 6.5% vacant slots? If so, what constrains the carrier to maintain these averages?

Section 10.3 Model Setup and Calibration – last paragraph

Comment: What is “Existing Condition ()”. Is that a typo?

Section 10.3.1 Vessel Types – third paragraph

Comment: Is EGM 11-05 the most recent version of operating costs? Also, summary values such as hourly operating costs by class should not be proprietary because they cannot be traced back to a single user. It would be helpful to the reader, if a table of costs were provided so that economies of scale could be pointed out (\$/TEU/thousand miles, for example).

Section 10.5 Model Outputs – first paragraph

Comment: Suggest changing “total transportation costs” to “HarborSym-transportation costs” to avoid the incorrect presentation of HarborSym-calculated costs as total costs.

Section 11 National Economic Development Benefits – first paragraph

Comment: The discussion of NED benefits should be caveated by stating that tug assist reduction benefits and fuel consumption reduction benefits are not included in the HarborSym analysis.

Section 12 Regional Economic Development Benefits – first paragraph

Comment: Some mention should be made concerning the temporal nature of these benefits. Are they projected to occur only during construction? Two years, three years, etc?

Section 13 Sensitivity and Scenario Analyses – first paragraph

Comment: The baseline analysis is very conservative in its approach and assumptions, therefore why are only more conservative assumptions used for the sensitivity analyses? Suggest including additional cargo in without-out and with-project conditions due to ICTF, and loss of container services and cargo under without-project condition associated with increased services and cargo under with-project conditions.

Dredged Material Management Plan Appendix Comments**Page 9: First paragraph**

Update economic impact sentence to read “With an annual economic impact of almost \$25.7 billion and 201,700 Florida jobs, the port offers great value to the community.”

Page 11: Figure 1

Update waterborne commerce tonnage to FY 2012 data. Also suggest deleting the 2007 commodities and passengers pie chart since it combines different units of measure (passenger counts and cargo tonnage) in the same graph. Suggest using data in table format from the Port FY Waterborne commerce chart that shows tonnage and passenger counts separately.

G:\Port\PORTDIRS\David A\DREDGING PROGRAM EIS\DRAFT COMMENTS\Comments on June 2013 Port Everglades
Draft Feasibility Report and EIS DMA 080613.docx

From: [Keven Klopp](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Feasibility Report and draft Environmental Study - Port Everglades
Date: Monday, July 15, 2013 11:07:38 AM

I will be out of town and unable to attend the public meetings scheduled for July 23. Otherwise, I would be there to express my support for the expansion projects at Port Everglades. Adding up to five berths, widening and deepening the channel, and bringing freight rail into the Port are all very important -- in my opinion as a professional and a resident -- to the region's future success.

Thank you

Keven R. Klopp

CITY OF DEERFIELD BEACH

Assistant City Manager

150 NE 2nd Ave.

Deerfield Beach, Florida 33441-5816

KKlopp@Deerfield-Beach.com

954.480.4222

From: [Holness, Dale](#)
To: [Jordan-Sellers, Terri SA1](#)
Cc: [Scarlette, Lahoma](#); [Beckford, John](#); "[Bob Swindell \(bswindell@gflalliance.org\)](#)"
Subject: My Support of the Port Everglades Expansion
Date: Monday, July 15, 2013 11:10:30 AM
Attachments: [image001.png](#)
[image005.png](#)

USACOE Project Director Terri Jordan-Sellers:

Good Morning!

In advance of the 45-day public comment period on the Draft Report, I would like to recap the importance of Port Everglades and state for the record my full support of the expansion project.

Here are some key facts about our Port:

- * Port Everglades is a \$143 million enterprise earning all of its revenue from Port commerce, none from taxpayers.
- * Port Everglades is the fuel hub for all of South Florida. It handles jet fuel for the 4 international airports (FLL, MIA, PBX and SW Intl. in Fort Myers) and provides gas for 12 counties.
- * Port Everglades is the 3rd busiest cruise port in the world. (3.7 million multi-day passengers sailed in Broward County in 2012.)
- * Port Everglades is home to the largest single ship terminal in the world – the 5,400+ passenger Oasis and Allure of the Seas ships.
- * Port Everglades is embarking on three critical expansion projects that are projected to create 7,000 new jobs regionally and support 135,000 jobs statewide over the next 15 years for a total 143,000 jobs.
- * Currently, Port Everglades supports 11,600 direct jobs locally for a total of 201,000 jobs statewide.
- * These key expansion projects are expected to be completed over the next six years and will add up to five berths, widen and deepen the channel and bring freight rail into the Port.
- * Port Everglades is the No. 1 container port in Florida and 12th largest in the United States.

I support the expansion of Port Everglades in part because:

- * The Port Everglades project is good for our local business owners and their employees many of which reside in my District.
- * Many of the businesses in Broward County rely on Port Everglades as one of the strongest economic engines in the region.
- * The attention the project money will devote to enhancing reefs up and down the Broward coastline is much needed.
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.
- * Broward County has an active and dynamic environmental community that "gets it," as they have proven with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign.
- * Industry at Port Everglades creates jobs.

The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. I look forward to a continued expedited process in regard to the project and I lend the support of my office in furtherance thereto.

Regards,

Dale Holness

Description: Description: cid:image003.png@01CB956D.A6A7A690

Office of the Honorable Dale V.C. Holness

Broward County Commissioner - District 9

115 S. Andrews Avenue. Room 417, Ft Lauderdale, FL. 33301

O: 954.357-7009 F: 954.357.5622

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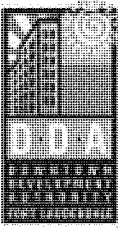
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Coming together is a beginning. Keeping together is progress. Working together is success. - Henry Ford <<http://www.boardofwisdom.com/default.asp?topic=1010&search=Henry+Ford>>

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July 17, 2013

Mr. Terri Jordan-Sellers
USACOE Project Director
4400 PGA Blvd #500
Palm Beach Gardens, FL 33410

RE: Deepening and widening of the Port Everglades harbor

Dear Mr. Jordan-Sellers:

The Downtown Development Authority ardently supports the deepening and widening of the Port Everglades harbor. This project has the potential for substantial economic impact on not only Downtown Fort Lauderdale, but also to Broward County and the South Florida region.

From a downtown perspective, the area stands to gain immensely from the increased tourist traffic that will travel to and from the area. Port Everglades is the third busiest cruise port in the world and our downtown depends on this demographic for tourism dollars from those who make a stop in the area before and after their cruise.

The port generates not only tourism revenues, but also jobs for the region. This project will add even more jobs. While other ports around Florida and the globe ramp up their capabilities, it is essential that Port Everglades makes a concerted effort to compete on a regional and global scale in anticipation of the expanded Panama Canal. Please help our region to thrive with a deepened and widened Port Everglades.

Sincerely,

Chris Wren
Executive Director

cc: John Milledge

Chairman: Tim Petrella Vice-Chair: John Ropes Secretary: Michael Weymouth Treasurer: Dennis O'Shea
Board Members: D. Fredrico Fazio Bill Bodenhamer, Jr. Gregory Durden Executive Director: Chris Wren General Counsel: John Milledge

From: [Demos, Nicholas - FORT LAUDE FL](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [gbuffin@gfalliance.org](#); [bswindell@gfalliance.org](#)
Subject: I support the Port Everglades project because it is good for our business community now and in the future.
Date: Monday, July 15, 2013 11:50:53 AM
Attachments: [image001.png](#)

To: USACOE Project Director Terri Jordan-Sellers

I am writing to you because I will be out of the country on July 23 so I will be unable to attend the public meeting that is scheduled regarding Port Everglades. I want to voice my support for the deepening and widening of the Port Everglades harbor to accommodate mega-ships expected to pass through an expanded Panama Canal.

As the third busiest cruise port in the world and the No.1 container port in Florida and 12th largest in the United States, Port Everglades is a valuable resource to our business community. Industry at Port Everglades creates jobs. Currently, Port Everglades supports 11,600 direct jobs locally for a total of 201,000 jobs statewide.

Broward County has an active and dynamic environmental community that "gets it," as they have proven with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign.

Port Everglades is a \$143 million enterprise earning all of its revenue from Port commerce, none from taxpayers. Port Everglades is the fuel hub for all of South Florida. It handles jet fuel for the 4 international airports (FLL, MIA, PBX and SW Intl. in Fort Myers) and provides gas for 12 counties.

The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. I support the Port Everglades project because it is good for our business community now and in the future. Thank -you.

Sincerely, - Jim Demos

N. James Demos, CIMA®, CFP®, CRPC®, | First Vice President-Wealth Management | Wealth Management Advisor

Merrill Lynch Global Wealth & Investment Management
 450 East Las Olas Blvd | Suite 1000 | Fort Lauderdale, FL 33301

(Phone (954) 357-4520 | (Fax: (954) 449-6088 | *Email: : jim_demos@ml.com
[<mailto:jim_demos@ml.com>](mailto:jim_demos@ml.com) |

Web: http://fa.ml.com/Jim_Demos

NMLS ID: 521635

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From: [celeste.willard](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades - Expansion
Date: Monday, July 15, 2013 2:15:02 PM

Terri,

I am writing in response to the Port Everglades harbor expansion study. I am a second generation Floridian and care not only about the jobs this would create in our community and the opportunities that would be available on a global level, but also the environmental enhancing of our coastal reef system which the project will devote funds to.

I support this expansion because it is good for Broward County now and in the future. I thank you for your consideration.

Respectfully,

Celeste Willard, Contract Manager

Centerpoint Construction Corp

7551 Wiles Road, Suite 206

Coral Springs, FL 33067

Office: 954.346.4066

Direct Line: 954.214.3017

Fax: 954.206.6153

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From: [Stephen High](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades Deepening Project, Comments for Public Hearing to be held on 7-23-2013
Date: Wednesday, July 17, 2013 2:18:41 PM

Terri Jordan-Sellers,

I will not be able to attend the public hearing, regarding the Port Everglades deepening project, to be held on July 23, 2013. However I do want to express to you that I fully support this project going forward and feel it is of extreme benefit to the economy of Broward County as well as the State of Florida and to the entire United States.

It will create much needed jobs now with the construction phase and will create future benefits with the increase in commerce at Port Everglades, and the vital link to the cruise industry and Fort Lauderdale International Airport, as well as so many other business interests.

I have lived in Broward County since 1972 and hope that you will give this project all of your support as I support it fully. I take great pride in being an active environmentalist and am sure that the environment will be protected and enhanced as a result of this Port Everglades deepening project.

Thank You for allowing me to express my support.

Sincerely,

Steve High, Inspector
KEITH AND ASSOCIATES, INC.
Engineers, Surveyors, Planners, Landscape Architecture, Construction Managers, Subsurface Utility Engineering (SUE)
301 East Atlantic Blvd, Pompano Beach, Florida 33060
Ph: 954.788.3400 | Fax: 954.788.3500
Cell: 954.275.5430
shigh@keith-associates.com <<mailto:shigh@keith-associates.com>>

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Pompano Beach • Miami

From: [Mike Vonder Meulen](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades Expansion
Date: Monday, July 15, 2013 1:49:45 PM

Terri Jordan-Sellers,

As an Urban Planner for more than 25 years in South Florida, please allow me to express my support for the expansion of Port Everglades. Port Everglades is an ideal port to handle both passenger cruise ships and larger container ships from the Panama Canal widening. The infrastructure surrounding the port compliments the proposed expansion. The expansion of the port will also enhance economic development not just in the port, but also to the surrounding communities.

Again, I am in full support of the expansion project. Thank you for your time.

Mike Vonder Meulen, AICP
President
MVM Development Services, Inc.

954-612-3203
mikevondermeulen@aol.com

From: [James Donnelly](#)
To: [Jordan-Sellers, Terri SA1](#)
Cc: [Kareen Boutros](#)
Subject: Port Everglades
Date: Tuesday, July 16, 2013 1:32:01 PM
Attachments: [image001.png](#)

Ms. Jordan-Sellers,

I received the Notice of Public Hearing for the July 23 meeting on Port Everglades. I am not able to attend this meeting but I wanted to submit my thought on the importance of this project to our county.

As a resident, business owner, and member of Broward Workshop, I feel the Port is one of the major economic engines of our county. In my mind the deepening of the port to allow the soon-to-arrive mega-ships is mandatory. I understand there are economic and environmental challenges that need to be overcome – and they can be overcome.

To not commit to this project is a decision that will be regretted for years to come. Shipping and commerce will go to the ports that make the most economic sense. It is simply business.

If we delay, companies will establish new transportation networks from ports that accommodate the mega-ships. It will be very difficult to reverse.

The port provides excellent jobs for our residents. This is good for everyone.

The quality of our lives equals the quality of the decisions we make.

We must get this done now.

Thank you for your consideration,

James Donnelly

Founder & CEO

Castle Group

Telephone: 954-660-1866

Facsimile: 954-792-9230

www.castlegroup.com <<http://www.castlegroup.com/>>

From: [Nick Lazowick](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades
Date: Monday, July 15, 2013 2:40:34 PM

Sir,

As a third generation native of broward county I strongly support the exspansion/dredgeing of the port. I hope that all who have our county's future in their best interest would agree that this project is esential to keep broward county a top player in the interantional shipping trade.

Respectfully,
Nick Lazowick
954-868-1806

From: [Derick Langel](#)
To: [Jordan-Sellers, Terri SA](#)
Cc: dkeith@keith-associates.com
Subject: Port Everglades
Date: Monday, July 15, 2013 2:07:33 PM

Good afternoon Ms. Jordan-Sellers,

I am emailing you to support the deepening and widening of our Port. For many years I lived in Costa Rica and have always been familiar with the Panama Canal and I have seen first-hand what it has done for the economy of Panama, since I had projects there as well. Now, with the Panama canal increasing its capacity and as a long time Florida resident and Professional in the Architecture and Engineering field, I urge the Government that the final blessing of our Port to be widened and deepened be given. Increased tourism, jobs and revenue positively impacts our region and Industry in the short and long term. Funds can be allocated for mitigation of reefs in other areas that are more prone to thrive.

Thank you in advance,

Derick Langel, RLA, ISA Certified Arborist

Director of Landscape Architecture

dlangel@keith-associates.com

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From: [Basil Bernard](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [Bob Swindell](#)
Subject: PORT EXPANSION
Date: Wednesday, July 17, 2013 7:40:32 AM

Hi Terri

As a Broward resident and a business owner that does business in South Florida our biggest economic engines are our airports and our seaports. You can always make a direct correlation between port/airport activity the level of commerce.

Anything that can be done in a responsible way to increase capacity at Port Everglades in this era of the Super Tankers will help us benefit from the deepening of the Panama Canal.

Remember if we don't prepare ourselves for opportunity others will.

Best regards,

Basil....

Cell 305 525 3700

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From: [Elizabeth Keith](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Project Supporter
Date: Monday, July 15, 2013 2:55:54 PM

- * The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.
- * The attention the project money will devote to enhancing reefs up and down the Broward coastline is much needed.
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.
- * Broward County has an active and dynamic environmental community that "gets it," as they have proven with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign.
- * Industry at Port Everglades creates jobs.

Elizabeth Keith

409 Liberty Court

Deerfield Beach, Florida

From: [Jimmy Messick](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Support to deepen Port Everglades
Date: Monday, July 15, 2013 5:59:57 PM

Terri,

I have recently become aware of the Port Everglades project and how critical deepening this port is to the South Florida region. Being one of the largest Ports in all of the world, it has an enormous impact to the local economy. We need to take this opportunity NOW to make the improvements to this port so we do not get behind, and not let freight companies and associated businesses not look elsewhere for their business. Please fight for me and others that cannot attend the public meetings in the near future and help protect one of the most vital sources for our businesses.

Thank you,

Jimmy Messick, P.E.

Project Engineer

jmessick@keith-associates.com <<mailto:tracis@keith-associates.com>>

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From: [Shaffer, Penny](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: ["Terry Stiles and Bob Swindell"](#)
Subject: Report and Environmental Study on the Port Everglades Harbor
Date: Thursday, July 18, 2013 4:16:21 PM

Terri Jordan-Sellers

Project Director

U.S. Army Corps of Engineers

4070 Boulevard Center

Suite 201

Jacksonville, FL 32207

RE: Report and Environmental Study on the Port Everglades Harbor

Sent electronically to: Terri.Jordan-Sellers@usace.army.mil <<mailto:Terri.Jordan-Sellers@usace.army.mil>>

Ms. Jordan-Sellers,

As a member of The CEO Council of The Greater Fort Lauderdale Alliance, I am writing to express my unwavering support of the proposed deepening of Port Everglades harbor.

As a gateway for international trade and tourism, Port Everglades is the third-busiest cruise port in the world and one of South Florida's leading economic engines. Port Everglades currently provides 11,600 direct local jobs and a total of 201,000 jobs statewide. Businesses throughout South Florida count on Port Everglades.

The proposed deepening from 42 to 48 feet will increase capacity, improve safety, and allow Port Everglades to handle today's mega-ships, expected to pass through an expanded Panama Canal. Failure to deepen the harbor will disadvantage our community in competing for global commerce. The economic opportunity cost for our region and the state of Florida is too high.

Although the study acknowledges the possibility of some environmental damage during construction, the project proposes enhancements to reefs along Broward County's coastline. The port has been a good environmental steward, working closely with the U.S. Army Corps of Engineers for 17 years to reduce environmental impact.

I appreciate your time and consideration of these comments.

Sincerely,

Penny S. Shaffer, Ph.D.

Member, the CEO Council of The Greater Fort Lauderdale Alliance

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15 July 2013

David Miller
DMA, Inc.
410 Pine St SE
Vienna, VA 22180

RE: DRAFT ENVIRONMENTAL IMPACT STATEMENT, NAVIGATION
IMPROVEMENTS PORT EVERGLADES HARBOR,
BROWARD COUNTY, FLORIDA

Dear Mr. Miller:

Pursuant to your request in an email dated 11 July 2013, Dial Cordy and Associates Inc. (DC&A) has reviewed the above-referenced document and has collated the following comments related to material contained therein:

- (1) The List of Tables of the DEIS requires re-formatting so that it is easier to read page numbers.
- (2) Does Figure 1 comprise the actual existing project area, or does the figure require updating?
- (3) Figure 2 (Port Everglades Authorized Depths) should include notation for existing overdepths/squat for each of the federal reaches.
- (4) Figure 3 should be replaced if a figure with better resolution could be found/created.
- (5) The wetland delineation for the mangrove habitats in the impact area and adjacent areas (Section 3.5.6 in the Draft EIS) is very out-of-date. These areas should be delineated again in order to better determine the precise extent of impacts, and resulting mitigation burden on the ongoing West Lake Park habitat improvement project.
- (6) National Marine Fisheries Service (NMFS) may disagree with USACE's analysis of the extent of hardbottom/reef habitats (Section 4.4.2.2 of the Draft EIS), and which impacts should result in additional compensatory mitigation (possibly, rock/rubble habitat within the existing federal channel).
- (7) NMFS may also disagree with the amount of mitigation provided for seagrass impacts (Section 4.1 of the Draft Comprehensive Mitigation Plan and Incremental Cost Analysis, or "CMP/ICA"). They may contend that any area where there has ever been seagrasses since initial surveys were conducted in the late 1990's should be considered impact areas if within the footprint, even if no seagrass is currently known from such areas.
- (8) The USACE-preferred type of mitigation proposed for impacts to hardbottom and reef habitats may not be preferred by other federal agencies or local regulatory/resource agencies (Section 6.2, Item 8, of the CMP/ICA). The type and amount offered by USACE appears to be have the best benefit to cost ratio; the local sponsor may be liable for any costs beyond those of the Best Buy option if another option is selected, including the option designed by NMFS.

David Miller
Comments on Port Everglades Draft EIS

Page 2 of 2

We appreciate your consideration of the above.

Best Regards,

Dial Cordy and Associates Inc.

A handwritten signature in black ink, appearing to read 'JE', is positioned above the printed name and title.

Jason Evert
Senior Ecologist

From: [Judy Carter](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Expansion Project
Date: Friday, July 19, 2013 1:57:31 PM

I would like to share my support of the Port Everglades Expansion Project. Making our Port deeper to support larger shipping, freight transport and increase our business growth and productivity should ONLY be viewed as a positive move. The government is offering funding which should certainly be captured and if this builds our economy, provides jobs, enhances our environment, allows further tourism growth and provides for better reefs along our beautiful beaches, all should certainly be taken seriously.

The Port was here long before I became a Florida resident, however after moving from a Southern State to Florida 32 years ago as a divorced parent raising two small children and fighting all the way to get a better job in a vibrant area, providing a future for my sons I received an opportunity to work for a prominent company in Fort Lauderdale that believes in our future as I do. The growth from global commerce, enhancing our employment opportunities and industry along with beautifying our surroundings and protecting our reefs only makes common sense. My Son actually became a Private Yacht Captain which is an attribute to coming to Florida as a small boy and enjoying our waterways.

Why would we take a chance on missing this great opportunity of growth for our community and State of Florida?

Thank you.

Regarding,

Judy Carter

Weston, Florida

From: [Danielle Bratek Law](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades
Date: Friday, July 19, 2013 3:40:43 PM

Dear Terri Jordan-Sellers,

I am writing in support of the Port Everglades Channel project. This upgrade to our local Port will certainly secure South Florida's role in the transport of goods and passengers well into the future. Expansion is likely to create many new jobs – which will have a positive impact on businesses locally and throughout the state.

I fully support this opportunity and regret that I will be unable to attend the public meeting on July 23.

Regards,

Danielle

Danielle H. Bratek, Esq.

Trademark Attorney

Danielle H. Bratek, Esq. LLC

954-325-8028

danielle@tm-legal.com <<mailto:danielle@tm-legal.com>>

www.tm-legal.com <<http://www.tm-legal.com/>>

email-2 no border signature

From: [Karen Sherman](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades
Date: Friday, July 19, 2013 1:03:47 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

Good afternoon. I am in support of the expansion project for the following reasons:

- * Good for South Florida business, now and in the future.
- * Business is counting on Port Everglades to remain one of the strongest economic engines in Florida.
- * We need the project money which will also be devoted to much-needed enhancements to reefs up and down the Broward coastline.
- * Industry at Port Everglades creates jobs.

The Port Everglades project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. I have been a resident of Broward County for 28 years and am excited at the prospect of South Florida once again rising to the economic challenge and coming out the better! I love living in South Florida. Please help us to get even better.

Thank you so much.

Stiles - Invest. Build. Manage.

Karen Sherman
 Administrative Assistant | Property Management

954-627-9149 | Cell: 954-260-7962

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Stiles YouTube <<http://www.youtube.com/user/investbuildmanage>>

From: [Rick Case](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Supporting Port Everglades Harbor
Date: Friday, July 19, 2013 4:12:21 PM

Project Director Terri Jordan-Sellers:

I understand there will be public meetings on the dredging of Port Everglades at the Broward County Convention Center on July 23 and unfortunately I will be out of town. As a business owner in Broward County for over 25 years with over a 1000 employees and also a board member of CEO Council, Greater Fort Lauderdale Alliance, Broward Workshop, Nova Southeastern University, Broward Sheriff's Advisory Council and Boys and Girls Clubs of Broward County, I would like to present some key facts about our Port for your consideration:

- * Port Everglades is a \$143 million enterprise earning all of its revenue from Port commerce, none from taxpayers.
- * Port Everglades is the fuel hub for all of South Florida. It handles jet fuel for the 4 international airports (FLL, MIA, PBX and SW Intl. in Fort Myers) and provides gas for 12 counties.
- * Port Everglades is the 3rd busiest cruise port in the world. (3.7 million multi-day passengers sailed in Broward County in 2012.)
- * Port Everglades is home to the largest single ship terminal in the world – the 5,400+ passenger Oasis and Allure of the Seas ships.
- * Port Everglades is embarking on three critical expansion projects that are projected to create 7,000 new jobs regionally and support 135,000 jobs statewide over the next 15 years for a total 143,000 jobs.
- * Currently, Port Everglades supports 11,600 direct jobs locally for a total of 201,000 jobs statewide.
- * These key expansion projects are expected to be completed over the next six years and will add up to five berths, widen and deepen the channel and bring freight rail into the Port.
- * Port Everglades is the No. 1 container port in Florida and 12th largest in the United States.

Additionally I want to share some of my key perspectives on the project:

- * I support the Port Everglades project because it is good for my business, now and in the future.
- * The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.
- * My business counts on Port Everglades to remain one of the strongest economic engines in Florida.
- * The attention the project money will devote to enhancing reefs up and down the Broward coastline is much needed.
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.
- * Broward County has an active and dynamic environmental community that "gets it," as they have proven with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign.
- * Industry at Port Everglades creates jobs.

This project to deepen and widen Port Everglades is critical for our business community and a vital component of South Florida life.

Rick Case

Rick Case Automotive Group

875 N. State Rd. 7

Fort Lauderdale, FL 33317

Cell 954-856-1404

Office 954-377-7400

<<http://www.gfalliance.org/index.php?cid=975294&forward=img>>

From: [Damien Carter](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [Anne Hotte](#)
Subject: Re: Submission of Comments for Port Everglades Development
Date: Saturday, July 20, 2013 12:11:55 PM

Good Day,

As per notification from Ms Anne Hotte of the Hollywood Chamber, I would like to submit on behalf of my company our developments and the developments we are currently in pursuit of with the American Chamber of Commerce of Trinidad and Tobago.

DPSS is also a member of the GHCC hence the reason for our submission

The American Chamber of Commerce along with its membership, spearheaded by a core team within the Chambers Trade and Investment Committee; has embarked on hosting an International Conference in Trinidad and Tobago, for the purpose of Trade and Economic Investment. This forum will call for the input of several countries and its policies and procedure geared to Import and Export, with emphasis on the current developments and expansion in Port Everglades Ft. Lauderdale along with expansions in the Panama Canal and the advantages this expansion will bring to the development of the shipping and maritime industry and other industries both upstream and downstream.

This forum will also bring together heads of Government and inform other nations of the import and export policies, needs, requirements and support. We envisage, and for-see having representative of government, district commissioners, personnel from DOE, Trade etc. as part of this.

Thank you

With Kind Regards,

Damien Carter
President/ CEO
DPSS Company Limited
DPSS Intl. Inc
Office: (868) 697 0303
Fax: (868) 653 1053

Mobile T&T: (868) 681 5756

Mobile Intl: 954 651 5005

Email: dcarter@dppsco.com <<mailto:dcarter@dppsco.com>>

www.dppsco.com <<http://www.dppsco.com>>

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Peter Drucker

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cid:image003.jpg@01CE6924.9443BF10

From: Sbrfsem@aol.com
To: [Jordan-Sellers, Terri SAJ](#)
Subject: from Scott Roberts-Port Everglades-support for improvements-from Hollywood, Flor
Date: Sunday, July 21, 2013 11:43:47 PM

July 21, 2013

To Whom it May Concern:

This email will confirm that I am strongly in favor of the critical improvements to Port Everglades located in Hollywood, Florida including the deepening and dredging proposed for the seaport. Port Everglades is one of the long term economic engines of our South Florida region and is an integral part of the complimenting businesses that rely on the Port for all of it's direct businesses including petroleum, freight, office space, convention/tourism, construction, energy production, marine, cruise industry and the other significant zones of the Port.

As a lifelong member of the community who works and lives within 3 miles of Port Everglades, I can say that the Port serves all of us in many ways. As well as being a distribution center, Port Everglades must have the maximum accommodations for the other industries that it directly and indirectly effects. The Port has consistently improved all of it's functions over my lifetime and have earned the upgrades required for future Port related issues. The management of Port Everglades has an excellent reputation and is recognized as part of the leadership of the greater Broward County region. The Port introduces many people and businesses to South Florida that eventually consider relocating their business or personally moving to Hollywood and need many soft business services including real estate property, mortgage financing, and other related businesses such as tourism, hospitality, education, and research.

After so many years of study, the population affected by Port Everglades is fully supportive of the project and appreciate all of the special and unique environmental issues that are involved with this project. The Port Everglades feasibility and all other studies are probably the most investigated and studied plans that has been reviewed by so many different entities in South Florida history for any regional impact project.

Me and my family proudly support the Port Everglades planned expansion and appreciate all of the research, effort and engineering that Port Everglades project required over a multi-year plan and review to modernize and give optimal functionality to a well managed and well needed upgraded Port Everglades for the next 100 years.

Scott B. Roberts
 First Southeast Mortgage Corporation
 First Colonial Realty
 Command Association Management, LLC
 Mortgage-Real Estate-Property Management
 3837 Hollywood Boulevard Suite A
 Hollywood, Florida 33021
 (954) 920--9799 fax (954) 920-1052

From: [Bill Mahoney](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [Kareen Boutros \(BW\)](#)
Subject: Port Everglades Expansion Project...
Date: Sunday, July 21, 2013 3:17:10 PM

Hi Terri...

I just want to add my comments to the many others coming your way relative to the above.

Port Everglades is key to the Broward County and South Florida economy. From our perspective, the Port...

- Has a significant effect on job creation
- Tourism
- Trade
- Supports 11,600 direct jobs locally for a total of 201,000 jobs statewide!
- Is home to the two largest cruise ships on the Planet...Oasis and Allure of the Seas.

Currently Port Everglades is the 3rd busiest cruise port in the world having almost four MILLION multi-day passengers sailing from the Port in 2012! What a financial impact that had!

We need to continue expanding the Port to remain competitive in this very important space.

Bill

Bill Mahoney

President

Mahoney&Associates
Creative Compensation & Benefits Solutions

2455 East Sunrise Blvd; Suite 300

Ft. Lauderdale, FL 33304

EA: Rosemary Gripp

954.564.4300 x222

rgripp@mahoneyandassociates.com <<mailto:rgripp@mahoneyandassociates.com>>

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bmahoney@mahoneyandassociates.com <<mailto:bmahoney@mahoneyandassociates.com>>

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From: [Chris Rotolo](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades port expansion
Date: Monday, July 22, 2013 10:36:55 AM

Good morning Terri Jordan-Sellers,,

I am writing to you to express my support in the above project. South Florida was hit extremely hard with the economic downturn and we are slow on the recovery in comparison to other parts of the U.S. We need this project to move forward to boost our economic growth and strengthen the value of our real estate. Plus the jobs this would create for the area will further enhance our population growth so that we may fully recover economically.

I believe that Broward County has done its due diligence in mitigating the environmental impact this project would have by having experts at hand such as Nova Southeastern University's Coral Reef Institute at our finger tips.

This is a win-win!

Thank you in advance for your assistance in relaying the message.

Chris Rotolo
9534 Ginger Ct.
Parkland, FL 33076

From: [Roland Malins-Smith](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [Robert F Flint \(rflint@broward.org\)](#)
Subject: Port Everglades project for deepening and widening the port
Date: Sunday, July 21, 2013 10:01:11 PM

Dear Ms Jordan-Sellers,

We write in support of the subject project which is being studied by the Army Corps of Engineers and promoted by Broward County Port Everglades Department and State government.

Our company Seafreight Agencies (USA) Inc., a Florida corporation, and its principal Seafreight Line Ltd operate six container vessels in the Florida / Caribbean and Central America trade. We also lease and operate a twenty-five acre container terminal at Port Everglades. Port Everglades is our home port, has been for twenty one years from inception of the service, and the commercial strength and competitiveness of the Port is of vital importance to our business and to the well-being and economic growth of our community.

There are fundamental changes sweeping our global shipping industry, and Port Everglades needs to adjust to and prepare for these changes otherwise the Port runs the risk of becoming bypassed by major streams of trade in the future, a state of affairs which could precipitate a decline in activity vital to employment and commerce in Broward County. The growth in container vessel size is no accident. It is a deliberate attempt on the part of leading shipowners and operators to achieve fuel efficiencies which will not only play a role in reducing carbon emissions, but reduce unit costs overall, making these new ships more competitive, having an ultimate and positive impact on our export pricing and our cost of living here in Broward County and South Florida. This change is positive, and we must embrace it and prepare for it.

The current widening of the Panama Canal will hasten the inevitable calls of larger cargo vessels to Port Everglades. US East Coast ports will benefit from more frequent direct delivery of Far East cargoes in preference to discharge at West Coast ports and rail transportation to East Coast cities. Port Everglades needs to be ready to attract some of this additional business, to the benefit of local industry and the community. It is also possible that additional related streams of activity, involving the movement of containers through the port to other States as well as to other countries in the Caribbean and South America could develop in time, and with suitable enabling Customs regimes. South Florida is suitably located for this secondary activity.

For these reasons, we at Seafreight strongly support the project and the representations being made on behalf of the community by Broward County Port Everglades Department and the Port Director.

Sincerely,

Roland Malins-Smith

President

Seafreight Agencies (USA) Inc.

Tel: 305 592 6060

From: [Jeff Lis](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Support Port Expansion
Date: Monday, July 22, 2013 10:31:47 AM
Attachments: [image001.png](#)
[image008.png](#)
[image009.png](#)
[image010.png](#)

I support the Port Expansion and further support the proposed approach supported by NOAA to use funds to grow and replace corals up and down the Broward coastline. And with Nova Southeastern University's Coral Reef Institute located at the mouth of Port Everglades, we have the leading international research partner in our backyard.

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Jeff Lis
Senior Vice President | Development

954-627-9346 | Cell: 954-258-4862

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July 22, 2013

Terri Jordan-Sellers
US Army Corps of engineers
701 San Marco Blvd.
Jacksonville, Florida 32207

Port Everglades – 45-Day Comment Period for the USACOE Feasibility Study and Environmental Impact Statement

Dear Ms Jordan-Sellers:

I am writing this letter in support of the Deepening and Widening Project for the Port Everglades Navigational Channels. I am a native Floridian, born and raised in Ft. Lauderdale, Florida (Broward County). I am employed by the Florida East Coast Railway and am currently the President of the Port Everglades Association, an organization comprised of Businesses that work on or are associated with Port Operations.

Port Everglades is the gateway for International Trade and Cruise Vacations. It is one of the busiest cruise ports in the world and one of the Nation's leading container ports. In addition, Port Everglades is the main seaport for receiving petroleum products, including gasoline, jet fuel and other alternative fuels.

The Port currently supports over 11,700 direct jobs locally and a total of 201,000 jobs within the State of Florida, not to mention those associated jobs throughout the country. The total regional economic activity attributable to Port Everglades is over \$15.3 billion dollars.

In order to remain a leader in International Trade, Port Everglades must have deeper water to accommodate the newer, larger generation of cargo ships that are expected to pass through the expanded Panama Canal in 2015. Many of these larger ships already call Port Everglades, coming in from Europe, but because of the present depth of the channel, they can only enter the Port when partially loaded.

Florida East Coast Railway is the Regional Rail Carrier that services Port Everglades and we have plans to invest over \$35 million dollars in construction of an Innovative, Public/Private Partnership with the Port and Broward County to construct a near-dock Intermodal Container Transfer Facility or ICTF, on Port property, to more efficiently move International Cargo Containers between ships and rail. This facility will also serve as a state-of-the-art Domestic Intermodal Hub.

Ph: (305) 889-5587
6875 NW 58th Street, Miami Springs, FL 33166
P.O. Box 660630, Miami Springs, FL 32266

Because of this Public/Private Investment, cargo containers will be able to be directly transferred between vessels and railcars, right on the Port, resulting in taking an estimated 180,000 truck trips a year off roads by 2029, reducing congestion on local roadways and Interstate highways and reducing harmful air emissions.

The success of this \$72 million dollar ICTF-Public/Private Partnership is directly connected to the proposed deepening and widening of the Port Everglades Channels, which will enable the larger vessels to call Port Everglades. The combination of the Port's three priority cargo projects, the deepening and widening project, adding new berths and the building of the near dock freight rail facility will create 7,000 new jobs locally and support another 135,000 jobs statewide, when at full capacity in 2027. This deepening and widening project will provide additional economic benefits to the residents of Broward County, the State of Florida and the Nation as a whole.

Port Everglades is a good Environmental Steward, committed to working with its environmental partners to ensure this project is sensitive to our Natural Resources. As part of the Environment Impact Study, there are a number of mitigation alternatives, and one of these approaches supported by NOAA is to use funds to grow and replace corals up and down the Broward County Coastline. Broward County is blessed to have Nova Southeastern University's Coral Reef Institute, one of the leading international research partners in the country, located right here in Broward County, at the mouth of Port Everglades. We urge support of this alternative.

I want also to extend my personal appreciation to our Broward County Commissioners, Governor Rick Scott, our State and Federal Legislators and especially Congresswomen Debbie Wasserman Schultz and Lois Frankel, for their dedicated efforts to support the Port Everglades Deepening and Widening Project and help us get this point.

I highly recommend that the US Army Corp of Engineers Approve the Port Everglades Deepening and Widening Project and have the Chief of Engineers Report signed by the end of this year. Completion of the Final Report by the end of the year is critical in order to receive Project Authorization by Congress and subsequent funding for Port Everglades to remain competitive as one of the Nation's leading Container Ports.

Sincerely,

Raymond J. Jones
Director – Industrial/Business Development

*Ph: (305) 889-5587
6875 NW 59th Street, Miami Springs, FL 33166
P.O. Box 660630, Miami Springs, FL 32266*

From: [Kimberly A Spicer](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades
Date: Monday, July 22, 2013 12:51:30 PM

As a business owner and resident of Fort Lauderdale, I completely support this project.

Thank you,

Kimberly Spicer

President

Phoenix Real Estate Group

2929 E. Commercial Blvd.

Suite 302

Fort Lauderdale, FL 33308

(954) 229-8365 Office

(954) 229-8364 Fax

(954) 683-9942 Cell

kspicer@phoenixrealestategroup.com <<mailto:kspicer@phoenixrealestategroup.com>>

www.phoenixrealestategroup.com <<http://www.phoenixrealestategroup.com>>

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From: [Michael Lassner](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades deepening
Date: Monday, July 22, 2013 1:16:16 PM

Hi Terri,

I am writing you to lend my support for the widening and deepening of the Port Everglades Harbor. I have a unique perspective to share with you, since my company has directly benefited from the Panama Canal expansion.

In the last 4 years in the country of Panama, we have built more than 4 million square feet of warehouse space surrounding the Canal, a power plant at the Canal, and office buildings for the expanded staff due to the Canals third lock expansion. For our small business this has resulted in me hiring more staff in Florida to project manage, design and detail buildings, and contract with US Engineering firms to support our work.

We expect the deepening here at Port Everglades will have a similar effect on Fort Lauderdale and Florida's economy with increased demand for warehouse space, logistics facilities, and local office requirements by both US and Multinational firms.

Should you have any questions I would be happy to expand upon this email.

Thank you for your support.

Michael Lassner
President | Allied Steel Buildings Inc
We're With You All The Way™
www.AlliedBuildings.com

FL Office: 954-590-4949
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From: mkurtzcpa
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades drilling and widening project
Date: Monday, July 22, 2013 1:18:36 PM

Gentlemen and ladies:

Over the past 40+ years, I have been advising businesses in Broward county. In 2010 and 2011, I was chairman of the International Action Team of the Greater Fort Lauderdale Alliance, Broward County's public/private economic development partnership.

I urge you to approve the project to deepen and widen Port Everglades' channels. Port Everglades is a major economic engine in Broward. Broward's international business done through Port Everglades has been growing. For Port Everglades to continue to compete with the ports of Miami, Jacksonville and others for business coming from Asia, this project is essential.

The fact that it has taken 17 years to reach this point is hard to believe. Your approval immediately so that the project can proceed is requested.

Martin J Kurtz, CPA
954-903-7393
mkurtzcpa@gmail.com

Sent from my Verizon Wireless Tablet

From: [Paul Cawley](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades Widening
Date: Monday, July 22, 2013 11:07:39 AM

On behalf of the Coral Springs Economic Development Foundation's Board of Directors I am writing to you in support of the widening project under consideration for Port Everglades. The Greater Ft. Lauderdale area has tremendous economic potential in the years to come. Not only are we seeing tremendous growth in the medical and healthcare industries we have a strong light manufacturing base and are moving more towards technology but we have growth opportunities in distribution and logistics. Without the widening of the Port we would stand to lose much of the competitiveness we have worked so hard to achieve in recent years. We request your support of this vital project as it will allow us to remain competitive in this growing global economy.

Thank you for your consideration.

Paul Cawley

Executive Director

Coral Springs Economic Development Foundation

11805 Heron Bay Blvd.

Coral Springs, Florida 33076

(954) 346-6996

pauledf@bellsouth.net

www.coralspringsedf.com

From: Debra Mink
To: Jordan-Sellers, Terri SAJ
Cc: "ring.jeremy@flsenate.gov"; "smithchris@flsenate.gov"; "sachs.maria@flsenate.gov"; "sobel.eleanor@flsenate.gov"; "braynon.oscar@flsenate.gov"; "Gwyn.clarke-reed@myfloridahouse.gov"; "George.moraitis@myfloridahouse.gov"; "Perry.thurston@myfloridahouse.gov"; "hazelle.rogers@myfloridahouse.gov"; "jim.waldman@myfloridahouse.gov"; "jared.moskowitz@myfloridahouse.gov"; "Katie.edwards@myfloridahouse.gov"; "Elaine.schwartz@myfloridahouse.gov"; "loe.gibbons@myfloridahouse.gov"; "Shevrin.jones@myfloridahouse.gov"; "Sharon.pritchett@myfloridahouse.gov"; "Manny.diaz@myfloridahouse.gov"; "Richard.stark@myfloridahouse.gov"; "Carlos.trujillo@myfloridahouse.gov"; "bswindel@qfalliance.org"
Subject: We support the deeping of the Port Everglades Project
Date: Monday, July 22, 2013 11:02:56 AM

Dear Project Director Terri Jordan-Seller,

I believe that the growth of South Florida includes the critical use and growth of the Port Everglades. Our Commercial Real Estate Company is interacting with many international landlords and tenants that find not only find the great Florida weather an asset but the ability of the three intersections of transportation (Ports/airports/roads) necessary for their business.

As an individual that grew up in South Florida, I am personally concerned with the continued viability of our waters ways and environment too. In attending a few public community meeting on the matter, have been assured that the studies and the method of the Port Expansion have been addressed alleviating my concerns.

Thus I and our company support this deepening project, along with the separate Turning Notch Extension and intermodal rail facility on the Port, projected to create 7,000 new jobs regionally and support 135,000 new jobs statewide over the next 15 years for a total 143,000 jobs. These projects will allow the Port to continue to meet the needs of shipping customers who are focusing their ship-building efforts on larger capacity vessels.

Please advise of any concerns the USACOE may have in proceeding with the funding and this project and may we thank you in advance for taking time to read our email of support.

Sincerely,

Dk Mink

D. K. Mink, RPA, CIPS
 President
 Licensed Real Estate Broker
 Mink & Mink, Inc
 3081 East Commercial Blvd
 Ft Lauderdale, FL 33308
 Telephone 954.771.1717
 Fax 954.772.0965
<http://www.minkandmink.com> <<http://www.minkandmink.com/>>

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From: [Malcolm Butters](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [Jules R. Morgan](#)
Subject: Port Everglades
Date: Tuesday, July 23, 2013 4:15:59 AM

Mr Jordan, I am out of the country so cannot attend the July 23 event. All major ports need to be widened to accommodate the new post Panamax ships. It will allow port Everglades to remain competitive and create numerous off shoot jobs . Lets not be short sighted. They will float bonds to support it so no taxpayer money will be used . This is a terrific opportunity . Please support it.

Sent from my iPhone

From: [Padron, Joshua](#)
To: [Jordan-Sellers, Terri SA](#)
Cc: [Terry Stiles and Bob Swindell](#)
Subject: Port Everglades
Date: Tuesday, July 23, 2013 8:59:15 AM

Good morning USACOE Project Director Terri Jordan-Sellers:

I hope this email finds you well. On the topic of Port Everglades, I would like to express the following thoughts. Port Everglades creates jobs and can help DeVry University students become employed in their field of study. The Port supports our graduates by employing them in Human Resources Management, Project Management, Accounting, and Finance positions. They support our graduates by hiring them for IT Systems and Security support, IT Management, Electronics, and Robotics Engineering. These types of jobs are part of Port Everglades' infrastructure, and play a crucial role in the success of our local communities and universities.

Thank you for considering my thoughts and working diligently on behalf of our citizens.

Regards,

Joshua Padron, Ed.D.

President, South Florida Metro

DeVry University

2300 SW 145 Avenue

Miramar, FL 33027

p: 954.499.9688

f: 954.499.9839

e: jpadron@devry.edu

www.devry.edu

cid:BE909111-4AB1-40D4-B7D6-97BF6CCEF591

From: [David Siegel](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Expansion
Date: Tuesday, July 23, 2013 3:39:08 PM

As a private citizen and businessman in Broward County, I am in full support of this deepening and widening of the Port Everglades. We are faced with deepening competition from port of Miami, Jacksonville and Savannah. We would be foolish to believe that if we do not continue to retain our competitive edge that we will retain the volume of business that we currently are receiving. I believe this can be done and mitigate the environmental impacts as well. These expansion cannot be delayed for the ongoing viability of the port. Once shippers have determined we are not intending to keep our competitive edge we will be hard pressed to get it back. Commit now and make it happen

Sent my iPhone

From: [Glass, Clint](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades Expansion
Date: Tuesday, July 23, 2013 8:02:39 AM

Terri –

My father arrived in Florida in 1934. Years later, he married a girl from Pennsylvania who graduated from Florida State. In the late 50's, they relocated to Miami to start careers and raise a family. My younger brother and I arrive about the same time when something called "NASA" was created. We too are native Floridians and we have lived most of lives down here in South Florida. Together, we are raising five children. It is our hope that they too can enjoy careers and raising families down here in South Florida – if they choose to – like the two generations before them were able to do.

With all that said, the capital investment plans for Port Everglades are vitality important for all of us to sustain our businesses as well as ourselves. Port Everglades has my full and unwavering support of their master plans to deepen the navigation corridors and expand the number of berths as they see fit.

Clinton C. Glass | Senior Vice President

office: 954.585.4240 | cell: 561.248.0107 | fax: 954.585.4503 | email: cglass@balfourbeattyus.com
[<mailto:cglass@balfourbeattyus.com>](mailto:cglass@balfourbeattyus.com)

Balfour Beatty Construction | 7901 Southwest Sixth Court, Suite 200, Plantation, Florida 33324 | www.balfourbeattyus.com <<http://www.balfourbeattyus.com/>>

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From: [Curtiss, Ellen \(HAL\)](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: ACOE Public Meeting Comments
Date: Wednesday, July 24, 2013 9:46:07 AM

Terri: It was a pleasure listening to your presentation yesterday and thank you for allowing me to present my comments. Below are the written comments for your records.

- Holland America Line applauds the Port and the Core for persevering with this project for 17 years and we are excited to see that the end of the road may be within reach.

- The cruise industry brought 3.5 million passengers through the port last season resulting in 12,000 jobs and a \$2.7 Billion Contribution to the economy of Port Everglades and Broward County therefore we are a major contributor to this economic engine.

- The widening of the Southport Access Channel allowing for increased maneuvering is a huge safety benefit for our ships.

- Currently, ships arrive to the Port based on their berth assignment; the first ship into the main channel is the ship that berths at the southernmost cruise terminal. The last ship in berths at northernmost terminal.

- Consequently the ships must depart in the same order therefore the first ship in is the last ship to depart. If the northern most ship is delayed in their departure, all the ships in the main channel are delayed resulting not only in a delay to the start of a well earned vacation for our passengers, but necessitating the burning of more fuel to allow the ship to arrive at its next port on time. With a wider channel, cruise ships can maneuver around the delayed ships and depart at their assigned times.

- Holland America Line recognizes that environmental stewardship is a daily responsibility, and we are a leader in environmental initiatives in the cruise industry.

- Therefore we applaud the mitigation of the environmental impact and urge you to complete the study so we can work together to move on with this project.

Regards,

Ellen Curtiss

Manager, Port Everglades, Boston, NYC Operations

PHONE: 206 626 8023

Holland America Line

EMAIL: ecurtiss@hollandamerica.com <<mailto:ecurtiss@hollandamerica.com>>

hollandamerica.com

Seabourn

EMAIL: ecurtiss@seabourn.com <<mailto:ecurtiss@seabourn.com>>

seabourn.com

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cid:image002.png@01CE1F35.374639C0

From: [Kim Praitano](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Support for Port Everglades Expansion
Date: Tuesday, July 23, 2013 5:15:04 PM

Ms. Jordan-Sellers,

I am writing in support of the Port Everglades Expansion project. Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment. Broward County has an active and dynamic environmental community that "gets it," as they have proven with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign.

Port Everglades creates jobs which our economy needs. This is a win-win project for everyone. Please consider it.

KimPraitano

Vice President Broward Operations

Family Central, Inc.

840 SW 81st Ave.

No. Lauderdale, FL 33068

(954) 724-7568 (tel/fax)

(954) 770-2148 (cell phone)

kpraitano@familycentral.org <<mailto:kpraitano@familycentral.org>>

www.familycentral.org <<http://www.familycentral.org/>>

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"Changing lives for a lifetime."

From: Jane Carrié"
To: [Jordan-Sellers, Terri SA1](#)
Cc: [sobel.eleanor@flsenate.gov](#); [smith.chris@flsenate.gov](#); [ring.jeremy@flsenate.gov](#); [carlos.trujillo@myfloridahouse.gov](#); [jim.waldman@myfloridahouse.gov](#); [perry.thurston@myfloridahouse.gov](#); [elaine.schwartz@myfloridahouse.gov](#); [hazelle.rogers@myfloridahouse.gov](#); [george.moraitis@myfloridahouse.gov](#); [richard.stark@myfloridahouse.gov](#); [sharon.pritchett@myfloridahouse.gov](#); [shevrin.jones@myfloridahouse.gov](#); [katie.edwards@myfloridahouse.gov](#); [manny.diaz@myfloridahouse.gov](#); [joe.gibbons@myfloridahouse.gov](#); [gwyn.clarke-reed@myfloridahouse.gov](#); [sachs.maria@flsenate.gov](#); [braynon.oscar@flsenate.gov](#); [jared.moskowitz@myfloridahouse.gov](#)
Subject: Port Everglades - Fort Lauderdale, Florida
Date: Tuesday, July 23, 2013 4:47:49 PM
Attachments: [image003.png](#)

Dear Director Jordon-Sellers:

I would personally like to express my support of deepening and widening Port Everglades navigation channels to accommodate new cargo mega-ships and wider cruise ships that are replacing the current older fleet. Universal Travel has been located on 17th Street Causeway near Port Everglades for 39 years. Because we are in the travel industry we actively support this expansion effort as it is critical to our business and the continued success of tourism in South Florida.

The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. We've waited too long already. Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world and most importantly industry at Port Everglades creates jobs.

It has been my experience that most residents of greater Fort Lauderdale support this initiative as well. We are all well aware of the advantages it brings to our community.

I hope you and the Florida State Delegation will make this effort a top priority so Port Everglades can remain a competitive, thriving port.

Thank you,

Jane L. Carrié, CTC

Director, Sales and Service

Universal Travel/American Express

1425C SE 17th Street, Ft. Lauderdale, FL 33316

954-525-5000 or 1-800-666-0026 ext 280

954-394-1805 Cell

954-463-2703 Fax

Email: jane@universal-travel.com <<mailto:jane@universal-travel.com>> .

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From: [Barbara Sheridan](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades Expansion Project
Date: Tuesday, July 23, 2013 2:24:30 PM

USACOE Project Director Terri Jordan-Sellers

I am not able to attend the public meeting(s) on July 23, 2013 to discuss this project, but I want to state my opinion.

As a resident of Fort Lauderdale for over 53 years, I support the Port Everglades Harbor deepening and widening project. Keeping Port Everglades competitive is imperative to the economic strength and success of our region.

- * This project is critical for businesses, now and in the future, and should not be delayed any further.

- * We cannot afford to lose jobs or one of Florida's key economic engines.

- * We need this project to move forward to accommodate the growth in the cargo, cruise and oil industries.

- * We need the Industry at Port Everglades to create jobs!

This project will not only benefit all residents of Broward County, but will benefit all residents in the State of Florida.

Thank you.

Barbara Sheridan
1930 N W 43 Street
Oakland Park, FL 33309
(954) 484-3715

From: [Ron Oestreicher](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Expansion, Broward County Florida
Date: Tuesday, July 23, 2013 9:08:13 PM

Dear USACOE Project Director Terri Jordan-Sellers,

I am sending you an brief note to advise you why I believe the Port Expansion Project is important to me, to Broward County, and also The United Way of Broward County, where I am an associate in the Major and Legacy Gifts Division.

- * I support the Port Everglades project because it is good for our county's businesses, now and in the future.
- * The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.
- * The attention the project money will devote to enhancing reefs up and down the Broward coastline is much needed. (I am an avid Boater & Scuba Diver!).
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.
- * Broward County has an active and dynamic environmental community that "gets it," as they have proven with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign.

Thank you for your consideration!

Ron Oestreicher

From: [Oestreicher, Laurie](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: "Ron Oestreicher"
Subject: Port Everglades Expansion, Broward County Florida
Date: Tuesday, July 23, 2013 12:36:51 PM
Attachments: [image002.png](#)
[image003.png](#)

Dear USACOE Project Director Terri Jordan-Sellers,

I am sending you an brief note to advise you why I believe the Port Expansion Project is important to me, to Broward County, and also The United Way of Broward County, where I am an associate in the Major and Legacy Gifts Division.

- * I support the Port Everglades project because it is good for our county's businesses, now and in the future.
- * The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.
- * The attention the project money will devote to enhancing reefs up and down the Broward coastline is much needed. (I am an avid Boater & Scuba Diver!).
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.
- * Broward County has an active and dynamic environmental community that "gets it," as they have proven with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign.
- * Industry at Port Everglades creates jobs, and people with jobs support the United Way of Broward County.(United Way of Broward County funds 58 agencies and 78 Programs and Initiatives, helping to create a better Broward County.)

Thank you for your consideration!

Laurie Oestreicher – Associate, Major and Legacy Gifts

United Way of Broward County | www.UnitedWayBroward.org <<http://www.unitedwaybroward.org/>>

Ansin Building I1300 South Andrews Avenue I Fort Lauderdale, Florida 33316

Loestreicher@unitedwaybroward.org <<mailto:Loestreicher@unitedwaybroward.org>> 954.462.4850
 x116

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 cid:image003.png@01CE604E.B6D9B680 <<https://mobile.twitter.com/unitedwaybc>>

From: [James Tidwell](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Harbor Expansion
Date: Tuesday, July 23, 2013 10:42:48 AM

Dear Mrs. Jordan-Sellers,

I write this e-mail to make you aware that I support the Port Everglades expansion. Business counts on the port to remain one of the strongest economic engines in Florida. Although the business I'm in isn't directly related to the Port, the roughly \$26 billion in annual economic activity generated by the Port benefits all the residents of Broward county. This is a critical project that has been in the works for 17 years. The residents of Broward County need this project authorized by Congress and the subsequent funding to finally make it a reality. Thank you for your consideration.

Regards,

From: [Denny O'Shea](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades Harbor Feasibility Report and EIS, Broward County, FL
Date: Tuesday, July 23, 2013 5:14:41 PM

Dear Ms. Jordan-Sellers

I am a life long resident of Broward County and am writing in support of the proposed deepening of the Port Everglades Harbor.

Approximately 32 years ago I began to closely monitor Port Everglades on behalf of a competitor, The Transgulf Pipeline Company. Transgulf received all of the required Federal and multi State entitlements to construct a new pipeline to the Port (including an EIS), and even prevailed at the Supreme Court of the United States in litigation between the Port and Transgulf. However, the years and years of delay rendered the project economically unfeasible, and so the Port and Transgulf settled their litigation and the new pipeline was never constructed--and South Florida lost an opportunity.

I think this history is instructive. Our economy is capitalistic and inherently competitive, and the global economy even more so. Further delay will impair funding for the harbor deepening project and once again we will miss an opportunity to create jobs and supercharge one of the region's largest economic engines.

In the decades that I have been "port watching" I have seen it grow from two container cranes to seven--and when I leave the Port on Saturday mornings to fish I now see the largest cruise ships in the world berthed there.

It would a failure of enormous proportions to lose the opportunity to also welcome the largest and new generation of container ships to Port Everglades as well.

Thank you for your consideration.

Sincerely,

Dennis F. O'Shea

Sent from my iPad

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From: [Marsella, Jay](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades
Date: Tuesday, July 23, 2013 11:27:33 AM

Terri, on behalf of Marriott's Harbor Beach Resort and Spa, Fort Lauderdale's largest Resort, the importance of the \$313 million Port project is very important. From a tourism standpoint, the growth means quite a bit to this destination. From increasing visitors that spend their dollars throughout the city, helping keep many hotels full throughout the year, and employing so many within our industry, I can't think of a better investment that will have the impact and overall return that this will.

Sincerely,

Jay

Jay Marsella

Director of Sales and Marketing

Harbor Beach Marriott Resort and Spa

3030 Holiday Drive

Fort Lauderdale, FL 33316

954-868-1355 mobile

954-766-6140 office

Jay.marsella@marriott.com

From: [michaelyianilos](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Expansion
Date: Wednesday, July 24, 2013 9:07:55 AM

I am writing this letter to voice my support for the port expansion project. This project is a positive for every business in south florida, including my family business. If we don't expand and modernize port everglades, our growth as a city will be restricted. The port economically feeds our city with hundreds of thousands of people going on cruises each year and countless containers of cargo. Lastly, we have the right people here at Nova Southeastern University to get the job done correctly with minimal enviornmental impact.

I hope this project gets approved with no delay because the City of Fort Lauderdale is ready for the expansion.

Thank you

NOVA SOUTHEASTERN UNIVERSITY

046

Abraham S. Fischler
President Emeritus

July 22nd, 2013

Terri Jordan-Sellers
USAACOE Project Director
Terri.Jordan-Sellers@usace.army.mil

Dear Terri,

Port Everglades has been instrumental to the growth and success of Nova Southeastern University in the past, presently, and is a key part of our future. I have been a part of Nova Southeastern University since 1966, and even then, the Port was a key to the development of our world-renowned Oceanographic Center. More recently, the Oceanographic Center was awarded a federal research grant to create the Center of Excellence in Coral Reef Ecosystems Science and built the beautiful 86,000 square foot facility to conduct research adjacent to the Port. Clearly, the university's trajectory as one of the largest independent universities in the country would not be the same without its interaction with one of the United States' premier ports.

Any vehicle for the expansion of Port Everglades can only help our county and our state, which was one of the hardest-hit during the economic recession. One major reprieve for Broward County has been the addition of the Oasis of the Seas and the Allure of the Seas cruise ships which have benefitted the community in many ways by increasing the Port's passenger capacity. In a similar vein, I believe that expanding Port Everglades will help strengthen our community, our economy, and our country as a whole by attracting business and tourism to South Florida and building on the Port's past successes.

Respectfully,

Abraham S. Fischler
President Emeritus & University Professor
Nova Southeastern University



Via Email terri.jordan-sellers@usace.army.mil

July 23, 2013

Dear USACOE Project Director Terri Jordan-Sellers:

I am writing in support of the Port Everglades expansion to keep our port and our economy strong, now and into the future.

Port Everglades is a huge asset to South Florida and it is critical that we move now. We have delayed long enough.

Our business is a chain of 24 retail furniture stores, and we import over 3,000 containers per year. Having direct access into Port Everglades of new Panamax container ships would be a huge benefit to us and would add jobs to Florida.

Sincerely,

A handwritten signature in cursive script that reads "Keith Koenig".

Keith Koenig
President

cc: Broward Delegation:

State Senators		State Representatives	
Ring, Jeremy	ring.jeremy@flsenate.gov	Clarke-Reed, Gwyndolen	Gwynn.clarke-reed@myfloridahouse.gov
Smith, Chris	smith.chris@flsenate.gov	Moraitis, George	George.moraitis@myfloridahouse.gov
Sachs, Maria	sachs.maria@flsenate.gov	Thurston, Perry	Perry.thurston@myfloridahouse.gov
Sobel, Eleanor	sobel.eleanor@flsenate.gov	Rogers, Hazelle	hazelle.rogers@myfloridahouse.gov
Braynon, Oscar	braynon.oscar@flsenate.gov	Waldman, Jim	jim.waldman@myfloridahouse.gov
		Moskowitz, Jared	Jared.moskowitz@myfloridahouse.gov
		Edwards, Katie	Katie.edwards@myfloridahouse.gov
		Schwartz, Elaine	Elaine.schwartz@myfloridahouse.gov
		Gibbons, Joe	joe.gibbons@myfloridahouse.gov
		Jones, Shevrin	Shevrin.jones@myfloridahouse.gov
		Pritchett, Sharon	Sharon.pritchett@myfloridahouse.gov
		Diaz, Manny	Manny.diaz@myfloridahouse.gov
		Stark, Richard	Richard.stark@myfloridahouse.gov
		Trujillo, Carlos	Carlos.trujillo@myfloridahouse.gov



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July 23, 2013

Terri Jordan-Sellers
USACOE Project Director

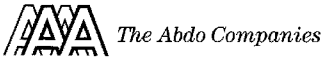
To Whom It May Concern:

Please be advised we strongly support the deepening and widening of Port Everglades. Advanced Roofing is a Florida based corporation with headquarters in Broward County for the last 30 years. Outside of Florida we do work in the Bahamas, Caribbean and South America. We are presently re-roofing the St. Thomas Airport. This requires many containers of roofing material and equipment. We feel it is crucial to use our local Port here to keep cost of shipping down, as well as local employment. We also feel that the deepening and widening would have a very positive affect on our Counties economy. Please approve this initiative.

Sincerely,


Rob Kornatrens
President
Advanced Roofing, Inc.

1950 NW 22nd Street | Fort Lauderdale | Florida 33311
3551 West First Street | Sanford | Florida 32771
110 Cumberland Park Drive | Suite 205 | St Augustine | Florida 32095



John E. Abdo
President

July 23, 2013

Via Email

Ms. Terri Jordan-Sellers

Terri.Jordan-Sellers@usace.army.mil

Re: Deepening and Widening of the Port Everglades Harbor

Dear Ms. Jordan:

Unfortunately, I am unable to attend the July 23, 2013 Public Hearing concerning the above referenced matter. I am, however, wholeheartedly in support of the Port Everglades project for my associates and I believe it is extremely important for the business community in Broward County as well as the entire South Florida area, both now and in the future. In our collected opinion, this project should not be delayed further for global competition dictates its need.

Businesses in South Florida rely heavily on Port Everglades to be one of the strongest economic engines in the area if not the entire State of Florida.

As I am sure you know, Fort Lauderdale through Nova Southeastern University is a leading coral reef expert an advantage that Broward County can boast about to the entire world. The attention paid to enhancing the reefs both North and South of the Broward coastline is desperately needed.

Port Everglades has always been an environmentally sensitive port for they worked hand and glove with the Corps of Army Engineers for over 17 years to research and consider every possible alternative to lessen any environmental impact the contemplated improvements will have.

Broward County is an active and dynamically sensitive environmental community and has worked hard to demonstrate that commitment with the Southport Turning Notch extension where the plants doubled to increase the amount of mangroves to mitigate a new Port Everglades redesign.

Lastly, jobs is a the forefront of what we need not only in Broward County but in the entire nation and the new Port Everglades project will accelerate job growth for us significantly.

Very truly yours,

Greetings Ms. Jordan-Sellers:

Photographs do not lie. Depicted is what happens with total neglect showing sand accretion north of Port Everglades.

John U. Lloyd State Park and points south—not shown—have been sand starved as a result.

If you want a deep water port, you then have the obligation to by-pass the natural littoral sand flow to the southern shores. Pushing it offshore or into the inlet is also an unnatural consequence of inaction.

A by-pass mechanism should be installed concurrently with a dredging of the inlet for these reasons.

Folks objecting based on their chosen location are in the same boat as homeowners next to the airport (noise) and the landfill (smell).

Respectfully,

John Carlson



MAYAN BEACH CLUB CO-OP 1950's



MAYAN BEACH CLUB 2013 showing 60 years of accreted beach



View before Port Everglades sand by-pass begins



CC-C024413

ESTABLISHED 1983

July 24, 2013

Terri Jordan-Sellers
USACOE Project Director

To Whom It May Concern:

I spoke at the 1:00pm hearing at the Broward Convention Center on July 23, 013 and with this wanting to put it into writing. As Chairman of the Environmental Committee for the Broward Workshop, I strongly recommend the Port widening and deepening project should be approved with the input NOAA has put in front of you as well as from Dr. Dick Dodge from Nova University's recommendations.

Rob Komahrens
Representing the Broward Workshop as the Chairman of the Environmental Committee

Broward County Governmental Center
115 South Andrews Avenue, Room 429
Fort Lauderdale, Florida 33301
Phone 954-357-6555
Fax 954-357-6041
e-mail: flombardo@broward.org

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Chair

Representative James "Jim" Waldman
Vice Chair

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Senator Jeremy Ring
District 29

Senator Christopher "Chris" Smith
District 31

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District 36

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Representative
Gwyndolen "Gwyn" Clarke-Reed
District 92

Representative George Moraitis
District 93

Representative Perry E. Thurston, Jr.
District 94

Representative Hazelle Rogers
District 95

Representative James W. "Jim" Waldman
District 96

Representative Jared E. Moskowitz
District 97

Representative Katie Edwards
District 98

Representative Elaine J. Schwartz
District 99

Representative Joseph A. "Joe" Gibbons
District 100

Representative Shevrin Jones
District 101

Representative Sharon Pritchett
District 102

Representative Manny Diaz, Jr.
District 103

Representative Richard "Rick" Stark
District 104

Representative Carlos Trujillo
District 105

DELEGATION STAFF

Lisa K. Aronson, Int. Executive Director
Eugene Steinfeld, Delegation Counsel
Faith Lombardo, Admin. Assistant



July 23, 2013

Ms. Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, FL 32207

Dear Ms. Jordan-Sellers:

On behalf of the Broward Legislative Delegation, thank you for holding two meetings to allow the public to participate in the U.S. Army Corps of Engineers (ACOE) Public Meeting phase pertaining to the Draft Feasibility Study/Environmental Impact Statement (FS/EIS) for the deepening and widening of the Port Everglades navigation channels.

Many thanks to the ACOE, the consultant team, and Port Everglades for your expedited efforts to issue the draft FS/EIS. We urge your continued efforts to issue the Chief of Engineer's Report in a timely manner to give Port Everglades an opportunity to have the project authorized in the Water Resources Development Act (WRDA) if a Bill is passed by Congress in 2013.

The Broward Legislative Delegation is committed to ensuring that Port Everglades continues as a strong economic engine in Broward County and throughout South Florida. We are pleased to hear about Port Everglades' plans to stimulate our economy with 7,000 new jobs through three major capital expansion projects, including close to 1,500 permanent positions for the deepening and widening project, while working to protect the environment in numerous ways. You all deserve recognition for the multitude of efforts made during the past 17 years to advance this project and reduce the environmental impacts to artificial reef habitats with the proposed relocation and mitigation of coral, mangroves and seagrasses.

Sincerely,

Eleanor Sobel
State Senator, District 33
Chair, Broward Legislative Delegation

CC: Broward Legislative Delegation members
Board of County Commissioners
Bertha Henry, County Administrator
Steven Cernak, Chief Executive & Port Director

From: [Felici, Kirk](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades
Date: Thursday, July 25, 2013 11:34:27 AM

We support the Port Everglades project because it is good for our business, now and in the future. Additionally, the Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce and Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment. Thank you.

Kirk Felici

First Vice President/Regional Manager

Marcus & Millichap
5201 Blue Lagoon Drive
Suite 100
Miami, FL 33126

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(786) 522-7010 fax

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From: [Luis Pinochet](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Dredging works
Date: Wednesday, July 24, 2013 3:42:49 PM

Good Afternoon,

I attended the two public meetings held yesterday in the Broward Convention Center. As I carefully listened all opinions and positions presented, I'm convinced that the Army Corps of Engineers must proceed without delay to start the dredging and widening works in the access and inner channels of Port Everglades.

Environmental issues will occur, and will always occur when an initiative of this sort is launched. The good thing is that in the United States, mitigation procedures are applied, and the impact on the environment and living creatures is minimal and well managed, which is not the case of some other countries that grow every year at impressing economic growing rates, without any respect for the surrounding environment. Without any doubt, the ACOE will not deploy any project without fully complying with all environmental impact policies, therefore environmental protecting groups may rest assured that our environment will be benefitted with this initiative.

Finally, If Port Everglades does not it, another port will do, and the whole Broward community will be affected by such decision.

Best Regards,

Luis A. Pinochet

Administration & Finance Director

Florida International Terminal, LLC

P.O. Box 460970

Phone: (954) 761-3880 Ext.215

E-mail: lpinochet@fitpev.com <<mailto:lpinochet@fitpev.com>>

<http://www.fitpev.com> <<http://www.fitpev.com/>>

Quality Service in Port Everglades since 2005

From: [Lawrence DeRose](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Harbor Dredging and Deepening
Date: Thursday, July 25, 2013 1:40:44 PM

I would like to submit this as my official comments on the subject.

I have lived here in Hollywood or vicinity my entire life since 1955, fishing, crabbing, and salt water sports during my years. Since the early sixties I was eyewitnessing the decline of the fisheries and water quality into the beginning eighties. Once the environmental rules were being enforced a turnabout occurred resulting in a reversal of the decline of water quality, the fisheries, and the wetlands habitats.

I have seen the benefits of the environmental regulations in our community and report we have restored the ecosystem to its prior well being based on the visual experiences I have had.

I am a civil engineer and have been doing work at Port Everglades since 1985. During this period the Port has been a good custodian of the environment and will continue its leadership in balancing the economic desires of our community with the environmental sensitivity of our community.

Therefore I can say with an up close knowledge of both the environment and the Port, that this harbor dredging/deepening project should be supported because it will accomplish all the goals we as a community hold dear, and it will benefit our region in every important way a project should.

Lawrence DeRose, P.E., Vice President

DeRose Design Consultants, Inc.

470 South Andrews Avenue

Suite 206

Pompano Beach, Florida

Telephone: 954 - 942 - 7703

www.derosedesignconsultants.com <blocked::http://www.derosedesignconsultants.com>

From: [Paul Marko](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades PowerPoint presentation
Date: Wednesday, July 24, 2013 4:41:06 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

Ms. Jordan-Sellers, thank you very much for the very informative presentation yesterday at 1PM.

I was wondering if you can reply to me with the website address of the presentation. The Port Everglades Harbor Feasibility Fact Sheet does not have it noted as mentioned during the meeting.

Thank you –

Stiles - Invest. Build. Manage.

Paul Marko
President | Stiles Realty

954-627-9147 | Cell: 954-232-5586

301 E Las Olas Blvd, Fort Lauderdale, FL 33301 | 954.627.9300 | WWW.STILES.COM
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Stiles YouTube <<http://www.youtube.com/user/investbuildmanage>>

From: [Phil McNally](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Project
Date: Thursday, July 25, 2013 10:44:08 AM

I had the pleasure of attending the forum this past Tuesday the 23rd at the convention center and wanted to commend you and the other members from Jacksonville for a job well done.

I have been a member of the business community in Ft. Lauderdale since 1983, and our banking customers are heavily represented in the commercial marine community. Many Port Everglades Association members bank with Paradise Bank, and I am a director of the Association and also serve on the executive committee of the board.

The dredging project and expansion of the turning notch are vital to the future of our Port and the continued prosperity of our marine interests. We therefore wholeheartedly support the proposed projects and thank you in advance for expediting the successful completing of these essential improvements.

Philip McNally

Area President

cid:image001.jpg@01CA677E.6ACD4C60

540 North Federal Highway

Fort Lauderdale, Florida 33301

Phone: (954) 764-8778

Fax: (954) 764-4985

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From: [Eric Rahn](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades Project
Date: Thursday, July 25, 2013 11:53:41 AM

Peterson Fuel Delivery is a small locally owned fuel barge company servicing the Ft. Lauderdale water ways. We are a unique fuel delivery service that survives on the ability to deliver fuel to commercial waterborne equipment and vessels. This project is important to Peterson and to the contractors, as we save the project considerable amount time and money for the service we provide. The contractor does not have to break down their equipment to replenish their fuel supply.

As a small local company this project would be of significant importance.

- Port Everglades is the gateway for International Trade and Cruise Vacations. It is one of the busiest cruise ports in the world and one of the Nation's leading container ports. In addition, Port Everglades is the main seaport for receiving petroleum products, including gasoline, jet fuel and other alternative fuels.
- The Port currently supports over 11,700 direct jobs locally and a total of 201,000 jobs within the State of Florida, not to mention those associated jobs throughout the country. The total regional economic activity attributable to Port Everglades is over \$15.3 billion dollars.
- In order to remain a leader in International Trade, Port Everglades must have deeper water to accommodate the newer, larger generation of cargo ships that are expected to pass through the expanded Panama Canal in 2015.
- It is an important advance in the DEIS that NOAA, the federal agency in charge of the oceans and its health, is a formal partner and has proposed a reasonable, cost-effective, and scientifically credible mitigation alternative.
- For speedy resolution of environmental issues I recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation.

We support this project,

Eric Rahn

Managing Director

Description: Description: PFlogo copy_1

Peterson Fuel Delivery

1091 SE 17th Street

Fort Lauderdale, FL 33316

Tel: 954-790-6604

Fax: 954-764-0769

Toll Free:866-404-3835

www.PetersonFuel.com <<http://www.petersonfuel.com/>>

From: [Lisa Apicella](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades
Date: Wednesday, July 24, 2013 12:33:11 PM

Good Afternoon Ms. Jordan-Sellers,

I am writing to voice my comments on the deepening and widening of the Port Everglades Harbor.

It is my opinion that this project should go forward.

This state is in need of an economic boost and this project is just the type of enhancement that will do just that.

I believe that the Port is one of the strongest economic engines in Florida and not only will this project create jobs, but it will help to keep businesses that depend on the Port running strong.

Not to mention the much-needed enhancements to reefs up and down the Broward coastline that will also take place as a result of this project.

It is my belief that this project should not be delayed any further.

Thank you for your time,

Lisa Apicella

From: [Cahlin, Jim \(US\)](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades, Fort Lauderdale Expansion Project
Date: Wednesday, July 24, 2013 5:13:01 PM

As a 30+ year resident of Fort Lauderdale and full time working professional, I endorse the proposed expansion project for Port Everglades to assure our community remains competitive in today's business environment. My endorsement includes the following:

- * The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.
- * Business counts on Port Everglades to remain one of the strongest economic engines in Florida. Even though my business isn't directly tied to the Port, the \$26 billion in annual economic activity generated by the Port benefits all Broward residents.
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.
- * Broward County has an active and dynamic environmental community that understands the port's significance as an economic engine and that there are ways to grow the port while protecting and enhancing the environment. This cooperative effort has already been demonstrated with the Southport Turning Notch extension, a project in which the Port, Audubon Society and the state of Florida agreed to a plan that will double the amount of mangrove plants to mitigate a Port redesign to accommodate several new cargo shipping berths.
- * Industry at Port Everglades creates jobs.

Thank you.

Jim Cahlin

Senior Vice President

Jones Lang LaSalle

200 E. Broward Boulevard #1030

Fort Lauderdale, FL 33301

OFF: (954) 653-3240

CEL: (954) 560-1005

Jim.cahlin@am.jll.com

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From: toula.amanna@gmail.com on behalf of [Toula Amanna Flashback Diner](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades
Date: Thursday, July 25, 2013 7:24:59 AM

Our company and I support the project in every way.

I believe change and progress that we direct proactively is the only way to assure that the area will have the best infrastructure to handle the future and create the best possible environment for the residents and businesses.

Toula Amanna
Flashback Diner
220 South Federal Hwy
Hallandale Beach, FL 33009
954-454-8300
Toula.Amanna@FlashbackDiner.com

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From: [Andrew Cagnetta](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Support for Port Everglades
Date: Thursday, July 25, 2013 11:13:48 AM

Terri,

As a member of the Broward Workshop and a small business owner here in Broward County, updating/modernizing the Port is essential to our overall business economy. Access to raw materials at reasonable prices is the lifeblood of many small businesses. The Port is an important cog in creating and maintaining jobs.

Please move forward with the project as soon as possible!

Andy Cagnetta
CEO
Transworld Business Advisors, LLC
754-224-3109

From: Rafael.L.Ramos@uscg.mil on behalf of [Ramos, Rafael L YN2](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Advocacy for Port Everglades Expansion
Date: Friday, July 26, 2013 10:14:10 AM
Importance: High

Mrs. Jordan:

I respectfully echoes the voice of many families around the Broward county. We need this project to secure our legacy to our children. Here are some important key notes of why is so important to invest in our community.

- * Port Everglades is the fuel hub for all of South Florida. It handles jet fuel for the 4 international airports (FLL, MIA, PBX and SW Intl. in Fort Myers) and provides gas for 12 counties.
- * Port Everglades is the 3rd busiest cruise port in the world. (3.7 million multi-day passengers sailed in Broward County in 2012.)
- * Port Everglades is home to the largest single ship terminal in the world - the 5,400+ passenger Oasis and Allure of the Seas ships.
- * Currently, Port Everglades supports 11,600 direct jobs locally for a total of 201,000 jobs statewide.
- * The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.
- * Businesses count on Port Everglades to remain one of the strongest economic engines in Florida.
- * The attention the project money will devote to enhancing reefs up and down the Broward coastline is much needed.
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.

Finally The Expansion is vital to the interests of Broward County and to the income work of United Way of Broward County, and the jobs that will create directly support to our Working Families. God bless America!

V/r

YN2 RAFAEL L. RAMOS
 (305) 415- 7056
 CGD SEVEN (dpa)
 ADMIN/TRAVEL CLAIM POC
 CGD SEVEN Unit Health Promotion Coordinator

From: [Anne Hotte](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: In Support of Port Everglades
Date: Monday, August 05, 2013 10:14:40 AM

Dear Terri,

It was so nice to see everyone at the Convention Center in Fort Lauderdale! As you mentioned, it was a great turnout considering this is the middle of summer, in the middle of the day! People truly care about Port Everglades as we understand the critical and vital role the Port plays in our economic development. All would agree that \$26 Billion is significant! As 80% of the Port is geographically located in Hollywood, the Greater Hollywood Chamber of Commerce cannot emphasize enough the importance for the Port to remain competitive as the Panama Canal opens up and larger ships are being built.

Our chamber is composed of 860 businesses and many of them are heavily dependent on Port Everglades remaining the #3 cruise port in the world and #1 container port in Florida. The reality is that cruise and cargo ships alike are getting larger as they prove to be financially economical. It is understood that the current depth and width of our channel will not be able to handle the new ships.

It is critical for us to support this project for the jobs it will bring and the jobs it will retain. As you know, jobs mean disposable income, which yields commerce...and commerce is vital to the quality of life of any community. It is critical for us to support this project for the enhanced safety it will provide as larger ships reach our port. Finally, it is critical for us to support this project as we are uniquely positioned to transfer cargo to rail or to air all in the same area! We will be a model for efficient and expedient intermodal transport.

I also must applaud the efforts of the ACOE in identifying the deepening modality that would best economically benefit the Port while minimizing the environmental impact. The 48' recommendation as opposed to the 50' original proposal is significantly changing the environmental impact while reaching the economic goal. I believe the 58% reduction of impact on coral reefs and the 98% reduction of impact on mangroves to be excellent news and is in keeping with the Port's proven commitment to good environmental stewardship as demonstrated with the mitigation of the Southport Turning Notch and its alliances with NOAA (National Oceanographic and Atmospheric Organization) and the Nova Southeastern University Oceanographic Center. The commitment of NOAA and Dr. Dodge, Dean of the NSU Oceanography Center to identify creative avenues for mitigation is a testimonial to the investment of the entire community to support this project.

We would certainly hope that at the same time, the Sand Bypass proposed for Broward County would be created, ensuring beach re-nourishment for beaches south of Port Everglades.

As for all things, time is of the essence and your diligent collaboration in making this happen in a timely manner is greatly appreciated.

Thank you for making this Port Everglades expansion project a priority for the Army Corps of Engineers.

Respectfully submitted,

Anne Signature.JPG

Anne T. Hotte, CEO/Executive Director

Greater Hollywood Chamber of Commerce

330 North Federal Hwy

Hollywood, FL 33020

Tel: 954.923.4000 x13

Cell: 954.815.9698

Anne@Hollywoodchamber.org

www.HollywoodChamber.org

cid:4C7F47BC-E0F8-4A55-AFCE-5E1F769CA520@local

From: [Jiovenetta, Geneva](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Please review my comments on the Port Everglades Project
Date: Friday, July 26, 2013 9:12:02 AM

- * Port Everglades is a \$143 million enterprise earning all of its revenue from Port commerce, none from taxpayers.
- * Port Everglades is the fuel hub for all of South Florida. It handles jet fuel for the 4 international airports (FLL, MIA, PBX and SW Intl. in Fort Myers) and provides gas for 12 counties.
- * Port Everglades is the 3rd busiest cruise port in the world. (3.7 million multi-day passengers sailed in Broward County in 2012.)
- * Port Everglades is home to the largest single ship terminal in the world - the 5,400+ passenger Oasis and Allure of the Seas ships.
- * Port Everglades is embarking on three critical expansion projects that are projected to create 7,000 new jobs regionally and support 135,000 jobs statewide over the next 15 years for a total 143,000 jobs.
- * Currently, Port Everglades supports 11,600 direct jobs locally for a total of 201,000 jobs statewide.
- * These key expansion projects are expected to be completed over the next six years and will add up to five berths, widen and deepen the channel and bring freight rail into the Port.
- * Port Everglades is the No. 1 container port in Florida and 12th largest in the United States.
- * Supporting the Port Everglades project is good for my business now and in the future.
- * The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.
- * Businesses count on Port Everglades to remain one of the strongest economic engines in Florida.
- * The attention the project money will devote to enhancing reefs up and down the Broward coastline is much needed.
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.
- * Broward County has an active and dynamic environmental community that "gets it," as they have proven with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign.

Industry at Port Everglades creates jobs.

Gina Jiovenetta - Clark RN

Optime / Anesthesia Team

TRC 3501 N Commerce Pkwy

Miramar, Fla. 33025

Desk- 954-276-4054

fax -954-276-5387

From: [Stewart Martin](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades Comments
Date: Friday, July 26, 2013 10:24:07 AM
Attachments: [image003.png](#)
[image005.png](#)
[image007.png](#)
[image009.png](#)
[image011.png](#)

Terri:

I am a lifelong resident of the Fort Lauderdale area and feel compelled to urge your support of this project. Port Everglades is a vital link to the economic success of many counties in Florida and has a direct impact on hundreds of thousands of Floridians statewide. This project is key to our competitiveness with other States and Countries who stand to gain from the Panama Canal expansion.

Clearly there are environmental considerations, but I believe they have been formally addressed by the private and public partnership of professionals long involved in the process.

We look forward to a successful vote of confidence to move this project forward.

Warmest Regards,

Stewart

MMA Logo

STEWART MARTIN

SVP, Producer

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 Fort Lauderdale, FL 33334
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2012 Healthiest Employers - South Florida Business Journal
 2011 Top Insurance Firm in South Florida - Business Leader Magazine
 2011 Best Places to Work - South Florida Business Journal
 2010 Best Independent Agency to Work For - Insurance Journal Magazine
 2009, 2011 South Florida Worksite Wellness Award

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From: [John Valentine](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades expansion
Date: Friday, July 26, 2013 9:26:15 AM

As a business school faculty member at Florida Atlantic University, I would like to lend my support to the Port Everglades expansion. This is critical for the future of business and the community in South Florida.

Thank you.

Professor John A. Valentine

Sent from my Verizon Wireless 4G LTE Smartphone

From: RMParillaJr@aol.com
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades Expansion
Date: Friday, July 26, 2013 9:44:21 AM

Dear: Ms. Jordan-Sellers

The Broward Workforce Development Board (BWDB), The Workforce One Council of Elected Officials and WorkForce One Employment Solution would like to express our support for the Port Everglades expansion project in its many phases.

WorkForce One Employment Solutions is the administrative entity for the Broward Workforce Development Board/WorkForce One Council of elected officials which is the designated Workforce Investment Board under the federal Workforce Investment Act of 1998. We operate three one stop career centers in Broward where job seekers go to find jobs and employers go to find talent. We also operate youth programs to get young people to stay in school, get jobs, and give them jobs for the summer. We see over 140,000 people per year.

The BWDB and its elected officials have noted that the key to getting people jobs is more jobs rather than more job training. At one time we had as many as six (6) unemployed people in Florida for every open job we could find through sophisticated searching of the internet. Currently, even with the economic recovery we still have 2.6 jobseekers for every open position (June, 2013). This means that if we somehow filled every open position that can be found on the internet, nearly 62% of the unemployed would still be unemployed. Clearly job growth is the central issue in South Florida and the state. According to the Department of Economic Opportunity, we are not expected to reach the previous high level of jobs (Quarter 1, 2007) until 2018.

The Port expansion will do two things. First, it will create some 7,000 jobs when fully realized and more than 134,000 jobs across the state. This is more than the entire state of Florida created over the last year (June-June). Secondly, without a widening and deepening of the Port, we will actually lose jobs. Ships are getting larger and requiring a deeper draft no matter what happens in Florida's ports. Ships will merely go elsewhere to offload and therefore jobs in south Florida will actually decline. It is vital to the economic health and job creation that the projects precede with a sense of urgency. The Board is also aware of the extensive environmental mitigation that is being proposed and congratulates the Port officials on their hard work in this area.

Sincerely,

Ralph M. Parilla, Jr.

President

Parilla & Associates

From: TURNER, KATIE B
To: Jordan-Sellers, Terri SAJ
Subject: Port Everglades Expansion is Needed NOW!
Date: Friday, July 26, 2013 2:49:17 PM
Importance: High

Hello Terri,

I am a long time resident of Fort Lauderdale. I see the benefits of the expansion of Port Everglades for this community.

This will mean more jobs and positions to offer to our young graduates to help keep them in this community. Without our young folk staying, working, and raising their families here our community will decline. I want my kids to come back here after college and contribute to the economic growth and development of Broward County. Not to omit the mention of having my grandkids close to me in my retiring years, go give them a sense of Broward County pride to go and return as well.

If the Port expansion project does not move forward, Broward will not be able to compete with other ports for the new high capacity cargo ships, and we will lose jobs. Any further delays will permanently be a great disadvantage to our community in competing for global commerce. This Expansion is not simply a good thing for Broward, it is vital to the economic health and well-being of our community.

The Port Everglades Expansion is Needed NOW! USACOE please Make it So. Terri Jordan-Sellers make it so under your watch!

Thank you

Katie B. Turner
United Way Supporter via
AT&T Services - Global Engineering Support

If you realized how powerful your thoughts are, you would never think a negative thought. Rethink Possible!

TEXTING and DRIVING... It Can Wait.

From: [Campbell, Arlene B](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades Expansion
Date: Friday, July 26, 2013 1:28:21 PM

We need this expansion an all the jobs it will bring to the Ft Lauderdale community.

We also need to keep our competitive edge in the cruise industry which brings lots of \$\$\$\$\$

To our local economy.

Arlene B Campbell

Site Manager, Specialty Care Center & Clinica de Las Americas

The mission of Broward Health is to provide quality health care to the people we serve and support the needs of all physicians and employees.

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From: [WEINSTOCK, DAVE](#)
To: [Jordan-Sellers, Terri SA1](#)
Cc: [WEINSTOCK, DAVE](#); polrbear@bellsouth.net
Subject: Port Everglades Expansion
Date: Friday, July 26, 2013 9:19:33 AM

I'm a long-time resident in Coral Springs and fully support the Army Corps of Engineers plan for deep-water expansion at Port Everglades to support the hosting of ships that will be using the expanded/deepened Panama Canal that is coming in the near future.

David Weinstock

Capacity Engineer

AT&T-SE - Layer 0-3 Ntwk Eng / Ntwk Plng & Eng / Shared Transport

SEFlorida (Broward/Palm/Indian River) and LA (Lafayette & New Orleans LATAs)

Rethink Possible

9420 Royal Palm Blvd.

Coral Springs, FL 33065

Ph 954-752-0693 Fax 954-752-9087 dw9829@att.com <<mailto:dw9829@att.com>> www.att.com

<<http://www.att.com>>

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From: [Ryan Shea](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: The Port Everglades Expansion
Date: Friday, July 26, 2013 9:48:20 AM
Attachments: [image003.png](#)
[image004.png](#)

Hi Terri,

As a native and current resident of Fort Lauderdale, I believe the Port Everglades project is good for my business now and in the future.

Thank you,

Ryan

cid:image007.jpg@01CD7932.E0F10530

Ryan Shea GPHR

VP – Client Services

Right Management

1301 E. Broward Blvd.

Suite 200

Fort Lauderdale FL 33301

United States

Phone +1 954 334 2512

Mobile +1 954 292 2505

ryan.shea@right.com <<mailto:ryan.shea@right.com>>

www.right.com <<http://www.right.com/>>

www.rightflorida.com <<http://www.rightflorida.com/>>

cid:image004.png@01CC05D4.B75E2DB0 <<http://www.right.com/thought-leadership/blog/talentplusworkblog.aspx>> cid:image005.png@01CC05D4.B75E2DB0
 <<http://www.facebook.com/pages/Right-Management-FloridaCaribbean/136331036401731>>
 cid:image006.png@01CC05D4.B75E2DB0 <<http://twitter.com/#!/RightFlorida>>

Description: C:\Users\MalkaC\Desktop\bc12_pq.tiff

From: [Gordon Merle](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Expansion of Port Everglades
Date: Monday, July 29, 2013 2:55:19 PM

As a proud member of the Greater Fort Lauderdale Chamber of Commerce, I hereby support the for deepening and widening of our harbor. I feel that this will create new employment opportunities and further enhance our economy.

Thank you.

Sincerely,

Gordon L. Merle, MCP, A+, CCSP

Corporate Account Manager

Description: slp new logo small

www.slpowers.com <<http://www.slpowers.com/>>

email: gmerle@slpowers.com <<mailto:gmerle@slpowers.com>>

telephone direct: 561-228-7615

instant messenger: gordonslpowers

From: [Kelly Alvarez Vitale](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: For the expansion of Port Everglades
Date: Monday, July 29, 2013 1:05:19 PM
Attachments: [facebook.png](#)
[twitter.png](#)
[linkedin.png](#)
[youtube.png](#)

To Whom it May Concern:

I am in favor of supporting the expansion of Port Everglades. This port is not just an economic driver for our Fort Lauderdale community, but also for the region and the state. As other major ports/canals begin to expand to increase trade, it's imperative that we stay competitive and are able to compete in a global market.

Sincerely,

Kelly Alvarez Vitale
President
Strategic Philanthropy Inc.
Tel: 561.985.2418
Kelly@StrategicPhilanthropyInc.com
www.StrategicPhilanthropyInc.com

<<https://www.facebook.com/StrategicPhilanthropy>> <<https://twitter.com/stratphil>>
<<http://www.linkedin.com/in/KellyAlvarezVitale>> <<http://www.youtube.com/DoGoodDoWell>>
<<http://www.youtube.com/DoGoodDoWell>>

From: [Tom Jennings](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Ft. Laud Port Expansion
Date: Monday, July 29, 2013 1:58:50 PM

Terri – I just want to let you know I am in support of the Fort Lauderdale port expansion. International commerce is expanding and stimulates our local economy. As a Broward County resident and business owner, I see no reason to not get this done.

Thank you.

Tom Jennings, CPA

Payrolls Plus

954-252-8463 (ext. 102)

www.payrolls-plus.com <<http://www.payrolls-plus.com/>>

From: [Frank Herhold](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [gbulfin@gfalliance.org](#); [dan@ftlchamber.com](#); [Bob Swindell](#); [peassn@portbiz.com](#)
Subject: Port Everglades -- Deepening and Widening of the Navigation Channels -- Support
Date: Saturday, July 27, 2013 10:05:33 PM

Dear Ms. Jordan-Sellers,

I attended the 1PM July 23 ACOE Briefing/Public Hearing concerning the Draft Environmental Impact Statement and Feasibility Study for Port Everglades.

In accordance with your request, I am writing in support of the project:

- It is important to maintain the competitiveness of Port Everglades otherwise Broward County loses jobs and economic benefit to other Ports that are able to accommodate the newer class of deep draft vessels.
- The proposed improvements will increase safety for the maritime community which includes recreational vessels. As you may know, Fort Lauderdale has earned the title of "Yachting Capital of the World" due to our high level of recreational boating activity.
- Broward County has worked diligently to strike a balance between commerce and the environment.

While I understand Congressional authorization and funding need to be secured for this important project, as a Board member of both the Greater Fort Lauderdale Chamber and the Greater Fort Lauderdale Alliance, I urge you move forward to the next steps in the process without delay.

Sincerely,

Frank F. Herhold
2609 Alamanda Court
Fort Lauderdale, FL 33301

(954) 850-1975

ferhold@mindspring.com

From: [Cohen, Alan](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades
Date: Saturday, July 27, 2013 5:55:23 AM

Hello Terri

I am writing to add my voice to the chorus of support for widening and deepening Port Everglades. The Port is vitally important to the entire county, providing both an outlet for goods that our businesses ship out and an entrance for tourists to come and enjoy everything our communities have to offer.

Thank you

Alan

Alan J. Cohen

City Manager

City of Sunrise, FL

Office: (954) 746-3430

Fax: (954) 746-3439

email: acohen@sunrisefl.gov <<mailto:msalomon@sunrisefl.gov>>

Website: <http://www.sunrisefl.gov> <<http://www.sunrisefl.gov>>

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P Think before you print

From: [Andrew Taubman](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades
Date: Friday, July 26, 2013 9:05:04 PM

It is imperative this project take place. It provides jobs and boost local business and tourism.
Thanks.

Please excuse typos, sent from my iPhone

From: [Sylvia Berman](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades
Date: Sunday, July 28, 2013 9:02:42 AM

Good morning:

I would just like to add my comments to the many I am sure you have received.

I have watched Port Everglades grow over the last 54 years and seen its impact on Broward County.

With the new Panama Canal opening, Port Everglades needs to stay in the forefront to be able to attract all manner of shipping.

So much of my business is tied into the port as we specialize in tourism and, of course, cruising.

I have been waiting for the Port Project to begin and then be completed for more years than I care to count.

I know that the project will be respectful of the coral reefs and our intercoastal needs.

I hope that, when the vote comes, it will be approved and not delayed another 10 years. We no longer can wait.

Thank you for listening.

Sylvia Berman

Post Haste Travel

Hollywood, Florida

954=966=7690

From: [Harley Miller](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades expansion
Date: Monday, July 29, 2013 10:14:30 AM

Dear Ms. Jordan-Sellers,

I attended the public forum for the Port Everglades expansion and dredging Tuesday evening, July 23rd at the Broward Convention Center, and I would like to add my support for the project on both a personal and a business level.

As a small business owner in South Florida/Fort Lauderdale for the past 40 years, we have seen our community grow and prosper, and we have contributed to the growth and have been able to give much back to the community as a result of our success. In recent years we have had to cut back and now employ about 50% fewer family providers than we did 6 years ago. We see the Port Everglades dredging and expansion project as a key to getting our community back on track economically and we trust the Corps of Engineers will oversee the and minimize any environmental impact the project might have.

On a personal note, I am a diver and enjoy the reefs to the south of the entrance channel to the Port, so I have a vested interest in maintaining & restoring the quality of the 3 reef lines outside the port, as well as throughout South Florida. NSU's Oceanographic Research facility is doing a great job in the research of the corals and I appreciate that their expertise is being utilized in this project. With everyone's cooperation, I know that we can minimize environmental impact and have a world class port in Broward County.

Sincerely,

Harley Miller | President

Miller Construction Company
 614 South Federal Highway
 Fort Lauderdale, FL 33301
 Direct: (954) 847-0605 | Office: (954) 764-6550
 Fax: (954) 764-5418 | hmill@millconstruction.com <<mailto:hmill@millconstruction.com>>
 Visit us online at www.millerconstruction.com <<http://www.millerconstruction.com>> .

<<http://www.millerconstruction.com/>>

Learn more about Miller.

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<<http://www.facebook.com/millerconstruction>>

X1x2x3x4x5

From: [Shaw, Ryan](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades
Date: Friday, July 26, 2013 3:39:20 PM

Terri,

This port should be deepened and widened. This is very important for the economy of South Florida.

Ryan T. Shaw

Senior Associate

National Retail Group

Marcus & Millichap
5201 Blue Lagoon Drive
Suite 100
Miami, FL 33126

(786) 522-7000 ext. 7087
(786) 522-7087 direct
(305) 710-7722 mobile
(786) 522-7010 fax
ryan.shaw@marcusmillichap.com <<mailto:ryan.shaw@marcusmillichap.com>>

License: FL: SL-3046910

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<<http://www.marcusmillichap.com/RyanTShaw>>

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Marcus & Millichap Real Estate Investment Services of Florida, Inc.

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From: [Mike Long](#)
To: [Anne Hotte](#)
Cc: [Pat Mason](#); [vgreen@greenlakeconsulting.com](#); [dan.casey@klgates.com](#); [Diana Pittarelli](#); [andrew.zullo@regions.com](#); [Jenna Martinetti](#); [Steven S. Farbman](#); [akoslow@becker-poliakoff.com](#); [Jordan-Sellers](#); [Terri SAJ](#)
Subject: Re: Please review and advise
Date: Thursday, July 25, 2013 2:58:58 PM

I am in support of this.

Mike Long

Sent from my iPhone

On Jul 25, 2013, at 1:37 PM, "Anne Hotte" <anne@hollywoodchamber.org> wrote:

I am not sure if you have all read about the wonderful news that the Port Everglades Expansion Feasibility report was finally released by the Army Corps of Engineers and that there is a very short 45 days window for Public Comments. There was an informative session with Q&A and Comments on the 23rd at Port Everglades and a total of 400 people attended and voiced their support for the port Expansion project. Maybe 10 people were against it as they are fanatic divers or environmentalists. It was quite impressive to see how our entire community is rallying behind this project. All agree that Port Everglades must remain competitive to ensure the well being of our local economy. Hopefully you have read my previous email with the letter from Terry Stiles, Stiles Corporation and Chair of the PEAT (I am a member of the Port Everglades Advocacy Taskforce) and Bob Swindell, President /CEO of the Alliance. They are asking for letters of support and the text below is what I am proposing to send. We have been reminded that the written comments are most important to document the support of our community. I would encourage each of you to send a personal letter as well. The letter will be sent to Terri Jordan -Sellers. She was at the meeting on Tuesday and was most impressed by the number of people in attendance. The PEAT has been awaiting this moment for a few years now. This is our chance to make a difference. Please review and advise.

Anne

Terri.Jordan-Sellers@usace.army.mil

Dear Terri,

It was so nice to see everyone today at the Convention Center in Fort Lauderdale. AS you mentioned, it was a great turnout considering this is the middle of summer, in the middle of the day! People truly care about Port Everglades as we understand the critical and vital role the Port plays in our economic development. All would agree that \$26 Billion is significant! 80% of the Port is geographically located in Hollywood, and the Greater Hollywood Chamber of Commerce cannot emphasize enough the importance for the Port to remain competitive as the Panama Canal opens up and larger ships are being built.

Our chamber is composed of 852 businesses and most of them are heavily dependent on Port Everglades remaining #3 cruise port in the world and #1 container port in Florida. Reality is that cruise ships are getting larger and cargo ship as well as they prove to be financially more economical. The current depth of our channel and the width of our turning notch will not be able to handle the new ships .

It is critical for us to support this project for the jobs it will bring and the jobs it will retain. As you know, jobs mean disposable income, means commerce...and commerce is vital to the quality of life of any community. It is critical for us to support this project for the enhanced safety it will provide as larger ships reach our port. It is critical for us to support this project as we are uniquely positioned to transfer cargo to rail or to air all in the same area! We will be a model for efficient and expedient intermodal transport.

I also must applaud the efforts of the ACOE to identify the deepening that would best economically benefit the Port while minimizing the environmental impact. The 48' recommendation as opposed to the 50' original proposal is significantly changing the environmental impact while reaching the economic goal. I believe the 58% reduction of impact on coral reefs and the 98% reduction of impact on mangroves is excellent news as the Port has already proven its commitment to good environmental stewardship with the mitigation of the Southport Turning Notch and its alliances with NOAA (National Oceanographic and Atmospheric Organization) and the Nova Southeastern University Oceanographic Center. The commitment of NOAA and Dr. Dodge, Dean of the NSU Oceanography Center to identify creative avenues for mitigation is a testimonial to the investment of the entire community to support this project.

We would certainly hope that at the same time, the Sand Bypass proposed for Broward County would be created, ensuring beach re-nourishment for beaches south of Port Everglades.

As for all things, time is of the essence and your diligent collaboration in making this happen in a timely manner is greatly appreciated.

Thank you for making this Port Everglades expansion project a priority for the Army Corps of Engineers.

Anne T. Hotte, CEO/Executive Director
Greater Hollywood Chamber of Commerce
330 North Federal Hwy
Hollywood, FL 33020
Tel: 954.923.4000 x13
Cell: 954.815.9698
Anne@Hollywoodchamber.org
www.HollywoodChamber.org

<image001.jpg>

From: [Sherman, Taylor](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Expansion Project
Date: Tuesday, July 30, 2013 4:13:30 PM

Terri,

As a banker in Fort Lauderdale, I am writing you in string support of the expansion project for Port Everglades. BB&T is a prominent member of the local community and supporter of these port expansion projects across the country. They will significantly strengthen local economies with greater commerce, especially here in South Florida.

Furthermore, we are eager to finance this growth and look forward to partnering with business owners to that end. If there is anything else we can do in support of this project, please let me know.

Best Regards,

Taylor Sherman
P: (954) 233-0397
C: (404) 626-3329
TSherman@BBandT.com

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Jacksonville District

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084

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)
- ☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

The latest vision for minimizing impacts is outstanding. I know how committed USACE is with protection of Florida's wetlands and coastal resources. Supporting growth while protecting the environment can be a cooperative vs adversarial arrangement. Broward County has the best of both worlds. Growth is well managed and there is no compromise in insuring design is vetted and state of the art. HDR is a nationally known engineering firm committed to environmental health of the coastal areas in Florida we hope to be a partner with the county and create the best design & implementation of the effort to maximize safety for ships while protecting and improving the critical environment!

John Ford Neff, PE

NAME AND TITLE (PLEASE PRINT)

3250 W. Commercial Blvd. G-100

MAILING ADDRESS

FT. LAUDERDALE

FL.

33309

CITY

STATE

ZIP CODE

954-233-4915

PHONE NUMBER

John.neff@hadrinc.com

EMAIL ADDRESS



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SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☐ OFFICIAL COMMENT
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- ☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

WHAT WILL BE

THE DEFINITION OF

SUCCESS FOR THIS

POST PROJECT OUTCOMES

FROM AN ENVIRONMENTAL DOC

VIEW?

I SUPPORT THE PERMIT

ISSUANCE!

Roy Rogers

NAME AND TITLE (PLEASE PRINT)

2.rogers@181group.com

MAILING ADDRESS

Logan Road Port

FL

33064

CITY

STATE

ZIP CODE

954 445 1301

PHONE NUMBER

5141 NE 5th Ave

EMAIL ADDRESS



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SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☒ OFFICIAL COMMENT (Comment WILL be included in the final report) ☐ GENERAL QUESTION (Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

THIS PROJECT IS CRITICAL
TO THE CONTINUED
VIABILITY OF PORT EVERGLADES
IN THE REGIONAL ECONOMY OF
BROWARD COUNTY.
THIS IS AN IMPORTANT DECISION
REGARDING A CAPITAL
BALANCE OF ENVIRONMENTAL
ECOLOGICAL & ECONOMIC
PARAMETERS. THE PROJECT
INSURES CAPITAL PROJECTIONS
BUT ACTUAL CONSTRUCTION
REQUIRES VIGILANCE AND
STREET MONITORING. THIS
DEVELOPMENT IS SECOND.
THE WORDS "SIGNIFICANT" OR
"MAJOR" - IS IS THE
SINE QUATERNA OF BROWARD'S
ECONOMIC FUTURE. FAILURE
ON DEMAR WILL ONLY INSURE
THAT MIAMI AND WPB
PORTS WILL GAIN A
CRITICAL "LEG UP".

JAM C. HANSEN, AICP V.P. ^{GULFSTREAM} ~~PORT~~
NAME AND TITLE (PLEASE PRINT)

901 S Federal Highway
MAILING ADDRESS

Fort Lauderdale Beach, FL 33309
CITY STATE ZIP CODE

954-454-7000
PHONE NUMBER

jam.hansen@glftstrm.com
EMAIL ADDRESS



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SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☒ OFFICIAL COMMENT (Comment WILL be included in the final report) ☐ GENERAL QUESTION (Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

Florida East
Coast Industries (FECI) is investing
millions of dollars to develop
an inland ~~port~~ container
facility (South Florida Logistics
Services) at Florida East
Coast Railway's Hialeah rail
yard. This will serve as
an inland container
facility for goods coming
from Port Everglades.
We support this dredging as
it will allow larger vessels
to come in to the port,
which will be supported
by our investment. This
will result in thousands
of jobs & further economic
development. We support
this dredging.

Ali Soule
NAME AND TITLE (PLEASE PRINT)

2855 S. Wee Wee Rd, 4th Floor
MAILING ADDRESS

Corral Gables FL 33129
CITY STATE ZIP CODE

305-520-2300
PHONE NUMBER

ali.soule@allaboardflorida.com
EMAIL ADDRESS



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Jacksonville District

088 Comments/ Questions

See Privacy Act Statement
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SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I support the growth and expansion of Port Everglades because it will help to ensure that Broward County will remain competitive and drive business growth in the area. In addition, I believe this project will help to create much needed jobs in our county. As a homeowner and employee of Fort Lauderdale I understand the real need for jobs and economic prosperity here. It is vital that our Port ~~can~~ supports the kind of economic growth necessary for this county. ~~The~~ The growth of the Port is imperative for the county as an integral player in our trade business. This is a smart. This is needed. Please support our sustainability. Thank you.

Adrienne Zalkind

NAME AND TITLE (PLEASE PRINT)

1515 Breakwater Terrace

MAILING ADDRESS

Hollywood FL 33019

CITY

STATE

ZIP CODE

305-753-8677

PHONE NUMBER

AZvi@bellsouth.net

EMAIL ADDRESS



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089 Comments/ Questions

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SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
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COMMENTS/QUESTIONS

We are presently one of the leading cruise and container ports in the country and we need this project promptly to maintain our competitive edge and to fuel our local economy. We need to be able to serve the bigger ships before other ports divert them from Fort Lauderdale. We have done extensive studies to preserve the environment while at the same time providing for port expansion.

Baron Samerstein

NAME AND TITLE (PLEASE PRINT)

100 West Cypress Creek Rd

MAILING ADDRESS

Fort Lauderdale FL 33309

CITY

STATE

ZIP CODE

954 5272485

PHONE NUMBER

Baron.Samerstein@gmail.com

EMAIL ADDRESS



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SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I wholeheartedly support the Port Everglades expansion program. As a business owner - I support it from an economic standpoint. Port Everglades is the heart of our economy in this county. We depend on it for jobs, goods and resources, and it opens our door to the world. If we do not expand we will not be able to compete with other ports. We will not be ready for future capacity. This is critical. It is not a wish. It is a necessity.

As a resident, a parent and an environmental watchdog - I do support the efforts as well. I understand that every method is being researched. The goal is to maintain reefs, mangroves and disrupt as little as possible. It's a responsibility of all residents to educate themselves. I have done so and will continue to do so. Our fragile environment deserves time, effort, and yes - watchdogs.

Port Everglades has taken too long.

Lisa Hoffman-Linero, VP, Partner

Starmark 210 S. Andrews Ave.

Fort Lauderdale FL 33301

561-289-3921

lhoffman@starmark.com



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Jacksonville District

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SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

Thank you for your favorable report.

Port Everglades has been an economic engine in Broward County since 1931.

We need this series of improvements to remain competitive and continue to expand our economic base.

Thank you.

Nous Eagan

2400 Castilla Isle

Fort Lauderdale FL 33301



US Army Corps
of Engineers
Jacksonville District

092 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

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(Comment WILL be included in
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☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

Port Everglades is critical
to Florida and the U.S., impacting
the overall economy and
thousands of jobs. I believe
it is imperative that we
make the necessary improvements
to the Port to ensure Port
Everglades grows in the
future, provides new
jobs and does not fall
behind other ports around
the world in its capabilities
and services. It is
important that this project
move forward without
further delays.

Ron Drew - U.P. of Marketing

NAME AND TITLE (PLEASE PRINT)

110 E. Broward Blvd, Suite 1990

MAILING ADDRESS

Fort Lauderdale FL 33301

954-627-0130

PHONE NUMBER

rdrew@upalliance.org

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

093 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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☐ GENERAL QUESTION
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be included in the final report)

COMMENTS/QUESTIONS I am a

Broward County Citizen
in support of the Port Expansion

I do also support the environmental
study 2 recommended by
~~NOIA~~ NOIA

Don Coyle

NAME AND TITLE (PLEASE PRINT)

3640 NE 12 Ter

MAILING ADDRESS

Pompano Beach

CITY

954-618-3460

PHONE NUMBER

Don.Coyle@stiles.com

EMAIL ADDRESS



**US Army Corps
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Jacksonville District

094 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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OFFICIAL COMMENT
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GENERAL QUESTION
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be included in the final report)

COMMENTS/QUESTIONS

*I think this project
will greatly help to
maintain and improve
the economy in Broward
while minimising the
environmental effects. It
will increase our
productivity and commerce
as a County.*

Kenneth Bishop I LA

NAME AND TITLE (PLEASE PRINT)

PO Box 1436

MAILING ADDRESS

FT Lauderdale FL 33302

CITY

STATE

ZIP CODE

PHONE NUMBER

EMAIL ADDRESS



**US Army Corps
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Jacksonville District

095 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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OFFICIAL COMMENT
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GENERAL QUESTION
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be included in the final report)

COMMENTS/QUESTIONS

*I support the
approval of this plan report
and moving forward with the
deepening widening of Port
Everglades. Our community needs this
action to remain competitive and
will use this opportunity to go
above and beyond to mitigate
environmental impacts.*

Margie Gunther

NAME AND TITLE (PLEASE PRINT)

110 E. Broward Blvd Suite 1990

MAILING ADDRESS

Fort Lauderdale FL 33301

CITY

STATE

ZIP CODE

954-627-0135

PHONE NUMBER

margie.gunther@glalliance.org

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

096 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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the final report)
- ☐ GENERAL QUESTION
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be included in the final report)

COMMENTS/QUESTIONS

THE CITY OF SUNRISE
SUPPORTS THIS EXPANSION
AS IT WILL CONTINUE TO
PROVIDE DIRECT AND INDIRECT
ECONOMIC BENEFITS AND SUPPORT
NEW JOB CREATION & TAX REVENUE
FOR THE COMMUNITY AT LARGE,
THROUGH ENTIC COMMERCE &
BUSINESS ACTIVITY.

LOU SANDORA, DIRECTOR OF ECONOMIC DEV.
NAME AND TITLE (PLEASE PRINT)

1877 W. OAKLAND PARK BLVD.

MAILING ADDRESS

SUNRISE FL 33328

CITY STATE ZIP CODE

(954) 796-3430

PHONE NUMBER

LSANDORA@SUNRISE.FL.GOV

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

097 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

Through a variety of
organizations, I have
worked in and with Port
Everglades for over 35 years.
Aside from its role as a major
economic engine, our Port con-
tributes immensely to the
safety and security of So. Fla.
The extensive scope of the
EIS process and the draft
report have resulted in
significant avoidance and
minimization of the environ-
mental impacts of this
important project as well
as proposals for an
extensive list of compensatory
mitigation measures. I urge
final approval of the EIS
and the permits for this
project.

George Platt, Chair
NAME AND TITLE (PLEASE PRINT)

1971 S.E. 957, Florida Wetlands Bank

MAILING ADDRESS

Ft. Lauderdale, FL 33306

CITY STATE ZIP CODE

954 522 3588

PHONE NUMBER

gplatt@LSNpartners.com

EMAIL ADDRESS



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Jacksonville District

098 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

THIS IS IMPORTANT TO KEEP THE PORT ONE OF THE STRONGEST ECONOMICS ENGINES IN FLORIDA. AS A HOME OWNER IN BROWARD, THE PORT WILL BOOST THE ECONOMY AND BID IN THE RISING PROPERTY VALUES.

FT. LAUD. ALSO HAS LEADING CORAL REEF EXPORT AND IT HAVE SOUTHEAST UNIVERSITY WHICH IS A BIG ADVANTAGE FOR BROWARD COUNTY.

TODD PERRODIN

NAME AND TITLE (PLEASE PRINT)

2830 NE 35th CT.

MAILING ADDRESS

LIGHTHOUSE PT. FL. 33004

CITY STATE ZIP CODE

PHONE NUMBER

TPERRODIN@CYAHO.COM

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

099 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

UNITED WAY OF BROWARD COUNTY ~~UNIVERSITY~~ SUPPORTS THE PORT EVERGLADES EXPANSION PROJECTS. THE PORT IS A KEY ECONOMIC DRIVER FOR BROWARD. IN OUR WORK TO HELP LOW INCOME FAMILIES INCREASE THEIR EARNING POTENTIAL AND BECOME ECONOMICALLY INDEPENDENT, PORT EXPANSION IS CRITICAL TO OUR WORK. PORT EXPANSION WILL INCREASE FAMILY SUSTAINING JOBS, BOTH IN SHORT TERM AND LONG TERM. IT WILL BEING MORE JOBS AND ECONOMIC OPPORTUNITIES FOR THOSE FAMILIES WE SERVE. THE ECONOMIC HEALTH AND WELL BEING OF BROWARD COUNTY DEPENDS ON THIS PROJECT FORWARD. UNITED WAY OF BROWARD COUNTY FULLY ENDORSES THE EXPANSION PROJECT.

DAVE WALLACE DIRECTOR PUBLIC POLICY

NAME AND TITLE (PLEASE PRINT)

UNITED WAY OF BROWARD COUNTY

1300 S. ANDREWS AVE

MAILING ADDRESS

FT. LAUDERDALE FL 33316

CITY STATE ZIP CODE

954. 462. 4850 X130

PHONE NUMBER

DWALLACE@UNITEDWAYBROWARD.COM

EMAIL ADDRESS



**US Army Corps
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Jacksonville District**

100 Comments/ Questions

See Privacy Act Statement
on reverse side

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☐ GENERAL QUESTION
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COMMENTS/QUESTIONS

As an individual who resides and works in Fort Lauderdale I fully support the Port Everglades project and future expansion efforts, in an effort to keep the port competitive.

The expansion is critical to the economic vitality of Fort Lauderdale. As a real estate professional, I fully understand the economic impact an industrial project such as this can have on a community. Our community will directly benefit from the creation of jobs, as well as the \$26 billion in annual economic activity.

With the ongoing expansion at the Port of Miami, Fort Lauderdale needs this project to stay remain a competitive port along the coast.

Our community needs this project.

Melissa Myers

NAME AND TITLE (PLEASE PRINT)

2972 Riverland Road

MAILING ADDRESS

Fort Lauderdale FL 33312

CITY

STATE

ZIP CODE

954-627-3705

PHONE NUMBER

mysvrme@gmail.com

EMAIL ADDRESS



**US Army Corps
of Engineers.
Jacksonville District**

101 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

Port Everglades is an integral part of the Miami Customs District AND our Customs District just made it in the top ten Customs districts in the U.S. 1 in 5 jobs are related to International trade in our economy therefore it is imperative that we support this project. Port Everglades with all of South Florida represents the "Gateway to Latin America & the Caribbean" in the United States and Port Everglades contributes to a significant part of our trade with Brazil, our #1 trading partner.

PASTA ISAAC BARATA, ^{Economic Dev} Special Int trade

NAME AND TITLE (PLEASE PRINT)

Broward County OSBD

MAILING ADDRESS

115 S Andrews Ave Fort Lauderdale FL 33301

CITY

STATE

ZIP CODE

954 357-7894

PHONE NUMBER

PISAAC@BROWARD.ORG

EMAIL ADDRESS



US Army Corps
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Jacksonville District

102 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:



OFFICIAL COMMENT
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the final report)



GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I support the
project so we
can remain
competitive in
a global
economy.

Norm Adams

NAME AND TITLE (PLEASE PRINT)

875 Rance de Leon Dr

MAILING ADDRESS

FT. Lauderdale FL 33316

CITY

STATE

ZIP CODE

954 627-9020

PHONE NUMBER

normadams@comcast.net

EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

103 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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OFFICIAL COMMENT
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GENERAL QUESTION
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be included in the final report)

COMMENTS/QUESTIONS

I am in support of the Port
expansion, and do not think this
process should be delayed any
further. I believe this expansion
will be good for the County and
state.

Ryan Karlin

NAME AND TITLE (PLEASE PRINT)

301 E Las Olas Blvd,

MAILING ADDRESS

FT. Lauderdale

FL

33301

CITY

STATE

ZIP CODE

954. 627.9216

PHONE NUMBER

KARLIN, RYAN@GMAIL.COM

EMAIL ADDRESS



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Jacksonville District

104 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS THE ABILITY TO
PROMOTE THE GENERAL WELFARE AND
TO INSURE DOMESTIC TRANQUILITY IS
DIRECTLY LINKED TO THE FINANCIAL/
ECONOMIC HEALTH OF THE COMMUNITY
(JUST LOOK AT DETROIT FOR THE
CONSEQUENCES OF POOR COMMUNITY
ECONOMIC HEALTH). PORT EVERGLADES
IS ONE OF THE PRIMARY ECONOMIC
ENGINES TO BROWARD COUNTY AND
SOUTH FLORIDA, AND AS SUCH I FULLY
SUPPORT THE PROPOSED IMPROVEMENTS,
TO HELP INSURE THE HEALTH AND WELL
BEING FOR YEARS TO COME,
OF OUR COMMUNITY

STEVE PALMER

NAME AND TITLE (PLEASE PRINT)

3784 PINE LAKE DR.

MAILING ADDRESS

WESTON

FL 33332

CITY

STATE

ZIP CODE

954 389-2408

PHONE NUMBER

SRPALMER@AOL.COM

EMAIL ADDRESS



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of Engineers.
Jacksonville District

105 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS I Support the
Port Project because
① Good for LOCAL business
② Please Don't Delay because
IT WILL DISADVANTAGE our community
competing to global Commerce
③ Creates Jobs

NAME AND TITLE (PLEASE PRINT)

MAILING ADDRESS

CITY

STATE

ZIP CODE

PHONE NUMBER

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

106 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

As the VP of Broward
the port expansion is
critical to our continued
economic health.

As a former geologist
I am comfortable with
the environmental
impact

David Coddington

NAME AND TITLE (PLEASE PRINT)

VP Business Development

Greater Ft. Lauderdale Alliance

CITY

STATE

ZIP CODE

110 E Broward Blvd, Ste 1930

PHONE NUMBER

dcoddington@ftalliance.org

EMAIL ADDRESS



US Army Corps
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Jacksonville District

107 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

I am seeking for
non profit human
services. ~~the~~
Broward County needs
port expansion to
help us secure
living wage jobs
for residents of
Broward to continue
to enhance the
economic engine of
the community. We
thank you for acting
quickly. Kathleen Carr
CEO United Way

NAME AND TITLE (PLEASE PRINT)

CEO United Way

MAILING ADDRESS

1700 S. Andrews Ave

CITY

STATE

ZIP CODE

FL 33316

PHONE NUMBER

954-913-3344

EMAIL ADDRESS

kcarroll@unitedwaybroward.org



US Army Corps
of Engineers
Jacksonville District

108 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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☐ GENERAL QUESTION
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COMMENTS/QUESTIONS

*I believe
it is absolutely critical
for the economic well-
being of this area and
important that the deeper
expansion and widening of
Port Everglades be reviewed
as soon as possible. As
a former delegate of the
Coastal Guard, I have
been very important Port Ever-
glades may open and it
is critical that it be able
to compete in the export-
ing global market place.
For Everglades to compete
effectively as it is clear that
environmental mitigation
is an appropriate project
and being properly addressed.*

NAME AND TITLE (PLEASE PRINT)

Timothy D. Moore

MAILING ADDRESS

*1161 NW 93rd Terrep
Plantation, FL 33322*

CITY

STATE

ZIP CODE

954 258 1180

PHONE NUMBER

EMAIL ADDRESS



US Army Corps
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Jacksonville District

109 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

*THANKS TO THE US ARMY
CORPS OF ENGINEERS TO GET
INVOLVED IN THIS IMPORTANT
PROJECT FOR PORT EVERGLADES
AND THE ENTIRE BROWARD
COMMUNITY. DOUBTLESS IT IS
A MILESTONE IN THE HISTORY OF
PORT EVERGLADES AND ITS CAPACITY
TO ACCOMMODATE LARGER SHIPS,
WHICH TOGETHER WITH OTHER
PORT INITIATIVES, SUCH AS THE
PORT EXPANSION, WILL BRING
WEALTH AND EMPLOYMENT TO
OUR COMMUNITY.*

NAME AND TITLE (PLEASE PRINT)

LUIS A. PINOCHET

1800 EUGEN DR.

L.PINOCHET@FITREV.COM SUITE 220

MAILING ADDRESS

PORT EVERGLADES FL 33316

CITY

STATE

ZIP CODE

(954) 761-3880 EXT 215

PHONE NUMBER

L.PINOCHET@FITREV.COM

EMAIL ADDRESS



US Army Corps
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Jacksonville District

110 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

I STRONGLY BELIEVE THAT THIS
PROJECT NEEDS TO MOVE FORWARD.
IT HAS A HUGE IMPACT ON
OUR LOCAL ECONOMY AND THE
JOBS IT SUPPORTS.

WE NEED TO DEBATE AND DISCUSS
IN ORDER TO STAY COMPETITIVE
AND AN ECONOMICALLY FEASIBLE
FOR LARGE CARGO COMPANIES
TO VISIT PORT EVERGLADES.
MIA / FLA / TAMPA, ETC.

KEN STILES

NAME AND TITLE (PLEASE PRINT)

301 E LAS OLAS BLVD

MAILING ADDRESS

FT LAUDERDALE

FL

33301

CITY

STATE

ZIP CODE

954 627 9330

PHONE NUMBER

KENNETH.STILES@STILES.COM

EMAIL ADDRESS



US Army Corps
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Jacksonville District

111 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

There are few, if any, economic engines
in Broward County or South
Florida that are as important to
the economic viability of S. Florida
as Port Everglades. We need to
improve and enhance our port
to remain competitive as one of
the leading ports worldwide.

Doing so will not only create
jobs but retain jobs in
an area where there has been
little job growth in the recent
past. Creation of 1500+ jobs
is a significant impact to our
area - and will help me find
demand for my business activities -
which is to provide housing
for market rate for sale, and
rental homes in the immediate and
nearby surrounding area of the
port. We need to continue
to create jobs to ensure the
long-term vitality of Southeast
Florida. I strongly support the
 Corps proceeding with this project.

Jeff McDonough

NAME AND TITLE (PLEASE PRINT)

615 Junberry Ct

MAILING ADDRESS

Boca Raton, FL

33486

CITY

STATE

ZIP CODE

561-703-9431

PHONE NUMBER

jeffmcdonough@yahoo.com

EMAIL ADDRESS



**US Army Corps
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Jacksonville District

112 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

THE
EXPANSION OF PORT EVERGLADES
IS A WORTHWHILE AND VITAL
INVESTMENT IN BROWARD COUNTY
AND SOUTH FLORIDA'S FUTURE.
THE JOB CREATED AND ECONOMY
BENEFIT WILL BE EXPERIENCED
FOR GENERATIONS. IT IS IMPORTANT
THAT THIS PROJECT RECEIVE
THE FUNDING IT NEEDS SO
WE CAN ENSURE THAT
THE COMMUNITY AND STATE
CONTINUE TO THRIVE.

DAVID CHANON

NAME AND TITLE (PLEASE PRINT)

248 CORDINGTON DR.

MAILING ADDRESS

LIBIS

CITY

FL 33308

STATE

ZIP CODE

954.422.2673

PHONE NUMBER

dchanon@gmail.com

EMAIL ADDRESS



**US Army Corps
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Jacksonville District

113 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS

COMPLETELY SUPPORT THE EXPANSION
AND IMPROVEMENTS CURRENTLY
CONTEMPLATED IN THE PORT. WE
NEED THE GROWTH AND JOB AS IT
WILL BENEFIT ALL.

ROCCO FERRERA

NAME AND TITLE (PLEASE PRINT)

33 EAST CAMINO PEN

MAILING ADDRESS

BOCA RATON FL 33432

CITY

STATE

ZIP CODE

954 249 7768

PHONE NUMBER

RFERRERA@COMAIL.COM

EMAIL ADDRESS

114



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of Engineers.
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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☐ GENERAL QUESTION
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be included in the final report)

COMMENTS/QUESTIONS

IM Family Enterprises is a
supportive partner in the
expansion of the port

Lauren Jackson - Consultant

NAME AND TITLE (PLEASE PRINT)

MAILING ADDRESS

CITY

STATE

ZIP CODE

931-265-8999

PHONE NUMBER

EMAIL ADDRESS

115



US Army Corps
of Engineers.
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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COMMENTS/QUESTIONS I HAVE BEEN

A RESIDENT OF BROWARD COUNTY
FOR ALMOST 30 YRS & HAVE WORKED
IN ET LANDFILL FOR MOST OF
THAT TIME. I BELIEVE THE FUTURE
OF OUR COMMUNITY LARGELY RESIDES
WITH THIS IMPORTANT INITIATIVE.
I BELIEVE THE FEASIBILITY STUDY
COMPREHENSIVELY OUTLINES A POTENTIAL
SUCCESSFUL & WELL-THOUGHT OUT PLAN
ADDRESSING LOGISTICAL & ENVIRONMENTAL
ISSUES, WHILE FOCUSING ON WHAT
IS NEEDED TO MAKE OUR PORT
WORLD CLASS. WE MUST CHANGE
A PARADIGM IN ORDER TO COMPETE
ON THE WORLD STAGE. THIS
INITIATIVE WILL NOT ONLY
INCREASE COMMERCIAL FOR THE
SOUTH FLORIDA COMMUNITY, IT
WILL CREATE JOBS BOTH AS PART
OF THE PROJECT'S EXECUTION &
PERMANENT JOBS HAVING FORWARD.
THIS PROJECT SHOULD NOT BE
DELAYED. I SUPPORT THIS INITIATIVE
& LOOK FORWARD TO SEEING
THE PROCESS MOVE FORWARD
WITHOUT DELAY.

BRIAN KUTAN

NAME AND TITLE (PLEASE PRINT)

4851 KENSINGTON CIRCLE

MAILING ADDRESS

CORAL SPRINGS, FL 33076

CITY

STATE

ZIP CODE

954-340-0628

PHONE NUMBER

EMAIL ADDRESS

116



US Army Corps
of Engineers
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT

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☐ GENERAL QUESTION

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COMMENTS/QUESTIONS

As a resident of Port Lauderdale I support ~~the proposed plan~~ the Port Everglades Harbor plan as described by Army Corps of Engineer staff.

The vitality and quality of life in South Florida is heavily dependent on economic growth and opportunity. After significant research and thought I firmly believe that this project is ~~absolutely necessary~~ necessary to not only preserve our current economic activity (cruise, cargo, fuel, etc) but to also position the South Florida economy for future growth.

The environmental impact of this project is significant, but necessary. I am happy with the proposed mitigation plan, but would recommend additional mitigation in areas further away from the port where perhaps greater positive impact on the biodiversity and health of the environment would be realized. Thank you for your time and effort.

BRYSON RIDGWAY

NAME AND TITLE (PLEASE PRINT)

1204 SE 6 ST

MAILING ADDRESS

PORT LAUDERDALE

CITY

FL 33301

STATE

ZIP CODE

954 701 6016

PHONE NUMBER

bryson.ridgway@gmail.com

EMAIL ADDRESS

117



US Army Corps
of Engineers
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

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☐ GENERAL QUESTION

(Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

Deepening ^{and widening} of the Port Everglades channel to allow the largest Port Panamax ships to access Port Everglades is key to the growth of Broward County as an international trade hub. Our port is such a vital economic engine for our county and ~~we~~ the widening deepening ~~of the~~ will be key to the port's continued success. I strongly support the dredge to help maintain and grow jobs and revenue to our community and to drive international trade to our community. We must increase our port's capacity to handle the largest ships. ~~Thank you~~ I am further reassured by the environmental studies and planning by the Corps to mitigate the effects of the deepening and widening.

Glenn Cooper, Shareholder

NAME AND TITLE (PLEASE PRINT)

Gray Robinson, 401 E. Las Olas Blvd #1000

MAILING ADDRESS

Port Lauderdale, FL 33301

CITY

STATE

ZIP CODE

954 713 7822

PHONE NUMBER

glenn.cooper@gray-robison.com

EMAIL ADDRESS



**US Army Corps
of Engineers.
Jacksonville District**

118 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☒ OFFICIAL COMMENT (Comment WILL be included in the final report) ☐ GENERAL QUESTION (Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

I am in full support of the responsible expansion of the port. As a citizen of Ft. Lauderdale I can strongly appreciate the effort the improvements to the port would have on the local economy. Also, being a frequent boater I can touch upon the traffic within the port. I see this as a good impact but can understand that some environmental concerns may exist. However, I feel that proper studies & procedures will ensure that safety & responsible improvements will be completed. In closing I would like to intimate my support as a local business individual as well as a boater who values our local waters.

Den Boies

NAME AND TITLE (PLEASE PRINT)

1100 SE 8TH ST

MAILING ADDRESS

Ft Lauderdale

FL 33316

CITY

STATE

ZIP CODE

N/A

PHONE NUMBER

bboies@rccinvestments.net

EMAIL ADDRESS



**US Army Corps
of Engineers.
Jacksonville District**

119 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☒ OFFICIAL COMMENT (Comment WILL be included in the final report) ☐ GENERAL QUESTION (Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

I support the deepening & widening of the port. The main purpose, to spur job growth, is of utmost importance to the county, state, & country. The main concern is the environmental impact, which can be mitigated through cautious & strategic planning.

Michael DiCosimo, Analyst

NAME AND TITLE (PLEASE PRINT)

533 NE 3rd Ave

MAILING ADDRESS

Fort Lauderdale

FL

33301

CITY

STATE

ZIP CODE

410 336 5436

PHONE NUMBER

michael.dicosimo@yahoo.com

EMAIL ADDRESS

120



US Army Corps
of Engineers.
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
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COMMENTS/QUESTIONS

Our Broward County
and South Florida is
growing as a global
hub county for
Port Everglades.
For seventeen years,
the Port has worked
with the Army Corps
of Engineers to assure
the environmentally
sound dredging to
allow for larger
ships that are being
built as a result of
the expansion of
the Panama Canal.
(our country)
We need this business;
we need the 7,000 new
jobs in the region that it
will create; we need
the 135,000 jobs it will
support statewide.

Peggy Nordeen, CEO
NAME AND TITLE (PLEASE PRINT)
210 S Andrews Ave
MAILING ADDRESS
Fort Lauderdale FL 33301
CITY STATE ZIP CODE
954-874-9000
PHONE NUMBER
Peggy@starmark.com
EMAIL ADDRESS

121



US Army Corps
of Engineers.
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
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☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
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COMMENTS/QUESTIONS I BELIEVE

WE DESPERATELY NEED THIS
PROTECT. THE NEED FOR JOBS,
CRUISE PASSENGERS ON THE LARGER
+ GROWING SHIPS, CARGO, OIL, GROWTH
IN INFRASTRUCTURE. WE SHOULD NOT
AT ANYTIME FORGET THE ENVIRONMENT
BUT THIS IS NECESSARY.
I WOULD JUST LIKE TO KNOW
WHERE THE NEW FEDERAL MONEY
IS COMING FROM. I AM GLAD
THE CARE HAS BEEN TAKEN
WITH THE PLANNING + MITIGATION
THE ENVIRONMENT MUST NOT
SUFFER AT THE RUSH TO DO THIS
SO BOTH ARE IMPORTANT.
IT IS TIME FOR US TO JOIN THE
FUTURE + GIVE ANOTHER INJECTION
TO OUR ECONOMY.

MRS LYNN COHEN-ANDERSON
NAME AND TITLE (PLEASE PRINT)
931 NW 11th CT
MAILING ADDRESS
Pembroke Pines FL 33024
CITY STATE ZIP CODE
954-649-1717
PHONE NUMBER
SPOT13@BELL SOUTH.NET
EMAIL ADDRESS

122



US Army Corps
of Engineers
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:



OFFICIAL COMMENT
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the final report)



GENERAL QUESTION
(Informational only. Comment WILL NOT
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COMMENTS/QUESTIONS

While the City of Hollywood
supports the US Corps efforts
to make the Port more competitive,
it is important that the US Corps
and the federal government participate
in developing solutions to offset
the negative impact the inlet has had
on beaches to the south. Specifically
the sand bypass project is critically
important to ensuring a flow of
sand to the south. We look
forward to the completion of
the port deepening and sand bypass
project.

Dawn BARBOUR

NAME AND TITLE (PLEASE PRINT)

2600 Hollywood Blvd.

MAILING ADDRESS

Hollywood

CITY

FL 33020

STATE

ZIP CODE

954-921-3271

PHONE NUMBER

dbarbour@hollywoodA.org

EMAIL ADDRESS

123



US Army Corps
of Engineers
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:



OFFICIAL COMMENT
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GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

We need to keep up
with the other ports
need to bring in additional subs
increase profitability of the port

The Port is the lifeblood
of the community

Mr. William Anderson

NAME AND TITLE (PLEASE PRINT)

9311 W. W. 1172 CT

MAILING ADDRESS

Pembroke Pines

CITY

FL 33024

STATE

ZIP CODE

PHONE NUMBER

WHA@BellSouth.net

EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

124 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I feel it is imperative that Port Everglades
Port be deepened and widened for
the future of Broward County.
To lose import/export business would
be detrimental to our financial wellbeing.
The number of jobs that are created
because of this will not only help our
unemployment but will create more
income to the County via taxes and fees
imposed on the traffic going in/out
the Port.

agricultural
it seems the ~~environmental~~ impact has been
thoroughly examined and I am in
agreement that the environment will
be sustained.

Michelle Roca

NAME AND TITLE (PLEASE PRINT)

4241 NW 55th Dr.

MAILING ADDRESS

Coconut Creek FL 33073

CITY

STATE

ZIP CODE

954-701-0988

PHONE NUMBER

mskel7@hotmail.com

EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

125 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
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☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

THIS PROJECT
IS A MUST FOR THE PROSPERITY OF
SOUTH FLORIDA AND THE NATION. WITH
THE WIDENING OF THE PANAMA CANAL,
IT ONLY MAKES SENSE TO KEEP UP
WITH PROGRESS AND THE REST OF
THE WORLD. WE NEED THE JOBS
THIS PROJECT WILL PROVIDE. SOUTH FL
IS THE BEST LOCATION FOR TRADE
WITH SOUTH AMERICA AND THE REST OF
THE WORLD. THE CANAL LINE
WILL ALSO BENEFIT FROM THIS
EXPANSION, AND THE COUNTY FROM
THAT REVENUE. ENVIRONMENTAL
IMPACTS HAVE BEEN EXAMINED
CLOSELY AND POTENTIAL
IMPACTS HAVE BEEN REDUCED
SIGNIFICANTLY.
WE NEED THIS ECONOMIC
STIMULATION!!

PETE DILTON

NAME AND TITLE (PLEASE PRINT)

1626 NE 26th Ave

MAILING ADDRESS

FT. LAUDERDALE

FL 33308

CITY

STATE

ZIP CODE

954-563-0689

PHONE NUMBER

PETE@STARS.COM

EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

126 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☒ OFFICIAL COMMENT (Comment WILL be included in the final report) ☐ GENERAL QUESTION (Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

I support the project because it
will be good for the future of
Broward County. Delaying any
longer will could be detrimental
to our future economic future.

Brett Cice
NAME AND TITLE (PLEASE PRINT)

1102 SW 18 CT
MAILING ADDRESS

FORT LAUDERDALE FL 33305
CITY STATE ZIP CODE

954 916 9820
PHONE NUMBER

Brett@Cice.com
EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

127 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☒ OFFICIAL COMMENT (Comment WILL be included in the final report) ☐ GENERAL QUESTION (Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

Expansion of the Port is
important to the economic
growth of our country.

It will allow us to remain
competitive in our region for
Port Services.

I trust the Port has
done due diligence with
the Port team to create the
proper plan for growth and
the environment.

Jacqueline Horton H
NAME AND TITLE (PLEASE PRINT)

210 S. Andrews
MAILING ADDRESS

FT LAUDERDALE FL 33301
CITY STATE ZIP CODE

954-874-9000
PHONE NUMBER

jhortonh@starmark.com
EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

128 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

- ☒ OFFICIAL COMMENT (Comment WILL be included in the final report) ☐ GENERAL QUESTION (Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

This issue is a no-brainer for Broward. If we want to compete in the global marketplace, we MUST proceed with this project.

George Bone

NAME AND TITLE (PLEASE PRINT)

1525 SE 15 St.

MAILING ADDRESS

Fort Lauderdale FL 33136

CITY

STATE

ZIP CODE

(954) 627-9352

PHONE NUMBER

gbone@bellsouth.net

EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

129 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

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COMMENTS/QUESTIONS

~~My comment today does not represent my group or my company and profession.~~

It seems that the FIS totally ignored the one element of this environment: human beings.

The project represents 7,000 new jobs for our community, especially for the most depressed sector of the business: construction.

In addition to the job created, we also should not lose sight of the job lost without the project. We are already behind schedule in view of the fact that Panama Canal new channel construction is projected to be completed in 2017. Port Everglades will lose market share to other ports which can accommodate the next generation of larger vessels.

This project should not be further delayed and should start construction now!

Chairman, Chen Moore & Assoc
Ben Chen, Partner, Broward Workforce

NAME AND TITLE (PLEASE PRINT)

One 500 W Cypress Creek Rd. #630

MAILING ADDRESS

Fort Lauderdale, FL 33309

CITY

STATE

ZIP CODE

(708) 251-0679

PHONE NUMBER

bchenchen@chenmoore.com

EMAIL ADDRESS

130



US Army Corps
of Engineers.
Jacksonville District

131 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
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COMMENTS/QUESTIONS

I am strongly in favor
of widening of Port Everglades.
We cannot afford to put
our port at a competitive
disadvantage.
I am originally from New Orleans
(early 1960's). New Orleans
was 3rd largest port in
USA behind N.Y. & L.A.
In the late 1960's, New Orleans
Port Authority was very slow
to adapt to container
vessels. ~~Port of New Orleans~~
Galveston & Savannah adapted
and subsequently surpassed
New Orleans.
New Orleans has since
struggled to be a top 10
port. It was very
damaging to the local
economy.
Please don't let this
happen to Fort Lauderdale.

MIKE W. MOORE, Director

NAME AND TITLE (PLEASE PRINT)

3101 N. Federal Hwy 800

MAILING ADDRESS

Ft. Lauderdale, FL 33306

CITY

STATE

ZIP CODE

PHONE NUMBER

m.moore@KaufmanRossin.com

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

132 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:



OFFICIAL COMMENT
(Comment WILL be included in
the final report)



GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

On the outside
of Palm A (room)
where this meeting is
taking place there is
a photo of ~~the~~ the reef
and a seafan
Welcome to The Greater
Ft. Lauderdale Convention Center.
we have lost most of
our Seafans to poor
water quality and a
disease called *Asplanigilis*
We have a total death
of our reefs. This
can not be replaced by
pretty photos of
reefs and sea fans
photos on coke machines.
This meeting should have
been recorded - the
one by the Army Corps
for public comments.

Stephanie Clark

NAME AND TITLE (PLEASE PRINT)

10772 LA PLACIDA DR.

MAILING ADDRESS

Coral Springs FL 33065

CITY STATE ZIP CODE

954-298-9737

PHONE NUMBER

dwardstph2@yphoo.com

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

133 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:



OFFICIAL COMMENT
(Comment WILL be included in
the final report)



GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

VERY LITTLE WAS SAID ABOUT THE
MEANS BY WHICH THE DEPTHS WILL BE
INCREASED TO 48 FEET. DOES IT
INVOLVE BLASTING? WHAT IS THE
EXPECTED ENVIRONMENT IMPACT
OF THE EXCAVATION? INCLUDE
COMMENTS REGARDING STRUCTURAL
IMPACT TO BUILDINGS ADJACENT TO
THE EXCAVATION AREA.

Comment 1

Harry J. Benedict

NAME AND TITLE (PLEASE PRINT)

2100 S. OCEAN LANE #1512

MAILING ADDRESS

Fort Lauderdale FL 33316

CITY STATE ZIP CODE

(954) 463-7888

PHONE NUMBER

HJB@SLKCD@aol.com

EMAIL ADDRESS



134

Our Best.
Nothing Less.

OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

Governmental Center Annex
115 S. Andrews Avenue, Room A680 • Fort Lauderdale, Florida 33301
954-357-6400 • FAX 954-357-5674 • TTY 954-357-5664

July 23, 2013

Project Director Terri Jordan-Sellers
US Army Corps of Engineers

Dear Project Director Jordan-Sellers:

I support the Port Everglades project because the continued viability and vitality of Broward County's economy relies heavily on the ability of Port Everglades to accommodate expected growth in international commerce in coming years. Port communities around the globe are already preparing for this anticipated growth and global competition is tremendous. As advocates for Broward County businesses in the global marketplace, we recognize that every day that this project is delayed, is a day of lost ground not only for the Port, but for the thousands of businesses throughout Florida that rely on the Port's capacity to remain competitive.

Broward County's businesses count on Port Everglades to remain one of the strongest economic engines in Florida. From an economic development perspective, this project means jobs. Not only does the Port currently support 201,000 jobs throughout the State, but this deepening project, along with the separate Turning Notch Extension and intermodal rail facility on the Port, is projected to create 7,000 new jobs regionally and support 135,000 new jobs statewide over the next 15 years for a total of 143,000 jobs. In our still fragile and recovering economy, these jobs are vital to the sustained economic growth and future stability of our community and our State.

Broward County has an active and dynamic environmental community that understands the Port's significance as an economic engine and that there are ways to grow the port while protecting and enhancing the environment. This cooperative effort has already been demonstrated with the Southport Turning Notch extension, a project in which the Port, Audubon Society and the state of Florida agreed to a plan that will double the amount of mangrove plants to mitigate a Port redesign to accommodate several new cargo shipping berths.

Broward County Board of County Commissioners

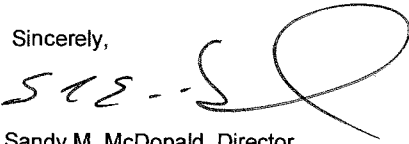
Sue Gunzburger • Dale V.C. Holness • Kristin Jacobs • Martin David Klar • Chip LaMarca • Stacy Ritter • Tim Ryan • Barbara Sharief • Lois Wexler
www.broward.org

In addition, Port Everglades is a significant driver for the Miami Customs District which is one of the top 10 customs districts in the United States. Port Everglades and Broward County also represent the Gateway to Latin America and the Caribbean accounting for most of the sea trade with Brazil and Colombia, two of the top exporting countries for the State. As Brazil is the #1 trading partner for Florida, in FY 2012, the value of Brazilian sea trade through Port Everglades totaled nearly \$1.98 billion which was more than any other ports in Florida. This project is critical to Port Everglades' and South Florida's leadership position in international trade.

Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.

The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. We've waited too long already.

Sincerely,

A handwritten signature in black ink, appearing to read "S M McDonald", followed by a large, stylized loop.

Sandy M. McDonald, Director
Office of Economic & Small Business Development
Broward County

From: [Evan Rosenblatt](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Public Hearing
Date: Wednesday, July 31, 2013 9:33:37 PM

Dear Terri,

I was at the Port Everglades Public Hearing last week and found it very informative. Thank you very much for the clarity and discussion on the pros and cons of the proposed deepening and widening project. While I understand the potential environmental concerns, I believe the Army Corp has proven the thought process effective and properly mitigated the risks to the surrounding area. In addition, I find the project extremely important to the future economic growth of South Florida. After 17 years of investigation, I fear if the project is put off any further it could greatly put South Florida at a disadvantage in the competitiveness of the maritime commerce community. As the Panamax project completes, if Port Everglades is not prepared to receive the larger ships at maximum capacity, global commerce companies will establish their businesses in other locations. Furthermore, I also believe that since tourism is also a huge part of the South Florida economy that the additional tax base from economic expansion in the region will only help provide additional funds available to enhance our coastlines, including any potential effects to the reefs. Overall, I feel the project will be successful for the environment and the economy in the region.

Once again, thank you for your time and consideration.

Sincerely,

Evan Rosenblatt
2428 NW 40 Circle
Boca Raton, FL 33431
(954) 205-5237

Sent from my iPad

From: [Andrew Duffell](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Corps of Engineers Port Everglades project
Date: Monday, August 05, 2013 1:16:57 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
Importance: High

Dear Project Director Jordan-Sellers,

I write today to express support for the Port Everglades project. Port Everglades is an exception economic resource for the entire state of Florida, and particularly for South Florida. It is a vital project because it is good for our businesses, now and in the future: the Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce particularly as the Panama Canal upgrades are finished.

The attention the project money will devote to enhancing reefs up and down the Broward coastline is much needed, and Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world. Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment. Broward County has an active and dynamic environmental community that understands our need for stewardship of the resources we have, they have proven themselves with the Southport Turning Notch extension where they planted and grew double the amount of mangrove plants to mitigate a Port redesign. Finally, and importantly industry at Port Everglades creates jobs which support families up and down our region.

Please do not hesitate to contact me should you have any questions or need further input. Best wishes,

Andrew Duffell

President & CEO

Research Park at Florida Atlantic University

T (561) 416-6092 | M (561) 324-0727

E aduffell@research-park.org <<mailto:aduffell@research-park.org>> | W www.research-park.org
 <<http://www.research-park.org/>> | Skype [AndrewResearchPark](#)
 3651 FAU Boulevard | Suite 400 | Boca Raton | FL | 33431

cid:image010.png@01CD3417.A1C755E0
 <<http://www.facebook.com/ResearchParkatFloridaAtlanticUniversity>>
 cid:image011.png@01CD3417.A1C755E0 <<http://twitter.com/#1/ResearchParkFAU>>
 cid:image012.png@01CD3417.A1C755E0 <<http://www.linkedin.com/company/2358563?trk=tyah>>
 cid:image013.png@01CD3417.A1C755E0 <<http://www.research-park.org/index.cfm?fuseaction=emailsignup.form>>

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From: [Fortin, Michael R](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Fort Lauderdale Port Everglades Expansion
Date: Thursday, August 01, 2013 3:51:19 PM

Hello Terri,

I am a business leader in the Fort Lauderdale market that works with clients who need Global Trade Services to expand their businesses and create jobs and opportunities in the greater Broward County area.

I understand that you are reviewing the possibility of expanding Port Everglades, and I wanted to let you know that this much needed expansion will provide a significant advantage to those business who seek to relocate or expand their business in the South Florida area.

Thank you for your consideration.

Kind regards,

Mike Fortin | Senior Vice President | Sr. Client Manager
Bank of America, NA

Global Commercial Banking

401 E. Las Olas Blvd, 9th Floor, Fort Lauderdale, FL 33301

Mail Code: FL6-812-09-01
(Office-954-766-7441 | (Cell-954-552-9383 |2 eFax-866-613-5034 | : michael.r.fortin@baml.com

BofA Logo

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From: [Vitale, Randall](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: In Support of Port Everglades Expansion
Date: Friday, August 02, 2013 11:21:45 AM
Importance: High

Ms. Jordan-Sellers:

Good morning. I am writing today to show my support for the Port Everglades expansion.

It is my understanding that we are in a 45-day comment period, and I want to show my unequivocal support of this project to deepen and widen the port to accommodate mega-ships expected to pass through the Panama Canal, and hopefully into our port.

As a life-long South Floridian, I know the important role our ports play in our economic vitality, and this expansion will allow Port Everglades to continue to drive economic growth not just for our community, but the entire state of Florida.

This expansion is absolutely necessary for our community to continue to grow and prosper, and I hope that you and the Army Corps of Engineers will expeditiously move this forward.

Thank you for your time and consideration.

Sincerely,
 Randall Vitale

Randall Vitale, CFP®

SVP, Fort Lauderdale Market Executive

Gibraltar Private

450 East Las Olas Boulevard, Suite 1220, Fort Lauderdale, FL 33301 | Tel 954.768.5334 | Fax 954.728.2446 | NMLS # 673829

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does not include any email transmission). Thank you.

From: [Douglas McAuliffe](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades deepening-comment
Date: Monday, August 05, 2013 11:29:10 AM

As a Port Everglades Harbor pilot, I know that an increased channel width and depth is vital to continued safe operations and future port growth. Future ships are larger and deeper and require a significantly larger channel to call at Port Everglades. The ACOE plan is an excellent balance between environmental concerns and the need for the port to grow and provide jobs for future generations. If this project is not implemented, vessels will call at other, more distant, ports and costs and environmental impacts will increase.

This project is long overdue. We have already turned away a significant number of vessels because they are simply too large for our channel. I think that a study spanning over 17 years is more than sufficient to come to a conclusion.

Port Everglades connection to rail, pipeline, and an international airport only a mile away makes Port Everglades uniquely suited to great efficiency.

Thank you,

Douglas McAuliffe
Co-Managing Pilot
Port Everglades Pilots Association
Home Address
5560 SW 104th Terrace
Cooper City, FL 33328
(954)522-4491
dougmaul@aol.com

From: [Terry Stiles](#)
To: [Jordan-Sellers, Terri SA1](#)
Cc: [Gail Bulfin \(gbulfin@gtalliance.org\)](#)
Subject: Port Everglades Expansion
Date: Monday, August 05, 2013 3:08:40 PM

Dear Ms. Jordan-Sellers,

My name is Terry Stiles and I am the Chairman of the Port Everglades Advocacy Team (PEAT). We are made up of the Broward Workshop (96 CEOs- 25,500 employees), The Greater Ft. Lauderdale Alliance, The Port Everglades Association, Greater Ft. Lauderdale Chamber of Commerce, Hollywood Chamber of Commerce, Nova Southeastern University, The Port Pilots Association, the Broward County Commission, and over 100 concerned private citizens. We all are supportive of the "Deepening and Widening of Port Everglades". We feel that it is imperative that we take this necessary step to remain competitive in the world market. This is the future of our economic growth for South Florida and this project will lead us to be a world leader in import and exports, as well as remain a top cruise ship location.

Please give this project every consideration possible.

From: [Merri Grace McLeroy](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades Expansion
Date: Thursday, August 01, 2013 9:05:57 PM

Hello Ms. Jordan-Sellers,

I urge you to please approve the Port Everglades Expansion project. Fort Lauderdale, the Venice of the Americas, home to the world's largest boat show and one of the top three cruise ports in the nation urgently needs port expansion to handle super-tankers and large cruise ships in order to remain a viable international shipping and cruise destination.

Our local government has committed funds to further streamline the flow of port traffic and our economy relies on the transportation of both people and freight.

Located adjacent to Fort Lauderdale-Hollywood International Airport, I do not believe there is another port within such close proximity of both rail, road and air hubs. Indeed, Fort Lauderdale, the number one container port in Florida and the 12th nationwide, is often the chosen origin and destination of shipments to the Caribbean and South America... to nations with which we have trade agreements that manufacture products of American raw materials and fabrics that will be re-imported and sold in the U.S. and worldwide.

"We can add or protect 143,000 jobs by moving forward with Port Everglades expansion," says Dan Lindblade, president and CEO of the Greater Fort Lauderdale Chamber of Commerce.

The business owners, municipalities, residents, tourists and offshore commercial partners of Broward County and all of Florida urge you to approve the Port Everglades expansion.

Sincerely,

Merri Grace McLeroy
 Integrated Marketing Strategies, LLC

815 SE 2nd St.
 Fort Lauderdale, FL 33301
 Tel | 954.524.6768
 Cel | 954.665.5678
 MGM@SimCommunications.com
 Follow me at Twitter.com/MerriG <<http://www.twitter.com/merriG>>
www.SimCommunications.com <<http://www.simcommunications.com/>>

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9801 PREMIER PARKWAY, MIRAMAR, FL 33025
TEL 954.436.9200

Port Everglades Harbor Expansion and Upgrades

Premier Beverage, a major Wine & Spirits Distributor, headquartered in Broward would like to address the importance of not only approving monies for this much needed project, but additionally the need to expedite this approval. Any further delay will permanently disadvantage our community in competing for global commerce.

We import wine and spirits through the ports of Miami and Port Everglades of which 97% of the containers brought in are through Port Everglades. The proximity of the warehouse coupled with avoiding general congestion of the port of Miami dictates the use of Port Everglades.

Many of the volume shippers are operating with contracts with ocean carriers. These same ocean carriers are growing in size and they themselves are looking to cut costs which will bring the advent of larger ships. These larger ships are the future and if Port Everglades is to be part of this, they must have the proper infrastructure to accommodate this growth or we all lose the ships and shippers.

It has taken 17 years for this study to reach where we are today. In the best case scenario, we start in 2017 and 5 additional years to complete the project. We cannot afford another day of delay because currently Port Everglades is very relevant in not only container moves, but one of three largest cruise ports in Florida, along with being a major seaport for petroleum products, including gasoline and jet fuel for South Florida. The economic impact of the loss of any part of the revenue being generated would be devastating to the many families that deal directly or indirectly with this great revenue generator.

The time is now and one cannot stress the absolute sense of urgency required to make this happen primarily due to the fact that other options do exist, not only in South Florida but in the Central Corridor.

With Regards and sense of urgency,

Bob Drinon
President / CEO
Premier Beverage Company

143

GreenspoonMarder

ATTORNEYS AT LAW

888.491.1120
www.gmlaw.com

From the desk of:
Gerald Greenspoon, Esq.
Trade Centre South, Suite 700
100 W. Cypress Creek Road
Fort Lauderdale, Florida 33309-2140
Phone: 954.491.1120
Fax: 954.771.9264
Direct Phone: 954.267.8000
Direct Fax: 954.267.8001
Email: gerry.greenspoon@gmlaw.com

July 31, 2013

USACOE
Terri Jordan-Sellers, Project Director

Re: Expansion of Port Everglades

Dear Terri:

The Law Firm of Greenspoon Marder completely supports and stands behind the expansion of Port Everglades. The expansion is imperative for the continued growth, economic state and the wellbeing of Broward County.

The Port projects should not be delayed any further because it will permanently disadvantage our community and the U.S. in competing for global commerce. Our businesses in Broward County count on Port Everglades to remain one of the strongest economic engines in Florida.

Very truly yours,

GREENSPOON MARDER, P.A.



Gerald Greenspoon, Esq.
For the Firm

GG/ec



144

Our Best.
Nothing Less.

OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

Governmental Center Annex
115 S. Andrews Avenue, Room A680 • Fort Lauderdale, Florida 33301
954-357-6400 • FAX 954-357-5674 • TTY 954-357-5664

July 31, 2013

Terri Jordan-Sellers
US Army Corps of Engineers
Terri.Jordan-Sellers@usace.army.mil

Re: Port Everglades Harbor Improvements

Dear Ms. Jordan-Sellers,

The Broward County Office of Economic and Small Business Development (OESBD) hereby expresses its support for the Port Everglades Harbor Improvements Project in all of its phases.

The OESBD, as an office of Broward County Government, and in partnership with its 31 municipal partners, is primarily responsible for enhancing the economy of Broward County by recruiting new industry, supporting existing industries, and creating new value-added employment opportunities for residents.

Broward County, with over 1.7 million residents, is an immensely diverse and globally connected community. The continued viability and vitality of Broward County's economy relies heavily on the ability of Port Everglades to accommodate expected growth in international commerce in coming years. Port communities around the globe are already preparing for this anticipated growth and global competition is tremendous. As advocates for Broward County businesses in the global marketplace, we recognize that every day that this project is delayed, is a day of lost ground not only for the Port, but for the thousands of businesses throughout Florida that rely on the Port's capacity to remain competitive.

Port Everglades is a significant driver for the Miami Customs District which is one of the top 10 customs districts in the United States. Port Everglades and Broward County also represent the Gateway to Latin America and the Caribbean, accounting for significant sea trade with Brazil and Colombia, two of the top exporting countries for the State. As Brazil is the trading partner with the State of Florida, in fiscal year 2012, the value of Brazilian sea trade through Port Everglades alone totaled nearly \$1.98 billion which was more than any other port in the State. This project is critical to Port Everglades' and South Florida's leadership position in international trade.

Lastly, from an economic development perspective, this project means jobs. Not only does the Port currently support 201,000 jobs throughout the State, but this deepening project, along with the separate Turning Notch Extension and intermodal rail facility on the Port, is projected to create 7,000 new jobs regionally and support 135,000 new jobs statewide over the next 15 years for a total of 143,000 jobs. In our still fragile and recovering economy, these jobs are vital to the sustained economic growth and future stability of our community and our State. Significant mitigation of the environmental effects have been proposed, for which Port Everglades staff should be commended. The OESBD urges that this project move forward without further delay. The future growth of Broward County's economy depends on it.

Sincerely,

Steven Tinsley

Economic Development Manager

Broward County Board of County Commissioners

Sue Gunzburger • Dale V.C. Holmes • Kristin Jacobs • Martin David Kiar • Chip LaMarca • Stacy Altier • Tim Ryan • Barbara Sharief • Lois Waxler
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26 July, 2013

Ms. Terri Jordan-Sellers
 U. S. Army Corps of Engineers
 701 San Marco Boulevard
 Jacksonville, FL 32207

Re: Environmental Impact Statement (the "EIS") and Feasibility Study for Port Everglades (the "PEV") released by the U. S. Army Corps of Engineers (the "USACOE") on 28 June, 2013.

Dear Ms. Sellers:

Bradford Marine, Inc. is a large yacht service and refit provider headquartered in Fort Lauderdale, Florida since 1966 and a member of Port Everglades Association, Inc. (www.portbiz.org).

We are writing to express our support for (a) the draft EIS and the PEV Harbor Feasibility Study developed by the USACOE; and (b) the NOAA plan to grow and replace corals along the Broward County coastline. In this regard, we submit the following for the USACOE's consideration:

1. Port Everglades is a major gateway for international trade and cruise vacations and is one of the busiest cruise ports in the world and one of the Nation's leading container ports. In addition, it is the main seaport for receiving petroleum products, including gasoline, jet fuel, and other fuels.
2. Port Everglades currently supports over 11,700 direct jobs locally and over 200,000 jobs within the State of Florida, not to mention associated jobs throughout the United States and a total regional economic activity impact of over \$15,300,000,000.
3. In order to remain a leader in international trade, Port Everglades must have deeper water to accommodate the newer, larger generation of cargo ships that are expected to pass through the expanded Panama Canal, commencing in 2015.
4. It is an important advance in the DEIS that NOAA, the Federal agency in charge of the oceans and their health, has proposed a reasonable, cost-effective, and scientifically-credible mitigation alternative proposal, namely the growth and replacement of corals along the Broward County coastline.

Based upon the foregoing and to facilitate an expeditious resolution of environmental issues, we recommend that the USACOE support NOAA's proposal and that NOAA be afforded a leadership role in and given the responsibility for mitigation design and implementation.

Sincerely,

Bradford Marine, Inc.

By: 
 Vice President - Administration

072513

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From: [Doug Watt Inc](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: Port Everglades = JOBS!
Date: Tuesday, August 06, 2013 11:32:17 AM
Attachments: [PastedGraphic-1.tiff](#)

Terri,

I am writing to express my strong support for the deepening and widening of Port Everglades to maintain and enhance South Florida's competitiveness with other ports around the world. Port Everglades is truly an economic engine for all of South Florida, and is vital to the survival of my company (and other similar companies) now and in the future.

I was born in Ft. Lauderdale, Florida and I own a business that derives over 90% of its revenues from clients in the Maritime industry. It is unfortunate that the USACE has allowed this study to drag on for so many years, but we are at the point where we can work together to achieve real progress.

South Florida has developed its reputation as the first choice for shipping companies coming from Latin America and through the Panama Canal, which generates thousands of JOBS for Americans.

Please support the deepening and widening of Port Everglades which will generate jobs and fuel our economic recovery.....The time is now!

Doug Watt

From: [Eric Grainger](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: Port Everglades
Date: Tuesday, August 06, 2013 10:32:47 AM

Terri,

I am writing to you today to offer my support the Port Everglades expansion project.

As some who had worked in the local business community in South Florida for over a decade, I understand the importance of the Port, and the impact it has on our local economy.

I ask that any further delay on the project be averted, as its timing is critical to the success of our local economy while we compete for global commerce.

Hopefully, the fact that Port Everglades has been an asset to addressing impacts of the environment will afford us the chance to keep this most-important project on track for approval in the near term.

Regards,

Eric

Eric Grainger MBA, ASCE, ASCSP, LEED® GA

Associate

IBI Group (Florida) Inc.

2200 Park Central Boulevard North-Suite 100

Pompano Beach FL 33064 United States

tel 954 974 2200 ext 262

fax 954 973 2686

email Eric.Grainger@IBIGroup.com <<mailto:Eric.Grainger@IBIGroup.com>>

web www.ibigroup.com

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From: [Capt.Bri](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: Port Everglades
Date: Thursday, August 08, 2013 10:40:33 AM

Port Everglades has been waiting and waiting some more for approval of it's Dredging projects .Justification is almost this simple;Ports have pretty much remained the same size while ships continue to grow in size and draft.

Brian F. Hanley

Capt.Bri

bfhpilot@aol.com

From: [Susan K Robin](#)
To: [Jordan-Sellers, Terri SA\]](#)
Subject: Support for Port Everglades Project
Date: Tuesday, August 06, 2013 5:59:44 PM

I completely support the Port Everglades deepening and widening project. It is good for my business and good for the community. Best of all – the costs will be paid from port commerce, not the taxpayers. This project will create new jobs and keep Port Everglades on the worldwide freight map.

I strongly support it!

Thanks,

Sue Robin

Robin Law Logo -1logo_Final_ROB65481.jpg

Susan K. Robin, Esq.
www.robin-law.com <<http://www.robin-law.com/>>

REAL ESTATE, CORPORATE & HOSPITALITY LAW

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Please consider the environment before printing this email

From: snielsen@princesscruises.com
To: [Jordan-Sellers, Terri SA](#)
Cc: mmk@portportbiz.org
Subject: USACOE Feasibility Study & Economic Impact Statement for Port Everglades
Date: Thursday, August 08, 2013 11:04:31 AM

Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Blvd
Jacksonville, FL 32207

In addition to being the gateway for International Trade and one of the busiest cruise ports in the world, Port Everglades serves as the home port for 6 of the 17 ships in the Princess Cruises fleet. We have 163 scheduled calls moving nearly one million passengers through Port Everglades in 2014.

Over 11,700 direct local jobs and 201,000 statewide jobs are supported by the business generated through Port Everglades with a regional economic impact in excess of \$15.3 billion.

The expansion of the Panama Canal scheduled for completion in 2015 will allow larger and deeper ships carrying more cargo, containers, petroleum products and passengers to transit between the Atlantic and Pacific. In order to retain its leadership position in international trade it is essential that Port Everglades is able to accommodate these larger more cost efficient ships which will replace the smaller less efficient ships currently transiting the Canal. This requires deepening the Port or lose the traffic.

Even with today's traffic and size of vessels calling at Port Everglades, deepening of the Port is essential to mitigating the current congestion caused by insufficient depth required to maneuver around vessels already alongside certain berths in Port Everglades. This has a significant impact on not only our schedules but also on the shoreside operations, including Customs and Border Protection, who are standing by idly waiting for the ships to come alongside.

We fully support NOAA's cost effective, reasonable and scientifically credible plan to grow and replace corals along Broward County's coastline as a part of the mitigating solutions to the environmental impact of the required deepening in Port Everglades. We urge NOAA be afforded a leadership role in its mitigating design and implementation.

Very truly yours,

Steve Nielsen
Vice President, Shore Operations - Caribbean & Atlantic
Princess Cruises
3721 SW 30th Avenue
Fort Lauderdale, Florida 33312
Office: 954 525 8520
Cell: 954 614 4598
E-Mail: snielsen@princesscruises.com

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To the extent that the matters contained in this email relate to services being provided by Princess Cruises to Carnival Australia/P&O Cruises Australia, Princess is providing these services under the terms of a Services Agreement between Princess Cruises and Carnival Australia.

From: [Elaine Fitzgerald](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: I Support Port Everglades Project
Date: Thursday, August 08, 2013 3:31:22 PM

I am a small hotelier in greater Fort Lauderdale, and I support the Port Everglades project and want it to move forward. The continued growth and care of Port Everglades is critical to my business. My livelihood depends, in large part, on pre and post cruise stays by vacationers who travel here to catch cruises at Port Everglades. My staff and I also benefit indirectly on the extra tax base that helps boost the entire area in general with an active, healthy and diverse Port business.

Sincerely,

Elaine Fitzgerald, President/CEO
 Beach Vacation Rentals
<http://www.4rentbythebeach.com>

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From: [Terry Levi](#)
To: [Jordan-Sellers, Terri SA1](#)
Date: Thursday, August 08, 2013 10:05:34 PM

It's critical that the entrance channel to Port Everglades be widened.

Thanks very much,
Terry

<<http://myperfectkitchen.co>>

visit my website: <http://myperfectkitchen.co/>

From: [renewalspa1](mailto:renewalspa1@comcast.net)
To: Jordan-Sellers, Terri SA
Subject: Port Everglades project
Date: Friday, August 09, 2013 12:25:59 PM

Dear Terri Jordan-Sellers, USACOE Project Director:

Please except this email to show my support of the Port Everglades project.

I agree with all the following points and wish to have this project move foreword as soon as possible. Thank you for all your hard work and lets get this project started.

- * We support the Port Everglades project because it is good for my business, now and in the future.
- * The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. We've waited too long already.
- * Business counts on Port Everglades to remain one of the strongest economic engines in Florida. Even though my business isn't directly tied to the Port, the \$26 billion in annual economic activity generated by the Port benefits all Broward residents.
- * Fort Lauderdale is the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.
- * Port Everglades is a good environmental steward, which is why they worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment.
- * Broward County has an active and dynamic environmental community that understands the port's significance as an economic engine and that there are ways to grow the port while protecting and enhancing the environment. This cooperative effort has already been demonstrated with the Southport Turning Notch extension, a project in which the Port, Audubon Society and the state of Florida agreed to a plan that will double the amount of mangrove plants to mitigate a Port redesign to accommodate several new cargo shipping berths.
- * Industry at Port Everglades creates jobs.

Our local legislators have been supportive of the Port and we'd like them to know that they are not alone. Their constituents are supportive as well.

Thanks George White
 Renewal Spa
 3800 S Ocean Drive G5
 Hollywood, FL 33019
 954 455-6588
renewalspa1@comcast.net
www.renewalspas.com

From: [John Dohm](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades - Harbor Deepening
Date: Monday, August 12, 2013 3:57:16 PM

Good Afternoon Ms. Jordan-Sellers,

I would like to add my voice to those in support of the project to deepen and widen the Port Everglades Harbor (aka the "deep dredge") to -48-50'.

Just one hundred years ago the Panama Canal opened to water traffic between Asia and the east coast of North America. As the canal was under construction Henry Flagler saw the possibilities and set about bringing his railroad all the way down to the only US deepwater port between Norfolk and New Orleans, Key West. Even though Florida was sparsely settled back in 1913 it was still going to be faster to put cargo on that train and bring it to points north than wait for the ships to arrive. He didn't wait for the canal to be finished, he went ahead so that his trains would be there when the ships came in.

Here we are 100 years later and Florida is the 3rd largest state in the US, South Florida is the largest consumer market in Florida, our Tri-County population is nearing 6-million, and we are the only South American capital located within the United States. We are also the consumer capital of the Southeast, and we are still growing.

We have some of the largest infrastructure projects in our history going on: expansion of Miami International Airport (MIA), expansion of Fort Lauderdale - Hollywood International (FLL), renovations at PortMiami (including a deep dredge, ICTF, new cranes and a tunnel connecting it to the interstate), expansions of Port Everglades (including and ICTF, new cranes, improved FTZ, and overpass connecting it to the interstate highway system and, we hope, a deep dredge), all of our major interstate and limited access interchanges (I-95, I-595, SR 836, SR 826, Turnpike and Gratigny), a second commuter rail and a high-speed rail connecting South Florida with Orlando. I would say that demonstrates serious commitment by our citizens, our business community and our elected officials.

We need this deep dredge at Port Everglades because one deepwater port capable of accepting and offloading Post Panamax ships is just not enough. Over 45% of the goods originating in Asia and consumed in Florida come through ports outside of Florida. That means that they are either trucked across the entire US from California or, worse yet, brought past Miami and Port Everglades to north ports and then trucked back. That is absurd!

Now add to the Asian traffic our trade with the Caribbean, Central America and South America - trade that is increasing every day, and will do so more rapidly with the new "cold treatment" processes in place for perishables - and our ports are just not equipped to handle it. We need both Port Everglades and PortMiami, just like California needs both the Port of Long Beach and Port of LA. And, just as Henry Flagler realized that his trains had to be there when the ships arrive, our ports need to let the shipping lines know that we are ready as well, and that we will be able to handle the increased traffic with the addition of Port Everglades as a port for deep draft ships as soon as we can get the work done.

I am a 63-year resident of both Miami and Fort Lauderdale and have seen this area grow from 500,000 to over 5-million people. Nothing that we have ever built has gone unused. We are just getting started and will need everything you can help us with, and we will put every bit of it to good use. Your assistance will be appreciated for generations to come.

Respectfully,

- John

John W. Dohm, SIOR, CCIM, PA

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Miami, Florida 33169

(954) 557-3646 Mobile

(305) 947-9514 Office

john@jdohm.com <<mailto:john@jdohm.com>>

john@infinitycommercial.net <<mailto:john@infinitycommercial.net>>

From: [Julia Rodriguez](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades
Date: Monday, August 12, 2013 4:45:38 PM
Attachments: [image001.png](#)

Dear Terri,

Please accept this email as my support for the deepening and widening of Port Everglades.

Thank you,

Stiles - Invest. Build. Manage.

Julia Rodriguez
Assistant Property Manager | Property Management

P: 407-667-7789 F: 407-667-8787

Please note our new address:

151 Southhall Lane, Suite 125, Maitland, FL 32751 | WWW.STILES.COM <<http://www.stiles.com/>>

From: [Jose Alberto Diaz](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades Dredging & Widening Project
Date: Monday, August 12, 2013 10:50:11 AM

Dear Ms. Jordan-Sellers,

I am writing to you in support of the dredging and widening project for Port Everglades.

The dredging and widening project is extremely critical to the future of our port and to South Florida's economy as a whole.

We all respect and enjoy the environment in our State but we also need our ports to grow to continue providing for our families, servicing our community and being able to accommodate the larger ships that will be transiting the Panama Canal in just a couple of years.

As you know, there are studies that demonstrate the lack of manufacturing industries in our State (only 5%) while we do well in Trade, logistics and transportation (almost 27%) compared to any other State in the country. Isn't this remarkable when we see the most recent statistics showing that the State of Florida has an unemployment rate below the national average?

Help us protect the most important source of employment we have in South Florida - Help us continue seeing growth in our ports, generating thousands of HIGH PAYING jobs.

What would be the future of our ports if we do not get the deepening and widening project approved? Do we want to see those ships passing by to another port up north? What would the impact to our local and regional economy? What would be the impact to our unemployment rate?

We need a deeper and widened port right now! I have visited many ports around the world in my career and regretfully I can see that we are positively way behind in terms of port infrastructure compared to any other industrialized country in the world. We need to go back to be leaders and we certainly need to remain competitive.

Please support and APPROVE our dredging and widening project!!!

Thank you.

Jose Alberto Diaz
Vice President & General Manager
Florida International Terminal, LLC
(954)761-3880

From: [John Livingway](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades expansion project
Date: Monday, August 12, 2013 5:34:28 PM

Terri, I writing you in support for the port everglades expansion. Port everglades and Fort Lauderdale have such a rich history not only locally but internationally. The port has been the corner stone for this area's economic development and success. As more ports expand, along the eastern coastline, to accept larger pleasure commercial shipping, we to must do so to compete and continue to make Fort Lauderdale and Broward County a viable global commerce option for the future.

Sincerely,

John J. Livingway

From: [Michael Finn](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades Expansion
Date: Monday, August 12, 2013 5:08:07 PM

Terri, I am writing this to you as a 34 year resident of Broward County. I understand that the question of the Port Everglades expansion is nearing decision time and I want to express my utmost support for this. Aside from the obvious economic advantages of this expansion, the environmental benefits are significant. These benefits include enhancement of the existing coral reefs and introduction of new artificial reefs. Nova Southeastern University recently completed its coral reef research facility just to the south of the port and their research with a thriving coral reef would not only be beneficial to the local community, but also help understand coral reef life throughout the world and how to maintain and grow this delicate and all important ecosystem.

I hope that Army Corps of Engineers will decide favorably to support this project for Port Everglades.

Thank you for your consideration.

Michael Finn

From: [Paul Webb](#)
To: [Jordan-Sellers, Terri SA](#)
Cc: Chris.Clemens@copbfl.com
Subject: [EXTERNAL] Port Everglades expansion
Date: Monday, August 12, 2013 4:18:31 PM

Sirs, Madams,

The proposed expansion of the Port Everglades Facility is greatly needed in our struggling economy of South Florida. I hope that your decision to approve the proposed expansion is not hampered by those that just do not see far enough into the future of South Florida. Often times decisions are made which seem to be influenced by the few, well meaning but uninformed, that do not help the majority. Hopefully you will receive much more positive support - rather than negative feedback, for the expansion of the Port Everglades Facility.

Paul Webb - Engineer 954-899-5041 --- 2736 NE 10th St Pompano Beach, FL 33062

From: [sdk01](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades expansion
Date: Monday, August 12, 2013 1:43:09 PM

Hi Terri,

I support Port Everglades expansion because it is the shortest, straightest entrance channel on the Southeast U.S. Atlantic coast, which saves ships fuel costs and time and ultimately will lead to more growth and prosperity in our community that we desperately need.

Thank you.

Sue Kane
Oakland Park, FL

From: [Carla Coleman](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades Feasibility Report
Date: Monday, August 12, 2013 7:34:24 PM

Dear Ms. Jordan-Sellers,

The Urban Land Institute (ULI) is a 501(c)(3) non-profit membership organization whose mission is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide. The ULI Southeast Florida/Caribbean District Council has 700 members in this region who are dedicated to making Southeast Florida a key player in the global economy, through building sustainable places and helping create the economic environment to attract and retain the best talent.

Port Everglades is a vital component in the economic progress of our region. It serves as a growth engine for the recreational industry through its cruise ship business, as well as a dynamic entry port for energy as South Florida's fuel hub. In order to continue this growth, Port Everglades needs to be able to expand to keep up with global market demands, as well as create new jobs for our region.

For these reasons, as well as the Port's commitment to the environment and South Florida's reefs, the District Council supports the deepening and widening of the Port Everglades harbor as a best practices component of creating and sustaining a thriving South Florida community.

If you have any questions, please do not hesitate to contact me.

Carla Coleman

Executive Director

ULI Southeast Florida/Caribbean

3170 N. Federal Hwy., Suite 106

Lighthouse Point, Florida 33064

Office: 954.783.9504

Cell: 954.242.9450

www.seflorida.uli.org <<http://www.seflorida.uli.org/>>

"ULI's Mission is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide."



5747 North Andrews Way
Fort Lauderdale FL 33309
Telephone 954.642.2427
Fax 866.433.4057

August 12, 2013

Ms. Terri Jordan-Sellers, Project Director
U.S. Army Corps of Engineers Terri.Jordan-Sellers@usace.army.mil

RE: Port Everglades Harbor Deepening and Widening Project

Dear Ms. Jordan-Sellers:

I write to urge support for this extremely important project. I also want to personally thank you and the Corps for moving this project and for your hard work to generate a greatly improved Draft Environmental Impact Statement for this Port Everglades project.

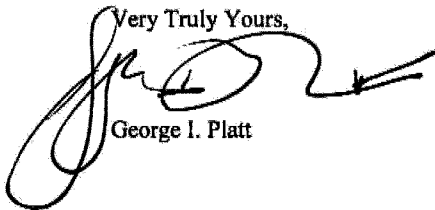
Our company is working closely with Port Everglades on the Wetlands creation/planting part of the Turning Notch project. That project and the harbor deepening/channel widening project are essential to the future financial security of South Florida. The Corps has done a terrific job of minimizing the impacts of the project by refining and improving the Draft EIS.

We also urge that the mitigation alternative supported by NOAA will be the best way to ensure the environmental integrity of the project by seeking to grow and replace corals up and down the coastline in Broward County.

Comment 1

The timing of your work is critical to this project. We urge that the EIS be finalized so that this project can move to the next stage.

Thank you for your continuing efforts.

Very Truly Yours,

George I. Platt

From: [Andersen, Sandra \(US\)](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades Harbor Feasibility Report and Environmental Impact Statement
Date: Monday, August 12, 2013 8:06:06 PM

I support the Port Everglades project for a variety of reasons.

- This project is very important as it will be good for business in Broward County in general and for future generations.
- Broward County is an active environmental community. They planted and grew double the amount of mangrove plants to mitigate a Port redesign related to the Southport Turning Notch Extension
- Again, the Port worked closely with the Corps for 17 years to research and consider every avenue to lessen any impact on the environment
- Industry at the Port creates jobs and this project can only enhance job growth
- Delaying the project will permanently disadvantage our community in competing for global commerce

Overall this project is necessary for the community and its long term well-being. The amount of time and the money the project will devote to enhancing the reefs on the Broward coastline is greatly needed. There is only upside to this project.

Thank you.

Best Regards,

Sandra Andersen

Sandra Andersen

Senior Vice President

Jones Lang LaSalle Americas, Inc.

200 East Broward Boulevard, Suite 1030

Ft. Lauderdale, FL 33301

Tel: 954.760.4848

Direct:954.760.4854 Cell: 954.592.0577

sandra.andersen@am.jll.com <<mailto:sandra.andersen@am.jll.com>>

www.us.joneslanglasalle.com <<http://www.us.joneslanglasalle.com>>

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From: [Gettys, Nancy](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades Project to be Included in the Federal WRDA
Date: Monday, August 12, 2013 4:48:09 PM

Dear Director Jordan-Sellers,

I support the Port Everglades project because it is good for our local economy now and in the future. The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.

Broward County has an active and dynamic environmental community that understands the port's significance as an economic engine and that there are ways to grow the port while protecting and enhancing the environment. This cooperative effort has already been demonstrated with the Southport Turning Notch extension, a project in which the Port, Audubon Society and the state of Florida agreed to a plan that will double the amount of mangrove plants to mitigate a Port redesign to accommodate several new cargo shipping berths. Fort Lauderdale is also the home of leading coral reef experts at Nova Southeastern University, an advantage Broward County has over the rest of the world.

It is critical that the project get included in the Federal WRDA (Water Resources Development Act) so that it can then move on to the appropriations phase.

Sincerely,

Description: Description: Description: Description: Description: J:\Graphics\Logo OLD Revise\City Logo\New Logo 2004\m_logo low res.jpgNancy Gettys

Planning Technician • Economic Development & Revitalization Department

City of Miramar • 2200 Civic Center Place • Miramar, Florida 33025

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From: [laura.goetz](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades Project
Date: Monday, August 12, 2013 4:53:19 PM

With regard to the Port Everglades Project, I would like to express my support to widen the Port Everglades harbor. I perceive this as a tremendous way to help get our economy back on the right track. The bottom line is, people need to work and this would create jobs that are crucial to our overall well-being. If widening the harbor allows for more ships with more goods to sell and stimulate our economy then we need to make it happen. I have spoken to many friends and neighbors and the consensus is the same. Please help get this approved and get this project going!

Sincerely,

Laura Goetz

Deerfled Beach Resident

From: [Marcel Fafard](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades Support
Date: Monday, August 12, 2013 2:13:36 PM

I support Port Everglades expansion because it will bring jobs to South Florida, improve our economy, and expand our importance in the growing trade markets.

Thanks,

Marcel Fafard
marcelfafard@gmail.com

From: [Mitch Welin](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades Widening Project - in Support
Date: Monday, August 12, 2013 4:22:41 PM

Dear Mr. Jordan-Sellers,

I wish to voice my support for the widening of Port Everglades project.

As the owner of a local business, I am interested in both our local economy, as well as the fragile, beautiful environment we have

been blessed with. It is important to me that we keep our local economy competitive and vibrant, while protecting our land and

waterways for generations to enjoy.

We are in support of this project and believe it is vital to our entire region.

MITCH WELIN (the Phone Guy)|C.E.O.
 ComRes Inc. | FORT LAUDERDALE
 33 NE 2nd ST. STE. 212 FT. LAUDERDALE, FL 33301
 (954) 462-9600 TEL | (754) 234-1524 CELL | (954) 760-9067 FAX

Email: mwelin@comresusa.com Text PHONEGUY to 72727

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From: [Jack Cunningham](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades
Date: Monday, August 12, 2013 7:34:04 PM

Please consider utilizing a blend of mitigation options such as, artificial reef creation using rock/boulder and modules along with coral transplants; artificial reef placement on the existing "tire reef"; potentially restoring historic grounding sites using coral transplants; and possibly including a test site for coral propagation from in-water and land-based nurseries. We are the home to one of the world's leading coral research facilities at Nova Southeastern University. The expertise to make this a national standard of excellence for Port expansion is right in our backyard.

Jack Cunningham
954-270-1303
STILES Property Management

Sent from my iPhone

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From: [george.lago](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades
Date: Monday, August 12, 2013 4:42:30 PM

Please consider my support for the expansion of Port Everglades, an vital support system for Broward County.

George Lago
965 804 0381

From: [Bob Swindell](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] support for the deepening and widening project at Port Everglades
Date: Monday, August 12, 2013 5:32:58 PM

Dear Terri,

Thank you for visiting Broward County last month for the public hearing portion of the Army Corps of Engineers project approval process; I was very proud of the public support, the tone of public comments from our community and the effort that members of the public put into the content of their remarks. The Greater Fort Lauderdale Alliance, Broward County's official Public/Private partnership for economic development, wholeheartedly supports the adoption of the Port Everglades deepening project.

As someone who has grown up in Broward County – and loves the boating, diving and fishing made possible by our coastal location I'm also committed to ensuring the balance between port expansion and protecting the natural resources that are an equally important part of our economy, and way of life.

Port Everglades is committed to working with its environmental partners to ensure this project is sensitive to our natural resources. We ask that you consider utilizing a blend of mitigation options such as, artificial reef creation using rock/boulder and modules along with coral transplants; potentially restoring historic grounding sites using coral transplants; and possibly including a test site for coral propagation from in-water and land-based nurseries.

Today, Port Everglades supports 11,700 direct jobs locally and a total of 201,000 jobs statewide. The deepening project, along with the separate Turning Notch Extension and intermodal rail facility on the Port, is projected to create 7,000 new jobs regionally and support 135,000 new jobs statewide over the next 15 years for a total 143,000 jobs. These projects will allow the Port to continue to meet the needs of shipping customers who are focusing their ship-building efforts on larger capacity vessels.

Keeping Port Everglades competitive is crucial to the economic vitality of our region. The Port and our business community understand and support the need for balanced growth ensuring additional high skill / high wage jobs for our residents well into the future.

With personal regards, I remain

Sincerely,

Bob

Bob Swindell

President and CEO

Greater Fort Lauderdale Alliance – Winner of Business Facilities "2013 Excellence in Economic Development" To read more, please click here <http://www.gflalliance.org/index.php?src=news&src_type=detail&category=Press%20Releases&refno=1688> .

Broward County's Official Economic Development Partnership

110 East Broward Boulevard, Suite 1990

Fort Lauderdale, FL 33301

954/627-0131

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From: [Patrick Flynn](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [Terry Stiles](#); [Bob Swindell](#); "Gail Bulfin"
Subject: [EXTERNAL] Support for Port Everglades
Date: Monday, August 12, 2013 6:36:16 PM

Good afternoon Ms. Jordan-Sellers,

I would like to voice my strong support for the deepening and widening project at Port Everglades.

My rationale is based on two key facts:

- 1) this project holds substantial and urgent economic benefits to the economy of South Florida and, indeed, well beyond. In this era of increasing global interconnectedness, adding this level of capacity is not only desirable, but vital if we are even to keep the business that the Port currently handles. Larger ships continue to be built. If we are to stay competitive, we need to accommodate them.
- 2) the mitigation options are reasonable and practical. At the Museum of Discovery and Science, we have one of the largest indoor Coral Reef exhibits in the world. A major feature of this exhibit is an artificial coral reef, which we have built with concrete building blocks and upon which a thriving coral reef has developed, largely from transplanted corals. Clearly that can be replicated in the ocean, and the resources of some of the foremost oceanographic and coral reef research facilities right here in Fort Lauderdale would be most advantageous. We understand that there are several mitigation options available, and it may be that a combination of these may be the best solution.

The availability of good options to maintain the health and benefit of our extraordinary coral reefs, together with the solid economic benefits that the Port deepening and widening would bring to South Florida would seem to make this an easy decision. I do hope you will agree and decide in favor of approving and moving forward with this vital project.

Thank you.

Sincerely,

Patrick

Patrick J. Flynn

Executive Vice President of Development

Museum of Discovery and Science

401 SW Second Street

Fort Lauderdale, FL 33312-1707

(954) 713-0902

From: [George Boue](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: [EXTERNAL] Support for Port Everglades expansion
Date: Monday, August 12, 2013 4:59:42 PM

Dear Project Director Jordan-Sellers,

I just wanted to write to you that I support the deepening of the port. As an environmentalist, citizen, businessman, and Dad who wants to see his daughters prosper in South Florida, I think this project is a MUST for our future.

The Corps of Engineers have done a great job evaluating the project and it's impact, and I commend you for it.

Thank you for your involvement.

George Boue
8195 SW 142 Terrace
Palmetto Bay, FL 33158

From: [Rafael](#)
To: [Jordan-Sellers, Terri SA](#)
Cc: [Bob Swindell](#); [Gail Bulfin](#)
Subject: [EXTERNAL] Support for Port Everglades Expansion Project
Date: Monday, August 12, 2013 10:29:36 PM

Hello Terri,

First of all I want to thank you and the USACE team for visiting us to share the progress so far and for all of the hard work done on this project to date.

This Port project, once approved and executed, will have a profound positive impact not only on the south Florida region but I personally believe it will also have an impact on the entire State and national economies.

We at the SBDC deal directly with the realities of small businesses striving to succeed in an ever changing environment. We are also aware that planning is critical to success however we are ever mindful of the old saying that "the enemy of a good plan is the hope for a perfect plan". The plan presented at the meeting was beyond good and it was apparent that many people had given much time and thought to the development of the plan. The scope of the plan presented gave great weight to a variety of concerns across the full spectrum of community needs including economic, social and environmental.

As evidenced by the hundreds that attended the meeting at the Broward Convention Center and have sent emails and letters of support, it is clear that this community is behind the Port Everglades Expansion Project. Please add our voice to the many already in support of this important and immediately needed project. This project should move forward without delay.

Sincerely,

Rafael Cruz

<http://www.fsbdc.net/MIS/Branding/Logos/SBDC-in-Broward-Logo-EmailSig.jpg>

Rafael Cruz, MBA

Regional Director

Certified Business Analyst

Certified Economic Development Finance Professional

Florida Small Business Development Center

Florida Atlantic University

111 E. Las Olas Blvd, HEC Rm 1010

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t 954.762.5201

Rafael.Cruz@FloridaSBDC.org <<mailto:Rafael.Cruz@FloridaSBDC.org>> • www.browardsbdc.org
<<http://www.browardsbdc.org/>>

From: Tom Kates
To: Jordan-Sellers, Terri SA1
Subject: [EXTERNAL] RE: Approval of Port Everglades Expansion
Date: Monday, August 12, 2013 5:06:03 PM
Attachments: image001.png

Terri Jordan-Sellers:

I want to take this opportunity to convey my support for the proposed deepening and widening project for Port Everglades. This will be of vital importance for our local port and economy and enable it to be competitive in its future operations in the years to come. Please consider using a blend of mitigation options, such as artificial reef creation using rock/boulder and modules along with coral transplants.

This is a very important project for our area and one that we hope you will support

Sincerely

Tom Kates

Tom Kates-Image01

Thomas R. Kates, SIOR
Broker Associate | Stiles Realty

954-627-9326 | Cell: 954-804-7049

301 E Las Olas Blvd, Fort Lauderdale, FL 33301 | 954.627.9300 | WWW.STILES.COM
<<http://www.stiles.com/>>

From: [Tiwwoming](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port
Date: Monday, August 12, 2013 7:08:17 PM

For south florida and the Many people out of work.. I support the deepening and widening project at Port Everglades.

TJ

From: [Benjamin Boies](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Improvements
Date: Monday, August 12, 2013 5:10:21 PM

Project Director Terri Jordan-Sellers,

Dear Terri,

I enjoyed the Public Hearings that were provided last month and want to reiterate my support for the improvements proposed at Port Everglades.

I mentioned in the note I left at the presentation that being an individual involved in local business and a frequent boater I can honestly say it would be a tremendous loss not to invest in the improvement of our port. I mention that I am boater for the fact that I have made hundreds of trips navigating The Port Channel and Turning Basin and can first hand understand the importance of improving these features.

Regardless of additional traffic through The Port it seems vital that to maintain the safety of the existing pleasure and commercial navigation continuous improvement should be done.

Again, I appreciate the efforts that have been invested in this project and hope that The Port Everglades will be given the focus it deserves as one of the premiere ports on the east coast. If I can be of any additional services please do not hesitate to contact me.

Thank you,

Ben

Benjamin I Boies
(954) 646-2852

From: [Gail Bulfin](#)
To: [Jordan-Sellers, Terri SA1](#)
Cc: [Bob Swindell](#)
Subject: [EXTERNAL] Port Everglades
Date: Monday, August 12, 2013 4:13:45 PM

Ms. Jordan-Sellers,

While I recently attended the ACOE public hearings in Fort Lauderdale, I wanted my support to be officially counted in the public record. The hearings were fascinating and I learned a lot. The report was thoughtful and well researched. I feel confident this widening and deepening is a project that we must move forward on.

I believe all public agencies need to be thinking strategically for the benefit of the citizens they represent. And there is no more critical authority / agency than Port Everglades.

For the past two years, we have partnered with the Port to help our businesses understand what they do, how they do it and why they do it. We formed a group called the Port Everglades Action team and we partnered with other economic development agencies, chambers, business groups and marine associations. It's been a tremendous experience. Since Port Everglades is considered an enterprise zone, they must balance their budget every year, without taxing Broward County citizens. You'd think that is a good thing, right? But the reality is that they operated quietly, without controversy, for years so they got very little mainstream press.

I know I am not telling you anything you don't already know, but Port Everglades is a jewel in South Florida and in the state. With three healthy revenue streams, they supply the regions airports with fuel, consistently rank among the top 3 Ports in the world for cruise passengers, and can boast the number one rank for exports in the entire state of Florida. They are well managed and at their very core, they want to do what is best for the community.

We cannot begin to tell you how grateful we are that you have released the Chiefs report for comment so that it can be included in the WRDA bill projected to be voted on this year. It's a scary thought that the last time the WRDA bill was voted on was almost seven years ago so you can understand our angst. We cannot afford even one year to go by without moving forward on this plan. Whether we like it or not, ship builders are building larger ships and new routes are opening up. We'd hate to lose economic activity to the Caribbean because we could not take the larger ships.

Finally, our beaches and shoreline are an integral part of our DNA. We've enjoyed a true partnership between the Port and our tourism industry and we are all hoping this project could be the shining example of how commerce, international trade, governance and maintenance of our waterways, quality of life, and protection of the environment can all live together and thrive.

Thank you for your support.

Gail Bulfin

Gail Bulfin

Vice President – Member Development

Greater Fort Lauderdale Alliance | Broward County's Official Economic Development Partnership

110 East Broward Boulevard | Suite 1990 | Fort Lauderdale | FL | 33301

954-627-0127 direct | 954-609-3335 cell | gbulfin@gfalliance.org <<mailto:gbulfin@gfalliance.org>> |

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Upcoming Alliance Events:

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Greater Fort Lauderdale Alliance - Winner of Business Facilities inaugural "Achievement in Public-Private Partnership Award"

From: [Shelby](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] widening project at Port Everglade
Date: Monday, August 12, 2013 7:06:32 PM

I highly support the deepening and widening project at Port Everglades. Please vote yes!!

Thank you.

Terry Morris

From: jabrown@mindspring.com
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Supporting The Port Everglades Expansion Project
Date: Monday, August 12, 2013 6:36:31 PM

August 12, 2013

TO: Terri Jordan-Sellers, Project Director

c/o United States Army Corps of Engineers (USACOE)

Please accept this letter (via email), as a supporter for the approval and funding to deepen and widen the Port Everglades project. The Port is one of the most economic engines and will create numerous jobs for our community. After nearly two decades of waiting and anticipation, the U.S. Army Corps of Engineers have released a Feasibility Report and draft Environmental Study, which allows us to request the federal funding that is necessary to proceed forward with this project. If we do not receive this funding and move forward with the expansion of Port Everglades, we will not be able to compete for global commerce as the #1 container port in Florida. As a Broward resident, I strongly support the growth and sustainability of the Port Everglades expansion because of the following:

- * The Port Everglades project will be very good for my business and others in the community, now and in the future.
- * If the Port project is delayed any more, it will permanently put our community at a disadvantage in competing for global commerce.
- * Many businesses are counting on Port Everglades to remain one of the strongest economic engines in Florida.
- * There are many needed enhancements to the reefs up and down the Broward County coastline, and this project's funding will also devote money to support this.
- * The expansion of the Port Everglades will create numerous jobs, which will strengthen our economy and community.

Please consider this letter from a strong supporter and in favor of the Port Everglades expansion project. I'm looking forward to have this project proceed to enhance South Florida Life and be able to compete with global commerce.

A win, win overall!!!

Thank You

Alexandria Brown

(954) 454-9729

From: [Gary Press](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Support of Port Everglades
Date: Monday, August 12, 2013 4:33:48 PM

Dear Terri,

I'd like to introduce myself. My name is Gary Press. I published the South Florida Business Journal for 15 years and now own three companies (Alternative Revenue Solutions, Lifestyle Media Group and Life Media Group). It is such a pleasure to do business in Broward and it is so important that we remain competitive, especially in this economy.

Port Everglades plays a critical and vital role in our economic development. All would agree that \$26 Billion is significant amount of money. The importance for the Port to remain competitive as the Panama Canal opens up and larger ships are being built is critical.

It is critical for us to support this project for the jobs it will bring and the jobs it will retain. As you know, jobs mean disposable income, which yields commerce...and commerce is vital to the quality of life of any community. It is extremely important for Broward County to remain competitive as other counties in Florida and around the southeast gear up their effort to expand their ports

I have been actively doing business in South Florida over the past 25 years. We have seen our community grow and prosper. We have tried our best to support local charities and business initiatives. For all of the businesses in our areas, this project will help us remain vital and help business growth in Broward for decades to come.

We all certainly respect you and let us know how we can help in making this a reality.

All my best, Gary

Gary Press | Chief Executive Officer
Lifestyle Magazine Group
3511 West Commercial Boulevard
Suite 200
Fort Lauderdale, FL 33309
954-377-9471 | 954.295.8430 cell

gpress@lifestylemagazinegroup.com <<mailto:gpress@ars101.com>>

www.lifestylemagazinegroup.com

From: [Lucia, Alice \(US\)](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Support of Port Everglades Expansion
Date: Monday, August 12, 2013 8:01:56 PM

To Whom It May Concern:

Please note of my support for the Port Everglades expansion. Born and raised in Fort Lauderdale, I believe we must grow the City with the times for economic and job creation and appropriate managed growth to match the community.

Regards,

Alice Lucia Jackson

Alice Lucia Jackson S.I.O.R
Jones Lang LaSalle
Senior Vice President/Director
200 East Broward Blvd #1030
Fort Lauderdale, FL 33301
Phone: 954-760-4848
Direct: 954-760-4838
Cell: 954-649-5590

Alice.Lucia@am.jll.com

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From: ctvankee1@earthlink.net
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Support of Port Everglades Deepening/Widening Project
Date: Monday, August 12, 2013 9:01:33 PM

Terri Jordan-Sellers
Project Director
USACE

As a resident of Broward County, this is to voice my support of the deepening and widening project at Port Everglades. The Port is an opportunity to broaden the economic base of Broward and continue to increase our position as a world leader in driving both tourist travel in cruises and business as a strong harbor. I have worked with the Port of Los Angeles and understand the importance of generating revenue and employment from this resource.

Please proceed with this critically important project. Please feel free to contact me if there is anything further which I can do to support this project.
Thank you.

Sincerely
Richard Stein
6377 NW 78th PL.
Parkland, FL. 33067
(954) 341-0898

From: [Nelson Fernandez](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Expansion of Port Everglades
Date: Monday, August 12, 2013 4:21:59 PM

Dear Ms. Jordan –Sellers:

Please accept this email as evidence of my support of the proposed expansion of Port Everglades. This is one of our most valued assets in Broward County and its improvement and expansion will have a positive effect on the entire economy of Florida. I am confident that the steps we will take to mitigate any possible detrimental effects will ensure that Fort Lauderdale continues to be a leading tourist destination. Our economy relies heavily on the Port activities and we have the responsibility to ensure its relevance as it relates to the other ports in Florida and along the Southeastern seaboard.

Please take into consideration my support of the expansion and the thousands of others in Broward County that also support this project.

I am available at any time if you need to discuss the topic further. Thank you for your time.

Regards,

Nelson Fernandez

Vice President

2700 Davie Road, Davie, Florida 33314

Direct: 954.449.1602 I Office: 954.693.9900 I Cell: 954.275.4952

e-mail: nfernandez@anfgroup.com I www.anfgroup.com <<http://www.anfgroup.com/>>

From: [Christina Ashley POA II](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [Keely Stahl](#); [Margaret Farragher](#); [jhf@bellsouth.net](#); [Juan](#); [Jim](#); [Chris](#); [Hy Montero](#); [Robert Raker](#); [Gary McFarland](#); [Hibslvclid@aol.com](#); [Sprague](#)
Subject: [EXTERNAL] Fw: Reference Jacksonville District Corps of Engineers, US Department of the Army Notice of Availability of Draft Port Everglades Harbor Feasability Report and Environmental Impact Statement, Broward County, FL, Dated June 24 2013; Request ...
Date: Monday, August 12, 2013 2:34:56 PM

Sent: Monday, August 12, 2013 2:03 PM

Subject: Reference Jacksonville District Corps of Engineers, US Department of the Army Notice of Availability of Draft Port Everglades Harbor Feasability Report and Environmental Impact Statement, Broward County, FL, Dated June 24 2013; Request for Comments/Questions on Draft Report and DEIS

Dear Madam,

The following comments and suggestions are respectfully submitted by Point of America Condominium Association pursuant to the above referenced letter.

1. Use of explosives to blast bottom rock formations in order to deepen the Port's channels from 42' to 48', (effectively 50')

While the above referenced report and DEIS indicate that blasting will not be required to widen and deepen the Port's channels, discussions with Army Corps of Engineer personnel and their technical consultants at public meetings held on July 23, 2013 suggested the opposite. ACE personnel informed us that the blasting option was still being considered and that they could not give any assurances that blasting would not be undertaken.

As you know, we are very concerned about the effects/impacts that may damage building foundations, and well and piping systems because of blasting and heavy dredging, especially to those foundations and well and piping systems which lay closely adjacent to the harbor inlets. While we have noted that the Report and DEIS have largely covered the effects and impacts to wildlife and vegetation, there was no section in the Report or DEIS that dealt with the proposed Port operations on local residents, their property or quality of life.

We strongly recommend that a thorough study be conducted on the impact that blasting may have on local residents including the stresses to building foundations as well as to well and piping systems.

2. Quality of life

In addition to our concerns about blasting and heavy dredging, we are also concerned about the effect on local residents and the public at large due to :

- a.) Operations to achieve the proposed enlargement of the Port, i.e., the time periods involved and the effect to residents' right to the peaceful enjoyment of their properties.
- c.) the impact to private and public beaches from dirt, debris and other problems associated with such operations.
- d.) the impact to swimming and other recreational activities, such as sailing, fishing and other water sports.
- e.) air quality impacts from such operations.
- f.) the impact to local residents that may occur because of the destruction of coral reef formations that tend to minimize the strength and intensity of storms and hurricanes.
- g.) the potential obstruction to local residents' views of the harbor and waterways due to the use and quantity of heavy equipment.

We would again ask that the Report and DEIS address these issues and recommend ways to avoid major impacts to the quality of life of local residents.

3. Compensation

Lastly, we are concerned about the response from the applicable authorities in the event of damage to property and quality of life.

We would recommend that the Report and DEIS propose reasonable responses and effective relief from any damage caused by the Port enlargement operations. To this point, we would suggest the appropriate authorities bond their operations or create a fund to compensate affected property owners and residents.

Sincerely yours,

President, Board of Governors Point of America Condo Association.

From: [Elijah Wooten](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades
Date: Monday, August 12, 2013 5:56:40 PM

I am submitting this e-mail in support of the deepening and widening at Port Everglades. The City of Lauderhill is a community of approximately 70,000 residents from more than 50 countries that are proud to call Lauderhill their home. We have a number of restaurants, specialty stores, manufactures and distribution companies that rely on Port Everglades to receive and send products both nationally and international. The proposed improvements at Port Everglades will have a significant impact of the amount of import/export trade to Broward County. I would encourage the Army Corps of Engineers to proceed with the widening and deepening of Port Everglades one of Broward County's most valuable assets for economic development.

Sincerely,

Elijah L. Wooten, Jr MBA
Economic Development Manager
City of Lauderhill
5581 W Oakland Park Boulevard
Lauderhill, FL 33313
Office - 954-739-0100

city_logo_official

The All-American City of Lauderhill

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From: cpwebster@aol.com
To: [Jordan-Sellers, Terri SA1](#)
Subject: [EXTERNAL] Port Everglades Project
Date: Monday, August 12, 2013 5:35:20 PM

Dear Ms. Jordan-Sellers:

I am writing to voice my support of the deepening and widening project at Port Everglades, Florida, and to ask for your support as well. I know you have received comments extolling the anticipated benefits for our business community and local economy, all of which are true. I would like to offer an alternate perspective focusing on our students.

I work in the public school system, and I anticipate that the project will offer a wealth of opportunities for our students. From project planning to completion, the engineering and construction along with understanding the impact of various alternatives on our environment and community is priceless. Nova Southeastern University's presence at the Port will serve as a focal point for world class research on coral. Lastly, the expansion will give students the opportunity to learn the business of managing a major port, including interacting with different cultures and visitors from around the world.

The anticipated job creation, now and in the future, will benefit students locally, regionally and statewide, while educating them to be effective stewards of our most precious natural resources.

Sincerely,
Charles Webster

From: [Tom Shea](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Please approve the deepening and widening project at Port Everglades...
Date: Monday, August 12, 2013 6:14:42 PM
Attachments: [image003.png](#)
[image004.png](#)
[image010.png](#)

I have been a resident of Broward County for 43 years. Port Everglades is one of the most important elements of not only this county's economy, but, to Florida and the U.S. as a whole. Our world will only get more competitive and we have to move forward. Please facilitate the implementation of this project.

With my sincere thanks,

Tom Shea

cid:image007.jpg@01CD7932.E0F10530

thomas h. shea

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cid:image002.gif@01CD7645.4AC35A30 <<http://www.right.com/thought-leadership/blog/talentplusworkblog.aspx>> cid:image003.png@01CD7645.4AC35A30
 <<http://www.facebook.com/pages/Right-Management-FloridaCaribbean/136331036401731>>
 cid:image004.png@01CD7645.4AC35A30 <<http://twitter.com/#!/RightFlorida>>
 <<http://www.linkedin.com/company/3238275?trk=tyah>>

http://www.floridatrend.com/public/userfiles/logos/bc/bc13_s.png

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From: [Richard Wessel](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] In support of the deepening and widening of the Port Everglades harbor
Date: Monday, August 12, 2013 7:34:42 PM

Dear Ms. Jordan-Sellers,

I am writing in support of the deepening and widening of the Port Everglades harbor. As IBM's executive in Broward County for many years and as a former Chairman of the Broward Workshop, I have a keen understanding of the Port's vital importance to Broward and the region. Accommodating the large mega-ships is essential to the Port continuing its record of outstanding success. It is a vibrant economic engine that must be kept competitive with ports in the United States and worldwide.

I appreciate your consideration of this project and urge your support.

Richard Wessel

From: [Jaime Blomquist](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] I support the Port Everglades improvements
Date: Monday, August 12, 2013 6:15:44 PM

To Whom It May Concern,

Please accept this email as my support to the Port Everglades Improvements. The Port is one of most important economic engines and creates a ton of jobs for our community. This is a win win situation for the port as it is with the environment if done properly.

I thank you for your time and consideration of my email.

Regards,

Jaime Blomquist

cid:8075A5ED-23E4-48AD-AFBF-D6D6FF3A7C93

From: [judith_currin](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] I support Port Everglades Expansion
Date: Monday, August 12, 2013 1:28:03 PM

Dear Teri,

I support Port Everglades expansion because it has been over 17 years in planning and I know that the Port staff and controlling government agencies have studied this expansion carefully and it will be good for the economy and safe for the environment.

I am a resident of Ft. Lauderdale and would appreciate your consideration.

Best, \Judith

Judith Currin
2005 SE 10th Avenue
Apt. 418
Ft. Lauderdale, FL 33316
646.285.2481

From: [Jack Bennings](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Support for the Port Everglades Expansion
Date: Tuesday, August 13, 2013 8:49:10 AM

Terri Jordan-Sellers

Project Director

United States Army Corps of Engineers

Terri, I wanted to extend my support of the Port Everglades expansion project. I had the opportunity to attend the afternoon session and felt there was an overwhelming support for this project.

As we discuss and support the economic impact to Broward County in various industries the jobs expansion projections are vital to our growing economy in South Florida. We recently had another Alliance meeting at the Nova Coral Reef Oceanic Center and Dr. Dodge commented about the issues of creating the artificial reef and using their expertise and advice to blend the economic impact with the environmental concerns makes Broward County and the Port good stewards for the environment.

I wanted to through in my personal support of the expansion of Port Everglades and working toward a vibrant Port for years to come.

Continued success and your support is greatly appreciated to move this project along in an expeditious manner.

Jack Bennings

Director of Workforce Development
 WorkForce One/Greater Fort Lauderdale Alliance

Broward County's Official Economic Development Partnership

Alliance Map <<http://goo.gl/maps/FlvZn>>
 P: 954.627.0136 C: 954.822.2012

jbennings@gflalliance.org | www.gflalliance.org <<http://www.gflalliance.org/>>

Upcoming Alliance Events:

August 29, 2013 | Gulfstream Park | Alliance Council Connect Cocktail Party

October 17, 2013 | Alliance Annual Dinner

Please RSVP for these events and meetings at www.GFLAlliance.org <<http://www.gflalliance.org/>>

Greater Fort Lauderdale Alliance - Winner of Business Facilities 2013 "Excellence in Economic Development Award" and Business Facilities 2012 inaugural "Achievement in Public-Private Partnership Award." To read more, please click here <<http://www.gfalliance.org/index.php?src=news&srctype=detail&category=Press%20Releases&refno=1688>> .

Why <<http://www.youtube.com/browardall#p/a/u/0/3dzX1Kpql8A>> have so many companies relocated to Greater Fort Lauderdale? Click here <<http://www.youtube.com/browardall#p/a/u/0/3dzX1Kpql8A>> to find out! (90 second video)

From: [Paul S Figg](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades
Date: Tuesday, August 13, 2013 9:20:16 PM

Army Corp of Engineers:

I am writing to express my support for the Port Everglades expansion plans and dredging projects. I have lived in South Florida for over a decade now, and have seen the economy go through significant highs and lows. One of the important constants in South Florida's economy has been the economic impact of the air and seaports, which create hundreds of thousands of jobs. As we continue down the path of an integrated global economy, international commerce will become critical for economic viability. Investment in transportation infrastructure and intermodality are key to South Florida's future. For this reason, I strongly support the Port Everglades projects. The Port project should not be delayed any further because it will permanently disadvantage South Florida's continuing viability in the global marketplace. Thank you for your efforts and strong work.

Best Regards,

Paul Figg

From: [Everett, C. Todd](#)
To: [Jordan-Sellers, Terri SA1](#)
Cc: [Everett, C. Todd](#)
Subject: [EXTERNAL] Port Everglades
Date: Tuesday, August 13, 2013 10:51:31 AM

Terri:

This e-mail is in support for the deepening and widening project at Port Everglades.

Kind regards,

Todd

C. Todd Everett, SIOR

Director

National Office and Industrial Properties Group

Marcus & Millichap
5900 North Andrews Avenue
Suite 100
Ft. Lauderdale, FL 33309

(954) 245-3483 direct
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From: [Kyle Jones](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades
Date: Tuesday, August 13, 2013 1:25:08 PM

Mrs. Terri Jordan-Sellers,

I am writing to express my support for the deepening and widening of Port Everglades in accordance with the Draft Feasibility Report and Environmental Impact Statement presented at the Public Meeting in Fort Lauderdale on July 23, 2013.

International commerce is one of the tent poles of the South Florida's economy, and Port Everglades is a vital economic engine for the City of Fort Lauderdale, Broward County, and the South Florida region. Without the long-term infrastructure investment envisioned by your report, South Florida will struggle to compete with new ports under construction across the Caribbean basin. Port Everglades' ability to serve our community is dependent upon the decision to move forward with the project. Thousands of jobs are at stake. Please move forward with the deepening and widening of Port Everglades as soon as possible.

Kyle Jones
Resident of the City of Fort Lauderdale

From: [Sean Guerin](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades Widening and Deepening
Date: Tuesday, August 13, 2013 11:01:35 AM

To All It Concerns:

As a Fort Lauderdale native who started a family and a business in Broward County, I respectfully implore those individuals making the decisions to widen and deepen Port Everglades to please move forward with the project. If we choose not to, I am afraid it will have severe and drastic economic implications on our community. As Chairman of the Board of Trustees of Broward College, I can assure you that we are working hard to identify, assess and implement programs, certifications and curriculum that meet the needs of our community. Port Everglades and the workforce required to power the Port are an integral part of our economic engine and the College is working closely with the Port, its partners and the companies that rely upon the Port to provide a trained workforce for the future.

If we fail to act upon this initiative, it will not only be a missed opportunity it may permanently set us back. I understand that most believe this is a necessary action to keep the Port and our community moving forward and growing with the opportunities that the widening of the Panama Canal will bring. Please do the right thing for our community and let's invest in the widening and deepening of Port Everglades.

Regards,

Sean

Sean C. Guerin|USIS, a DEX imaging company
2100 SW 71st Terrace | Fort Lauderdale, Florida 33317
Office: 954.861.1230 | Toll-free: 877.FOR.TONER

<http://www.usimagingolutions.com> <<http://www.usimagingolutions.com/>> | sguerin@usis.biz
<<mailto:sguerin@usis.biz>>

From: [Peggy Nordeen](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades Project - A Broader Perspective
Date: Tuesday, August 13, 2013 2:46:47 PM

Dear Terri,

I was born and grew up on the upper Mississippi River in the "Quad-Cities" - watching the river traffic and barges move through the locks and dams that controlled the flow, not only of the river, but of commerce in the Midwest and all the way down to the Gulf. As a young newspaper reporter for the Quad-City Times, one of the highlights of my early career was a weekly call to the regional office of the United States Army Corps of Engineers (USACOE) on the Arsenal Island to find out the latest tonnage reports of grain, limestone and other goods transported through the locks at the "Government Bridge."

Even at that young age I knew that the reason this all could happen was because it was under the watchful eye of USACOE who took great care to guide and report on the use of our natural resources, the river, as a part of our transportation system.

Forty years later, I own an advertising and marketing firm here in Fort Lauderdale, and USACOE continues to play a key role in my life and those of Broward County residences in assuring that both natural resources and commerce are accommodated in our transportation system.

Today, I have a broader perspective than I did when I made that weekly call. I know that what was on those barges provided jobs and sustenance for both commerce and lives not just along the river, but throughout the country, through the Panama Canal and the world.

The widening and deepening of the inlet to Port Everglades to accommodate our changing needs is important to the world community and our economy. The fact that our technologies to use our natural resources wisely have never been better and that many wise minds are focused on a successful transition means that after 17 years of study, we are ready to move forward.

I support this very important project. Please pass it and help our global commerce and our natural resources prosper together.

Peggy Nordeen

P.S. The story of the deepening of the channels on the Mississippi River acting through the U.S. Army Corps of Engineers changed history and is told on <http://www.greatriverroad.com/all/locksanddam.htm>. Someday the story the significant impact of the deepening of the channel giving access to Port Everglades will also be told.

Starmark Big Ideas <<http://www.starmark.com/starmark.gif>>
 Peggy Nordeen
 CEO
 210 S. Andrews Avenue
 Fort Lauderdale, FL 33301

954 874 9000
 954 874 9009 direct
 954 874 9010 fax

www.starmark.com <<http://www.starmark.com/>>

From: [Byron Calhoun](#)
To: [Jordan-Sellers, Terri SA1](#)
Cc: peassn@portbiz.org
Subject: [EXTERNAL] Port Everglades and The Coming Century
Date: Tuesday, August 13, 2013 12:57:19 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

The U S Army Corps of Engineers is doing a marvelous job in keeping our great nation fit and ready for action in the coming decades. It seems that we are all in a race with and for emerging technology. As a result of past technologies, air conditioning and air transportation especially, Florida and South Florida most prominently have emerged as a central hub for all of the New World. The enhanced ability to accept and facilitate the most advanced sea born technology in the future is an absolute prerequisite for our continued ability to play our natural and God given role in the Western Hemisphere as the future unfolds. Port Everglades is a vital element in this scheme and needs your wise support in order to fulfill its' destiny. Byron Calhoun

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Byron Calhoun
 Broker Associate-Investment Sales & Corporate Leasing Specialist | Stiles Realty

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From: [Bud Cusack](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades - widening and deepening project
Date: Tuesday, August 13, 2013 9:04:04 AM

Please accept this e-mail as my 100% support for the proposal to widen and deepening of this port! As a former resident on Broward County and having family in Ft. Lauderdale, I am very aware of the importance of this project for the economical benefit to the community and my family. This issue is very-very important to me, my family, and the community!
Thank you.

Sent from my iPad

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From: [George Hanbury](#)
To: [Jordan-Sellers, Terri SA](#)
Cc: [Bob Swindell](#)
Subject: [EXTERNAL] Deepening and Widening of Port Everglades
Date: Wednesday, August 14, 2013 4:59:58 AM

Dear Ms. Jordan,

I support the deepening and widening of Port Everglades to facilitate shipping and the associated economy. Port Everglades is the: #1 Florida revenue seaport (\$143M); #1 Florida container port (930,000 TEUs in CY2012); #1 Florida export Port (\$14B); #1 in US Foreign-Trade Zone exports (\$2B); #2 in FLA petroleum (104.8M bbl.); and the #3 cruise port in the WORLD. The economic impact is staggering: \$26B in 2012 businesses, \$729M in state and local taxes, 11,587 direct jobs, and over 200,000 Florida jobs.

As important, I recognize that Florida's economy and quality of life is reliant on the health and sustainability of its natural marine ecosystems, including its valuable coral reefs and associated habitats. The reefs of South Florida support over 71,000 jobs and contribute \$6B annually to the economy!

For speedy resolution of environmental issues associated with the expansion project, I recommend the NOAA proposed mitigation plan that is an integral part of the Draft Environmental Impact Statement. NOAA's program involves replacing lost three-dimensionality and growing and replacing corals on damaged and degraded reefs. The Corps should afford NOAA leadership and responsibility in mitigation design and implementation.

NSU is a not-for-profit, independent university that is classified as a research university with "high research activity" by the Carnegie Foundation for the Advancement of Teaching, and is one of only 37 universities nationwide to also be awarded Carnegie's Community Engagement Classification. We have more than 28,000 students, 148,000 alumni, a sprawling, 300-acre Fort Lauderdale-Davie campus, and a presence throughout Florida, the U.S. and nine countries around the world.

I pledge NSU's assistance via our new Center of Excellence for Coral Reef Ecosystems Research, if desired, to help ensure the mitigation project is conducted appropriately and to gain knowledge for future generation about best practices in successful coral reef restoration.

Sincerely,

George Hanbury PhD
President and CEO

From: [Joel Altman](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Deepening | Widening Project @ Port Everglades
Date: Tuesday, August 13, 2013 5:00:28 PM

Dear Ms. Sellers:

I am supporting the deepening and widening project at the Port Everglades as many others within our state. Port Everglades is a \$143 million enterprise earning all of its revenue from Port commerce, none from taxpayers. It is a fuel hub for all of South Florida and handles jet fuel for the 4 international airports (FLL, MIA, PBX and SW Intl. in Fort Myers) and provides gas for 12 counties.

Port Everglades is embarking on three critical expansion projects that are projected to create 7,000 new jobs regionally and support 135,000 jobs statewide over the next 15 years for a total of 143,000 jobs. Currently, Port Everglades supports 11,600 direct jobs locally for a total of 201,000 jobs statewide.

We support the Port Everglades project because it is good for my business, now and in the future. The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. My business counts on Port Everglades to remain one of the strongest economic engines in Florida.

Thank You,

Joel Altman

From: [Fred Kaub](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Support for the Port Everglades Widening Project
Date: Tuesday, August 13, 2013 10:59:00 AM
Attachments: [image003.png](#)

Mr. Jordan

I am writing in support of the Port Everglades Widening project. I applaud the decision to move forward so that Port Everglades can continue to be the economic powerhouse it has always been in South Florida. I am excited for the community that will soon realize deepening, adding new berths and building an on-port freight rail facility that will create 7,000 new jobs locally and support another 135,000 jobs statewide when at full capacity in 2027.

I understand the issues with maintaining the sensitive environment. However, I believe that there has been a balance created between the current plan to be competitive as a destination port and the mitigation alternatives which support responsible environmental stewardship.

Regards,

Fred Kaub

President

GFA International, Inc.

1215 Wallace Drive

Delray Beach, Florida 33444

Phone: (561) 347-0070 Fax: (561) 819-6942

Cell: (561) 414- 7631

email: [fred@teamgfa.com](mailto:fkaub@teamgfa.com) <<mailto:fkaub@teamgfa.com>>

web site: www.teamgfa.com <[blocked::http://www.teamgfa.com](http://www.teamgfa.com)>

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Offices Throughout Florida

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From: [Amy Hirth](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades
Date: Tuesday, August 13, 2013 9:03:40 AM

I wanted to express my support for funding the Port Everglades expansion project. The Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.

Thank you for your time,
Amy Lynch

From: ifarrell@resolvemarine.com
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades Dredging Project
Date: Tuesday, August 13, 2013 3:17:07 PM

I'd like to thank you for efforts in our much needed project. We are totally onboard with this and we know the all the mitigation requirements can readily been achieved. We know firsthand that the corals can be relocated and additional new ones can be added. We appreciate all you can do to help us keep Port Everglades as a relevant commercial port.

Best regards

Joe Farrell

Cell 954-410-4536

www.resolvemarine.com

From: [Greg Kimmelman](#)
To: [Jordan-Sellers, Terri SA?](#)
Subject: [EXTERNAL] Port Everglades Deepening and Widening
Date: Tuesday, August 13, 2013 5:32:32 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
Importance: High

Dear Ms. Jordan-Sellers:

Thank you for your time in receiving and reading this note. The beaches, reefs and waters off of South Florida are of utmost important to all South Floridians. As a longtime resident of Fort Lauderdale and South Florida, our families have enjoyed these wonderful natural resources and certainly would love to see them exist, perhaps in an even better state than they currently do, for the generations that follow. The last thing we would want to encourage is permanent, or any damage to any of them. We also realize that without a vital port that can compete worldwide, especially determining a way to accommodate the new era of container ships, the local economy will suffer long term consequences as well. There must be and are solutions that can appease both desires.

Please consider utilizing a blend of mitigation options such as, artificial reef creation using rock/boulder and modules along with coral transplants; artificial reef placement on the existing "tire reef"; potentially restoring historic grounding sites using coral transplants; and possibly including a test site for coral propagation from in-water and land-based nurseries. We are the home to one of the world's leading coral research facilities at Nova Southeastern University. The expertise to make this a national standard of excellence for Port expansion is right in our backyard.

- Over 300 attended the Army Corps of Engineers Public Hearings late last month
- Letters to the Editor, Sun Sentinel Editorials and the South Florida 100 feature have all shown support for this important economic project that will benefit Broward County, South Florida and the entire state of Florida.

As you are eminently aware, timing is critical for this initiative to happen. Our families would appreciate your consideration of determining the right balance of reef mitigation options that would safely permit the widening and deepening of Port Everglades; a vital resource to our local, regional and statewide communities.

Thank you again for your time and consideration.

Stiles - Invest. Build. Manage.

Greg Kimmelman
Director of Preconstruction | Stiles Construction

954-627-9370 | Cell: 954-257-7555

301 E Las Olas Blvd, Fort Lauderdale, Florida 33301 | 954.627.9300 | WWW.STILES.COM
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Stiles LinkedIn <<http://www.linkedin.com/company/41380>>

Stiles Facebook <<http://www.facebook.com/StilesRealEstate>>

Stiles YouTube <<http://www.youtube.com/user/investbuildmanage>>

From: [dressierra](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Port Everglades Channel Deepening and Widening Project
Date: Tuesday, August 13, 2013 12:58:23 PM

ROBERT A. DRESSLER
PO Box 2425, Fort Lauderdale, FL 33303-2425
Dressierra@Bellsouth.net

Dear Ms. Jordan-Sellers,

I am writing to support the Channel Deepening and Widening project for Port Everglades.

As a former Mayor of Fort Lauderdale, and a native of the city and Broward County, I am aware of the continued and increasing importance of Port Everglades to the economic vitality of our area.

Thank you for fast-tracking this project. Since Port Everglades is managed in a highly professional manner, this project can provide a large bang-for-the-buck return on the investment, especially with the increasing importance of East Coast ports in general.

Sincerely,

Robert A. Dressler
Mayor of Fort Lauderdale
1982-1986

From: [Lamarca, Chip](#)
To: [Jordan-Sellers, Terri SAJ](#)
Subject: [EXTERNAL] Port Everglades - Deepening and Widening: Feasability Study & Chief's Report
Date: Tuesday, August 13, 2013 3:07:29 PM
Attachments: [image001.png](#)
[image005.png](#)

Ms. Jordan-Sellers,

Today, Port Everglades supports 11,700 direct jobs locally and a total of 201,000 jobs statewide. This deepening project, along with the separate Turning Notch Extension and intermodal rail facility on the Port, is projected to create 7,000 new jobs regionally and support 135,000 new jobs statewide over the next 15 years for a total 143,000 jobs. These projects will allow the Port to continue to meet the needs of shipping customers who are focusing their ship-building efforts on larger capacity vessels.

The Port project should not be delayed any further because it will permanently disadvantage our community and the U.S. in competing for global commerce.

Our businesses in Broward County count on Port Everglades to remain one of the strongest economic engines in Florida. Even though my business isn't directly tied to the Port, the \$26 billion in annual economic activity generated by the Port benefits all Broward residents.

Port Everglades is a good environmental steward, which is why they have worked closely with the Corps for 17 years to research and consider every alternative to lessen any impact on the environment. Port Everglades is committed to working with its environmental partners to ensure this project is sensitive to our natural resources. While there are a number of mitigation alternatives in the report, one proposed approach supported by NOAA is to use funds to grow and replace corals up and down the Broward coastline. And with Nova Southeastern University's Coral Reef Institute located at the mouth of Port Everglades, we have the leading international research partner in our backyard.

Broward County has an active and dynamic environmental community that understands the port's significance as an economic engine and that there are ways to grow the port while protecting and enhancing the environment.

Best regards,

Chip LaMarca

Broward County Commissioner

115 South Andrews Avenue

Fort Lauderdale, FL 33301

T: 954.357.7004 | F: 954.357.7798

E: CLaMarca@Broward.org <<mailto:CLaMarca@Broward.org>>

SIGN UP HERE <<http://www.broward.org/Commission/District4/Pages/Default.aspx>> to stay informed.

cid:image002.png@01CC7C4E.4B71BC20 <<http://www.broward.org/>>

cid:image003.jpg@01CC7C4E.4B71BC20 Description:

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Files\Content.Outlook\RCST255G\Six Pillars Logo for Broward County.jpg

cid:image004.jpg@01CC7C4E.4B71BC20

cid:image005.png@01CC7C4E.4B71BC20 <<http://www.oaktree43.freemove.co.uk/images/tree2.gif>>

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From: dslater5@aol.com
To: [Jordan-Sellers, Terri SA1](#); dslater5@aol.com
Subject: [EXTERNAL] Port Everglades - Deepening and Widening Project Currently under Review
Date: Tuesday, August 13, 2013 8:18:47 AM

Dear Terri Jordan-Sellers:

This is to voice my support for the subject project at Port Everglades. The growth of the Port over the years has provided expansion projects that include new terminals, new roadways, security expansion, and numerous renovations to existing facilities. Each of the projects provides jobs for people in South Florida and boosts businesses throughout the State that supply materials and equipment.

And given the purpose of this project – to allow for the new super-sized cargo ships – it is critical that Port Everglades be able to accommodate the ships for product coming in and going out. Otherwise, they will go to other ports and our growth will not continue to keep up with the growth in commerce.

The mitigation proposed to manage the impact to the environment appears to be responsible, and oversight by NSU's research center ensures that the latest technology will be in place to specifically protect the coral reefs.

Please push the authorization process so that this project will make it into the 2013 legislation.

Dick Slater

16236 Mariposa Circle North
Fort Lauderdale, FL 33331

From: [Bryson Ridgway](#)
To: [Jordan-Sellers, Terri SA1](#)
Subject: [EXTERNAL] FTL Port Expansion
Date: Tuesday, August 13, 2013 1:15:24 PM

Mrs. Jordan-Sellers,

I am a resident of Fort Lauderdale and I would like to express my support for the enhancements to Port Everglades. These enhancements are necessary for the Port to remain a competitive option for international trade.

The rationale of my support is economic. I believe good decisions are economic in nature, and your analysis convinced me that the benefits realized over the economic life of these improvements outweighs both the financial and environmental costs.

Your presentation convinced me that appropriate measures will be taken to ensure that our environment will be protected as much as as possible both while these improvements are taking place and after they are complete.

Thank you for your effort and I look forward to hearing of a decision to move forward.

Thank you,

Bryson Ridgway
Fort Lauderdale Resident

C: 954.701.6016
E: bryson.ridgway@gmail.com

From: [Nancy and Steve Weber](#)
To: [Jordan-Sellers, Terri SAJ](#)
Cc: [gbulfin@gfalliance.org](#)
Subject: [EXTERNAL] Comments regarding Feasibility Study for Port Everglades Project.
Date: Tuesday, August 13, 2013 1:27:05 PM
Attachments: [image001.emz](#)
[image002.png](#)
[image003.png](#)
Importance: High

Everglades House Condominiums 2000 South Ocean Drive Fort Lauderdale, Florida 33316 FFFFFFFF

August 12, 2013

Reference Jacksonville District Corps of Engineers, US Department of the Army Notice of Availability of Draft Port Everglades Harbor Feasibility Report and Environmental Impact Statement, Broward County, FL, Dated June 24 2013; Request for Comments/Questions on Draft Report and DEIS

Dear Ms. Jordan-Sanders:

On behalf of the 160 residents of Everglades House Condominium Association, the following comments and suggestions are respectfully submitted pursuant to the above referenced letter.

Several members of our condominium association had the opportunity to attend the meeting held July 23 to discuss the feasibility study for the port which we appreciated. However based on the discussion both during and after meeting, we have several concerns:

Use of explosives to blast bottom rock formations in order to deepen the Port's channels from 42' to 48', (effectively 50')

While the above referenced report and DEIS indicate that blasting will not be required to widen and deepen the Port's channels, discussions with Army Corps of Engineer personnel and their technical consultants suggest the opposite. ACE personnel informed us that the blasting option was still being considered and that they could not give any assurances that blasting would not be involved.

As residents of buildings nearly 50 years old, we are very concerned about the effects/impacts that may damage building foundations and well and piping systems because of blasting and heavy dredging, especially for those buildings in close proximity to the harbor inlets. While we note that the Report and DEIS have largely covered the effects and impacts to wildlife and vegetation, there was no section in the Report or DEIS that addresses the proposed Port operations on local residents and their property.

We strongly recommend that a thorough study be conducted on the impact that blasting may have on local residents including the stresses to building foundations and infrastructure.

Quality of life

In addition to fears about blasting and heavy dredging, we are also concerned about the effect on local

residents regarding:

- * The impact to private and public beaches from dirt, debris and other problems associated with such operations;
- * The impact to swimming and other recreational activities, such as sailing, fishing and other water sports;
- * Air quality impacts from such operations; and
- * The impact to local residents that may occur because of the destruction of coral reef formations that minimize the strength and intensity of storms and hurricanes

As property tax payers, we would again ask that the Report and DEIS address these issues and recommend ways to avoid major impacts to the quality of life of local residents.

Compensation

Lastly, we are concerned about the response from the applicable authorities in the event of damage to property. Should the port project cause damage to existing local structures and infrastructure; there must be a built-in mechanism to compensate residents for the costs of construction and/or repairs.

Many of the high rise buildings have undergone recent 40 year inspections and have made substantial investments on concrete restoration, wind protection mitigation and other costly upgrades. The surrounding condominium associations cannot bear the financial costs of more potentially expensive repairs.

The Report and DEIS should propose reasonable responses and effective relief from any damage caused by the Port enlargement operations. We strongly recommend the appropriate authorities bond their operations or create a fund to compensate affected property owners and residents.

Sincerely yours,

Nancy S. Weber

Nancy S. Weber

Board President



PORT EVERGLADES

**ROBERT I. JACKSON**

POST OFFICE BOX 639
 FORT LAUDERDALE, FLORIDA 33302
 TELEPHONE 305 • 523-9016

July 29, 2013

Terri Jordan-Sellers
 U.S. Army Corps of Engineers
 701 San Marco Boulevard
 Jacksonville, FL 32207

Re: Port Everglades navigational improvements

Ms. Jordan-Sellers:

I am writing to concur with the Draft Environmental Impact Statement (DEIS) that was developed for the proposed Port Everglades improvements. The historical information that was utilized in the DEIS, together with the Tentatively Selected Plan (TSP), allows for an environmentally responsible solution to the growth and safety concerns that were described therein.

As a lifelong resident of Broward County, I have not only observed the rapid growth of the area, including Port Everglades, but have lived with the consequences of that growth since 1950. Overall, the growth has been well managed. That the heavy industry of Port Everglades and the Airport has co-existed in close proximity to a dense and rapid population growth is remarkable. I believe the TSP will allow this to successfully continue.

Since only 1983, well over 600,000 cubic yards of material have been dredged and safely deposited offshore, in addition to material that has replenished the beaches. It is noteworthy that, because of the hard bottom from which the dredged material was taken (and the strong flood and ebb currents that run through the channel), there has been very little 'maintenance' dredging at Port Everglades subsequent to the several improvement projects that have been undertaken. Unlike most other seaports, where maintenance dredging must be done regularly, projects at Port Everglades have not resulted in additional emissions and pollution after the initial projects have been completed. Section 4.9.6 accurately shows that the newer and larger vessels that will require the deeper and wider channel will allow for more cargo to be safely transported with less pollution and emissions.

The planting of additional acres of mangrove is a successfully proven method of mitigation for the trees that will be taken during the TSP. The mangroves planted in previous mitigations have thrived. Likewise, we have every reason to believe that NOAA's plan to replace coral will be equally effective and permanent. With the oversight of NOAA in both these mitigations and as a partner, the TSP can be completed as envisioned.

The Corps has done an outstanding job in gathering and evaluating the information that serves as background for the DEIS. The TSP allows for prudent growth and both the economy and environment will benefit from its implementation. Thanking you for successfully bringing all these varied concerns together, I am

Sincerely,



CITY of HOLLYWOOD, FLORIDA

Office of the City Manager

2600 Hollywood Blvd. • P.O. Box 229045 • Hollywood, Florida 33022-9045
Phone (954) 921-3201 • Fax (954) 921-3314 • www.hollywoodfl.org

August 7, 2013

Ms. Terri Jordan-Sellers, District Engineer
U.S. Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, FL 32207

**RE: Response Comment to Public Notice
Port Everglades Harbor Feasibility Study and Draft Environmental Impact Statement**

Dear Ms. Jordan-Sellers:

This letter is provided in response to the public notice request for the above-referenced study. While the City of Hollywood is generally supportive of the recommended plan, several key issues are not adequately addressed within either the Feasibility Study or the Environmental Impact Statement (EIS). These issues are focused on changes to the regional sediment transport patterns and potentially negative impacts associated with the construction and long-term operation of the expanded navigation corridors. The extensive potential downdrift impacts to shoreline communities south of the inlet are considered to be an important element missing from the studies.

More specifically, the key issues are summarized in the following comments:

General Comments:

1. While the study does concede that Port Everglades is a complete barrier to littoral transport, both studies fail to recognize this condition as an environmental impact. Neither study specifically assesses this impact nor proposes any minimization or mitigation. The historic and chronic erosion of the beaches to the south (beaches along John U. Lloyd State Park, Hollywood, Dania Beach and Hallandale Beach) is directly attributable to impacts from the inlet. The studies fail to acknowledge this fact, do not adequately quantify the extent and magnitude of downdrift potential impacts both in terms of existing conditions and proposed alternatives. The studies also fail to provide an appropriate mitigative response. This point is of particular concern regarding the EIS as a failure to identify a major environmental impact which affects both designated critical habitat and listed species, and is contrary to EIS development guidelines.

Our Mission: We are dedicated to providing municipal services for our diverse community in an atmosphere of cooperation, courtesy and respect;
We do this by ensuring all who live, work and play in the City of Hollywood enjoy a high quality of life.

"An Equal Opportunity and Service Provider Agency"

Ms. Terri Jordan-Sellers, District Engineer
 U.S. Army Corps of Engineers
 August 7, 2013
 Page 2

2. Both studies fail to acknowledge the historic lack of effective sand bypassing or propose future alternatives to mitigate impacts to the downdrift shoreline. Both studies reference bypassing planning efforts by Broward County which have not been implemented and are beyond the jurisdiction or direction of the U.S. Army Corps of Engineers.

3. The study does not specifically address the potential for beneficial use of beach compatible dredge spoil to mitigate downdrift impacts. In total the preferred alternative prescribes the excavation of more than 5 million cubic yards of material, none of which was seriously considered for beneficial use to mitigate the well-documented impact of the inlet on the downdrift beaches. The supporting geotechnical investigations are lacking in sufficient design detail to assess the potential for beneficial use of beach compatible portions of the proposed dredge spoil. Further, both studies assume that all maintenance of dredged material will not be considered for beneficial use but will be deposited offshore within the Ocean Dredged Material Disposal Site (ODMDS) facility.

4. The social and economic impacts of the inlet deepening as they relate to the adjacent beaches are not addressed in either the EIS or the Feasibility Study. The beaches of South Florida are an important economic engine and as the inlet is acknowledged to be a barrier to sediment transport in the region, changes to the inlet system will have potential adverse environmental and economic impacts to downdrift communities. Beaches are buffers from storm protection and serve as the basis of tourism revenues for beachfront communities south of the inlet. The costs for maintaining a healthy beach system and the burdens of those costs on the downdrift communities must be evaluated as part of the process. Alternatives to offshore disposal, such as beneficial use of dredged material as beach fill, are acknowledged but are inappropriately ruled out because of cost reasons. These should be reconsidered in light of socio-economic impacts of maintaining a healthy beach system.

Specific Comments:

- a) Feasibility Study (Executive Summary). Environmental Impacts and Mitigation (pg ii). Document states, *"Every effort was made to first avoid and then to minimize environmental impacts through an interagency planning process."* This statement is not correct as the study does not address impacts to adjacent beaches (which is an environmental impact not addressed within the study).
- b) Feasibility Study (Executive Summary). Areas of Controversy and Unresolved Issues (pg iii). The document fails to identify the impacts of the inlet to adjacent beaches as an area of controversy. The document fails to identify the lack of sediment bypassing as an unresolved issue.
- c) Feasibility Study (Executive Summary). Table A. Project costing fails to consider potential cost implications of beneficial use of beach compatible material.

Ms. Terri Jordan-Sellers, District Engineer
 U.S. Army Corps of Engineers
 August 7, 2013
 Page 3

- d) Main Feasibility Report. Section 2.2.10. Littoral Processes. Document states that the *"the proposed sand trap plan has been deactivated"*. Document should state that at present there is no adopted plan for sand bypassing and there is no active plan for sand bypassing implementation.
- e) Main Feasibility Report. Section 2.3 Environmental Resources. The beaches downdrift of the inlet are an environmental resource and designated critical habitat for listed species.
- f) Main Feasibility Report. Section 4.2. Problems and Opportunities. This section fails to identify the complete interruption of littoral transport as a problem and also fails to identify beneficial use of spoil material as an opportunity.
- g) Main Feasibility Report. Disposal Options. Page 81. Document states that *"the high cost of material processing the excavated material resulted in significantly higher costs relative to other disposal methods."* This statement is unsupported and not consistent with standard practice. It is additionally noted that the USACE recently screened similar material during construction of the Lake Worth Inlet Sand trap earlier this year.
- h) Main Feasibility Report. Section 7.1. Operations and Maintenance Considerations. Document states that maintenance costs will increase *"based on the increase in material needing to be removed from the channel."* This implies that the selected plan will increase deposition within the channel. This statement is contrary to the assertion that the selected plan will have no significant impact on sediment transport.
- i) Appendix A. Engineering Appendix. par 30. Document states that *"While there are regions of Port Everglades that may be susceptible to increase erosion and flooding, these regions are not within the scope of the present study."* The EIS must consider these impacts.
- j) Appendix A. Engineering Appendix. 2.5. Shoaling and Maintenance. par 66. The section references the sand bypassing plan that has been de-activated by the County. The statement that *"the result is expected to be the alleviation of increased sand shoaling of the navigation channel"* is not accurate as there is currently no active plan to trap or bypass sand.
- k) Appendix A. Engineering Appendix. 2.5. Shoaling and Maintenance. par 67. The document correctly assumes that study should assume shoaling rates determined in the absence of a sand bypassing system. This assumption however, implies an unmitigated environmental impact to adjacent beaches.
- l) Appendix A. Engineering Appendix. 2.6. Sediment Budget. par 69. Sediment Budget States *"the combination of the inlet and jetty system at Port Everglades acts as a complete sediment barrier which interrupts the net southerly littoral drift, creating a sediment surplus to the north of the inlet and a deficit at the beaches to the south."* This environmental impact is not referenced within the EIS.

Ms. Terri Jordan-Sellers, District Engineer
 U.S. Army Corps of Engineers
 August 7, 2013
 Page 4

- m) Appendix A. Engineering Appendix. 3.6.3.3. Conclusions. par 173. Document states that *"The finding of Olsen indicate that widening and deepening associated with the expansion of Port Everglades will have negligible impact on sediment transport patterns along the shoreline north and south of the inlet."* This statement is incorrect. The Olsen study did not reach this conclusion and did not specifically consider any of the Port Everglades expansion alternatives.
- n) Appendix A. Engineering Appendix. 3.7.2. Material Types. par 184. States: *"By volume up to 90% of the material could be used as beach material with adequate processing."* This statement is in conflict with the EIS(Section 2.9.4 Disposal of Removed Materials which states *"None of the dredged material is expected to comprise beach-quality sand (based on geotechnical analysis) that could be used for renourishment of downdrift beaches."* At present the Engineering Appendix states that a significant portion of the dredge spoil can be utilized for beach nourishment while the EIS states that none of the material can be used.
- o) EIS Main Document. Environmental Consequences of the Tentatively Selected Plan.pg iv. Document states that avoidance and minimization of impacts was a major consideration during plan formulation. This is incorrect. The study did not include consideration of impacts to downdrift beaches.
- p) EIS Main Document. 2.9.4 Disposal of Removed Materials. Section fails to consider potential beneficial use of beach compatible sand.
- q) EIS Main Document. 3.7.2.3 Sea Turtles. Section fails to state impact of inlet (erosion) of downdrift turtle nesting habitat.
- r) EIS Main Document. 4.5.5.2 Alternative 2 (TSP). Section states *"USACE has reviewed all of the potential effects of the project on turtles protected under the ESA"* This study did not consider impacts to adjacent turtle nesting habitat or the potential for beneficial use of compatible dredge spoil to minimize impacts.
- s) EIS Main Document. 4.29.2 Past, Present and Future Actions. Section fails to identify lack of sand bypassing within past, present and future actions.
- t) EIS Main Document. 4.29.2 Past, Present and Future Actions. Section fails to identify lack of beneficial use of compatible dredge spoil to mitigate inlet impacts within past, present and future actions.
- u) EIS Main Document. 4.29.5. Resources Not Likely to be Cumulatively Affected. Geology and Sediments. The statement that *"there would be no cumulative adverse effect on the geology or coastal sediment budget/transfer for the area"* is incorrect. The current plan prescribes the disposal of all material including future maintenance material within the ODMDS. This will permanently remove sand from the coastal system and is a cumulative effect.
- v) EIS Main Document. 4.29.5. Resources Not Likely to be Cumulatively Affected. Adjacent Properties. Document states that *"it is not likely that any additional impacts to adjacent properties will occur within the foreseeable future projects."* This statement is incorrect. Placement of all material within the ODMDS with no bypassing of material will permanently remove sand from the coastal system and is a cumulative effect.

Ms. Terri Jordan-Sellers, District Engineer
U.S. Army Corps of Engineers
August 7, 2013
Page 5

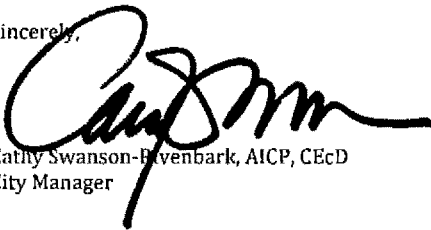
- w) EIS Appendix C. Florida Coastal Zone Consistency. 1. Ch 161. Document states, "*information will be submitted to the state for a permit in compliance with this chapter.*" As the inlet currently does not have a history or current plan for sand bypassing, and this study has not adequately assessed the potential for beneficial use of dredge spoil, this plan is contrary to specific provisions of Florida Statute 161, the adopted Inlet Management Plan, and the Strategic Beach Management Plan (SBMP).

Thank you for the opportunity to provide comment on this study. Please include the City of Hollywood in any further correspondence on this study. Questions regarding these comments can be directed to the following:

Mrs. Susan Goldberg AIA, NCARB, LEED GA, Coastal Project Manager
City of Hollywood
Department of Public Works, Engineering, and Architectural Services
2600 Hollywood Blvd, Room 308
Hollywood, FL 33020
sgoldberg@hollywoodfl.org
Phone(954) 921-3900

Mr. Michael Jenkins, PhD, PE
Applied Technology & Management, Inc.
mjenkins@appliedtm.com
Phone (561) 659-0041

Sincerely,



Cathy Swanson-Ravenbark, AICP, CEcD
City Manager

c: Sylvia Glazer, Public Works Director
Jon Vogt, Public Works Deputy Director/City Engineer
Lorie Mertens-Black, Parking & Intergovernmental
Jorge Camejo, CRA Executive Director



AVIATION DEPARTMENT - Fort Lauderdale/Hollywood International Airport
 2200 SW 45th Street, Suite 101 • Dania Beach, Florida 33312 • 954-359-6100

August 8, 2013

Terri Jordan-Sellers
 USACOE Project Director
Terri.Jordan-Sellers@usace.army.mil

Dear USACOE Project Director Terri Jordan-Sellers:

We wholeheartedly support Port Everglades' expansion projects. Port Everglades and the Fort Lauderdale-Hollywood International Airport rely on each other for their continued success. Because of the synergy between these two Broward County economic engines, a prosperous and growing Port Everglades means continued growth and financial prosperity for the Airport.

The Port Everglades deepening project, along with the separate Turning Notch Extension, and Intermodal Rail Facility projects at the Port, are projected to create an estimated 143,000 jobs statewide over the next 15 years. These projects will allow the Port to continue to meet the needs of shipping customers who are focusing their ship-building efforts on larger capacity vessels.

We support these projects, as the continued growth and prosperity of Broward County depends on the success of these economic generators.

Sincerely,

A handwritten signature in black ink, appearing to read "Kent G. George", with a long, sweeping horizontal line extending to the right.

Kent G. George, A.A.E.
 Director of Aviation

G:\EXECUTIVE\Aviation Director\Port Everglades\PEV Expansion Projects 8.13.doc

Robert Landers
1007 N Federal Hwy PMB 10
Fort Lauderdale, FL 33304

US Army Corps of Engineers' Port Everglades Feasibility Report Comments

Dear Terri Jordan-Sellers,

As a native of Fort Lauderdale for a little over 25 years I support Port Everglades Harbor. I have read the draft and additional documentation that demonstrates the economic impact it will have on Broward County, not just Fort Lauderdale. Also, the possible impact on Miami Dade County and West Palm Beach County if this opportunity can reach its full potential. The Port will act as a key gateway to the international stage by using the transportation infrastructure (Port Everglades, Fort Lauderdale/ Hollywood International Airport, I-595/I-95, Florida's Turnpike, East Coast Railway links) as a major economic engine for the County, regional and state economies. IMPLAN input-output model confirms the economic impact analysis.

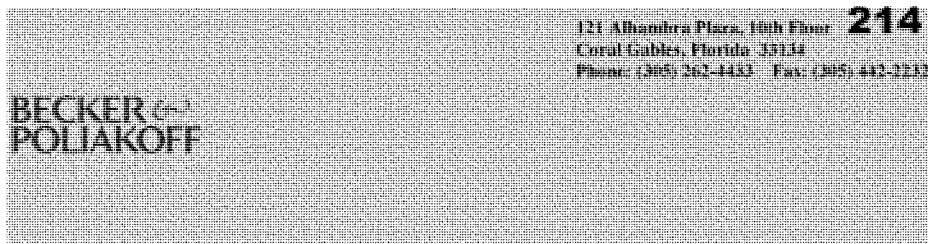
The proposed mitigation with Broward County Parks Department's in the county's restoration, enhancement, and preservation of like habitats at West Lake Park shows the ecological importance. West Lake is the largest remaining mangrove ecosystem along the urban coastal zone from Miami Beach to West Palm Beach. Port Everglades know our eco-system is essential and have made important contributions to environmental awareness, protection and conservation (Manatee Protection, Oil Spill Prevention and Recovery, Artificial Reef Program, Wildlife Care Center, Environmental Education Facility, Regulatory Compliance and Public Awareness). Port Everglades Reef Group (PERG) will assist in relocating of individual coral colonies, which may have taken hundreds of years to form, to prevent damage to fish and wildlife resources that incorporate the mitigation principles defined within the Council on Environmental Quality's (CEQ) NEPA guidelines. The hard-bottom coral communities throughout the Florida Keys National Marine Sanctuary are similar in composition and make-up to the offshore hard-bottom resources found within the project area in Broward County. Artificial reef structures are able to provide habitat for diverse benthic and fish assemblages.

Dredging can create disturbance to aquatic ecosystems, often with adverse impacts. The U.S. Clean Water Act requires that any discharge of dredged or fill materials into waters of the United States, including wetlands, is forbidden unless authorized by a permit issued by the Army Corps of Engineers. As a result of the potential impacts to the environment, dredging is restricted to licensed areas only with vessel activity monitored closely using automatic GPS systems. The mission of the Biological Resource Division of the Broward County Environmental Protection Department (EPD) is to protect, restore, and enhance the biological productivity, abundance, and diversity of marine, estuarine, freshwater, and terrestrial resources. The removal of used automotive tires that had been deployed in the early 1970s for use as artificial reefs will help with reef preservation and restoration. Upland storage/disposal is viable option at two Confined Disposal Facilities (CDF). Due to development within the Port and further evaluation of the Airport's runway expansion plans, both the Port and the Airport have withdrawn the use of their upland properties as disposal sites. The Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) assigns basic responsibility to EPA and USACE for ensuring that ocean dredged material disposal activities will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment (MPRSA Sections 102 and 103).

These are my written comments for the US Army Corps of Engineers' Port Everglades Feasibility Report.

Sincerely,

Robert Landers



ADMINISTRATIVE OFFICE
3111 STIRLING ROAD
FORT LAUDERDALE, FL 33312
800.432.7712 TOLL FREE

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BP@BECKER-POLIAKOFF.COM

August 7, 2013

Reply To:
Jennifer R. Diaz, Esq.
Direct Dial: (305) 260-1053
JDiaz@becker-poliakoff.com

**VIA EMAIL: TERRIJORDAN-SELLERS@USACE.ARMY.MIL;
AND US MAIL**

Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, FL 32207

Re: Comments on USACOE Feasibility Study and Environmental Impact
Statement for Port Everglades

Dear Terri:

This letter serves to provide our comments on the evaluation of alternative plans considered for navigation improvements at Port Everglades by the U.S. Army Corps of Engineers (USACOE) as indicated on the Feasibility Study and Environmental Impact Statement for Port Everglades.

Port Everglades is the gateway for International Trade and Cruise Vacations. It is one of the busiest cruise ports in the world and one of the Nation's leading container ports. In addition, Port Everglades is the main seaport for receiving petroleum products, including gasoline, jet fuel and other alternative fuels.

The Port currently supports over 11,700 direct jobs locally and a total of 201,000 jobs within the State of Florida, not to mention those associated jobs throughout the country. The total regional economic activity attributable to Port Everglades is over \$15.3 billion dollars.

In order to remain a leader in International Trade, Port Everglades must have deeper water to accommodate the newer, larger generation of cargo ships that are expected to pass through the expanded Panama Canal in 2015.

It is an important advance in the Draft Environmental Impact Statement (DEIS) that the National Oceanic and Atmospheric Administration (NOAA), the federal agency in charge of the oceans and its health, is a formal partner and has proposed a reasonable, cost-effective, and scientifically credible mitigation alternative.

ACTIVE: 4928703_1

FT. LAUDERDALE
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FT. WALTON BEACH
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MOBILISTOWN
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WASHINGTON, DC
WEST PALM BEACH

Terri Jordan-Sellers
US Army Corps of Engineers
August 7, 2013
Page 2

For speedy resolution of environmental issues, we the Customs Trade Practice at Becker and Poliakoff, P.A., recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation.

Very truly yours,



Jennifer R. Diaz

JRD1/hdt

cc: Bernie Friedmann, Esq.
Neil M. Schiller, Esq.



Founded 1910

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BRENDAN ALOYSIUS BARRY
(954) 847-3884 Direct Telephone

E-MAIL ADDRESS:
BBarry@shutts.com

August 9, 2013

VIA E-MAIL - Terri.jordan-sellers@usace.army.mil

Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, FL 32207

Re: USACOE Feasibility Study and Environmental Impact Statement for Port Everglades

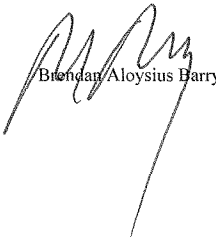
Dear Ms. Jordan-Sellers:

After review of the above-referenced Study, in order for Port Everglades to remain a leader in International Trade, it **MUST** have deeper water to accommodate the newer, larger generation of Panama Canal ships. The Port supports 10's of 1,000's of jobs. The Port is truly an economic engine with a total economic impact over \$15 billion dollars. Port Everglades is also the busiest cruise port in the world.

NOAA, the federal agency in charge of the oceans and its health, has proposed a reasonable, cost-effective, and scientifically credible mitigation alternative. I have also personally discussed this plan with the oceanographic experts at Nova University. I strongly recommend supporting the NOAA plan to grow and replace corals up and down Broward County's Coastline and NOAA should take a leadership role in mitigation design and implementation.

Sincerely,

Shutts & Bowen LLP


Brendan Aloysius Barry

BAB/dlo

12 August 2013

Comments:

Draft Environmental Impact Statement Navigation Improvements Part Everglades Harbor Broward County, Florida and associated appendices– dated 14 June 2013

To:

Terri Jordan-Sellers and Jason Spinning
US Army Corps of Engineers
701 San Marco Blvd
Jacksonville, FL 32207
Jason.J.Spinning@usace.army.mil
Terri.Jordan-Sellers@usace.army.mil

From:

David S Gilliam, PhD
Nova Southeastern University Oceanographic Center
8000 N. Ocean Dr.
Dania Beach FL 33004
gilliam@nova.edu

There are many issues related to the proposed project and the DEIS document(s) which should be addressed, but the size and complexity of the DEIS document and associated appendices did not permit a more detailed evaluation and preparation of comprehensive comments. In light of the USACE stating that they welcome and want comments on the DEIS, a longer comment period would have been appropriate and justified. Allowing only a 45 day commenting period on a document which took over 10 years to produce does not seem appropriate if detailed and insightful comments were really sought.

Two colleagues from Nova Southeastern University Oceanographic Center, Dr Richard Dodge and Dr. Brian Walker, have taken considerable time evaluating portions of the DEIS and the appendices and have submitted comments. Dr. Richard Dodge focused his comments and time on DEIS Appendix E and E2 especially the USACE's HEA scenarios and input parameters. Dr. Brian Walker spent considerable time evaluating the coral reef habitat mapping and impact area determinations. I completely support the comments made and submitted by Dr Richard Dodge and Dr. Brian Walker. Their concerns need to be addressed.

I also support the NOAA developed alternative mitigation plan for coral reef habitat impacts. This plan needs to be incorporated as part of the total project mitigation, and NOAA needs to be the lead federal agency implementing the mitigation efforts.

Below is a brief list of my major concerns with the DEIS document and the proposed project as presented in the DEIS and appendices.

1. There are many inconsistencies and inaccuracies throughout the DEIS and appendices which made commenting on and understanding this complex project challenging. One simple example seen in several locations in the DEIS concerns the presence of *Acropora cervicornis* within or near the project area. The DEIS cites the Gilliam and Walker (2011) Navy protected species surveys numerous times (even this citation is not consistently presented in the documents) but still makes the following statement “..as well as other data from other agencies and academia that were provided to USACE, it is presumed that the colonies located 2,780 feet (848m) to the south (DC&A 2010b) [is that DCA data?] and 1,400 feet (427m) north (NSUOC 2008) of the entrance channel are the nearest colonies to the project area”. This information is not correct and is actually contradicted in the very next paragraph where the Gilliam and Walker (2011) survey is cited. Related to this is the use of the Gilliam and Walker (2011) map as DEIS Figure 61. Figure 61 is not from a USACE sponsored survey! Simply put – this DEIS is dated June 2013. Data collected and presented by NSUOC more than 12 months before the release of this DEIS should be presented clearly. The nearest *A. cervicornis* colonies to the project area are approximately 150m. This is just one example of inconsistencies and inaccuracies throughout the DEIS and appendices.

2. The DEIS is dated June 2013 but many of the references cited are older version of monitoring reports. A document dated 2013 should cite the most recent annual monitoring reports. Many of the citations in the reference section are incorrect.

3. The estimation of the direct coral reef habitat impacts was challenging to understand and underestimates the area of impact. If the actual dredge depth is to be -57ft then reef resources below this depth in the middle and outer reefs need to be included in the direct impact area. To include reef habitat below the targeted -57 ft in the direct impact area seems like such a reasonable approach it is extremely difficult to understand how reasonable professionals would do otherwise.

4. The reef resource impact minimization effort (stony coral colony relocation) is not consistently presented in the DEIS or in the appendices. Why in some instances is there an “up to” number of colonies to be relocated listed (12,235 colonies as stated in DEIS section 5.2.5)? Why is there a limit to the number of colonies proposed to be relocated? How was this maximum number of colonies to be relocated determined? All colonies 10 cm or greater in diameter need to be relocated, and the addition of colonies greater than 5cm should be evaluated especially for rarer species or those potentially listed under ESA. If the ‘up to’ number of colonies is included because of cost this needs to be clearly stated because there is no ecological explanation to have a ‘up to’ limit.

5. Indirect impacts need to be addressed in more detail and acknowledged up front as going to occur. I find it extremely difficult to understand how any reasonable professional would believe that there will be no indirect impacts associated with this project. In several locations in the DEIS document (see DEIS section 5.2.2) and in the appendices it states that additional mitigation will be provided for ‘detectable’ indirect impacts. This approach is only meaningful and appropriate if a monitoring plan with the power

to detect change in a community associated with indirect impacts (such as from turbidity and/or sedimentation) and is measuring the correct parameters is implemented. This DEIS does not provide the information necessary to evaluate whether an appropriate plan is proposed. A more appropriate approach would be to acknowledge that indirect impacts will occur and include some level of indirect impacts in the mitigation determination. Additional mitigation would then be provided if indirect impacts greater than anticipated were 'detected'. If not including mitigation for indirect impacts is included because of cost this needs to be clearly stated because there is no ecological explanation to not acknowledge that there will be indirect impacts.

6. The preferred approach of only deploying artificial reef boulders as mitigation for coral reef habitat impacts is not appropriate. Regardless of what is stated on page 38 of Appendix E "An additional advantage of limestone rock boulders is aesthetic. Once colonized by the reef community, the reef is almost indistinguishable from natural reef..." deployed artificial reef boulders are not natural reefs and will never be "indistinguishable from natural reef". This is a terrible statement and should be removed. In several locations in the DEIS (for example: DEIS section 5.1 and Appendix E section 3) it is stated that "The baseline for quantifying lost ecological services is the full complement of services that would have been provided absent project implementation." There is no appropriate scientific support (or any other type of adequate support) that only deploying artificial reef boulders will compensate for the "full complement of services" lost. This strongly argues for the inclusion of the NOAA alternative in the mitigation plan.

7. The preferred HEA scenario (scenario 2) includes inappropriate input parameters and the actual HEA results cannot be duplicated. There is no scientific support for artificial boulder reefs providing 100% of loss services especially in a recovery period of only 30 years. As stated above artificial boulder reefs will never compensate for the "full complement of services" lost.

8. Section 6 in Appendix E attempts to address locations for the deployment of the artificial boulder reefs. Section 6.5 states that several locations maybe needed and then refers to Figure 8. Figure 8 appears to indicate that sand Borrow Areas maybe artificial boulder reef deployment sites. This is not clear. Utilizing old Borrow Areas is not an appropriate location to replace lost Middle reef and Outer reef habitats. A 5-year mitigation monitoring plan is indicated in sections 6.5 and 6.6. Five years is not sufficient time to determine the success of artificial boulder reefs as mitigation. The return of the "full complement of services" lost will require decades of monitoring to establish success. How were the mitigation success criteria developed (section 6.6)? Why are 75% 'species similarity' and 80% similarity in percent cover after 5 years used as indication of success?

Page 1 of the DEIS states "USACE also strives to protect the environment to the maximum extent practicable". The overall project plan presented in the DEIS does not compensate for the effects of this action on reef habitat resources as stated in the DEIS and appendices. The impact areas have not been appropriately estimated, the minimization effort is not adequate, and the proposed amount and type of mitigation does not compensate for the services lost.



CITY of HOLLYWOOD, FLORIDA

Office of the Mayor and Commissioners

2600 Hollywood Blvd. • P.O. Box 229045 • Hollywood, Florida 33022-9045
Phone (954) 921-3321 • Fax (954) 921-3386 • pbober@hollywoodfl.org • www.hollywoodfl.org

Peter Bober
Mayor

August 9, 2013

Ms. Terri Jordan-Sellers
U.S. Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, FL 32207

Dear Ms. Jordan-Sellers:

I am writing in support of the project to deepen and widen the navigational channels at Port Everglades to enable the safe passage of post-Panamax cargo ships and to safely allow for the larger cargo ships that we are already beginning to see at the port. The Army Corps of Engineers has spent nearly two decades studying the economic and environmental feasibility of this project and has developed sound options for allowing the port to continue to grow and support Florida's economy while minimizing environmental impacts.

Port Everglades is already a major economic engine in our community generating \$26 billion annually in economic impact. When the economy faltered in 2008, the port continued to be a source of economic stability providing thousands of jobs that kept families from losing their homes and kept thousands of businesses from going under. With 80% of the Port located within the City of Hollywood, it is critical that Port Everglades continue to be competitive in attracting and supporting global commerce. Along with projects to extend the turning notch and build an intermodal rail facility, the widening of the navigational channel will bring an estimated *7,000 new jobs* to our region and support *135,000 new jobs* statewide over the next 15 years—that number is roughly equivalent to Hollywood's population.

With the economic challenges many cities have faced over the past few years, it has become clearer than ever before that we must constantly seek to build a robust and diverse economy. With Florida's unique location as a gateway to Latin America and with Hollywood as a coastal port city, global commerce and international trade are a key part of that equation. Our city has an economic development strategy that recognizes and seeks to build on this important connection. It is very clear the international shipping industry has changed and larger ships are becoming the norm. For our port to remain competitive, we must be able to accommodate these vessels.

Our Mission: We are dedicated to providing municipal services for our diverse community in an atmosphere of cooperation, courtesy and respect. We do this by ensuring all who live, work and play in the City of Hollywood enjoy a high quality of life.

"An Equal Opportunity and Service Provider Agency"

Terri Jordan-Sellers

Page 2


August 9, 2013

Balancing environmental protection with the need to grow and support industry can be done and our area is uniquely positioned to lead the way in these efforts. Through the groundbreaking work of NOAA scientists alongside the experts at the Center for Excellence in Coral Reef Research at Nova Southeastern University located at John U. Lloyd State Park in

Hollywood adjacent to the port, there are viable options for replacing any lost coral with new coral grown in nurseries that have the potential to strengthen the overall reef structure. The Corps' report has helped identify these options and the port has demonstrated its commitment to good environmental stewardship.

The widening and deepening of Port Everglades' navigational channels should not be delayed any further. Hollywood and the entire state of Florida need Congress to authorize funding to continue this project. Due diligence has been done and real solutions to protect our natural resources have been identified. I encourage the Corps to press forward with issuing its final report and I urge Congress to allocate the needed funding to keep this project moving forward.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Bober". The signature is fluid and cursive, with the first name "Peter" and last name "Bober" clearly distinguishable.

Peter Bober
Mayor

c: Congresswoman Debbie Wasserman-Schultz
Congresswoman Frederica Wilson
U.S. Senator Bill Nelson
U.S. Senator Marco Rubio



August 13, 2013

US Army Corps of Engineers
701 San Marco Blvd
Jacksonville, FL 32207

To the US Army Corps of Engineers:

Please find my enclosed review of the USACE Draft Environmental Impact Statement (EIS) for Navigational Improvements at Port Everglades Harbor Broward County, FL. I am a research scientist at Nova Southeastern University with a field of specialty in coral reef spatial ecology. I have conducted many research projects sponsored by NOAA, FFWCC, and FL DEP, and have authored numerous publications including technical reports, book chapters, and scientific peer-reviewed publications, including the first ever published benthic habitat maps of the southeast Florida shallow-water reefs which were used in your study (Walker et al. 2008a).

I have been following the progress of this project since the early 2000's and have volunteered much time to making sure the project's negative environmental outcomes to the coral reefs are appropriately accounted for in the mitigation. I have worked closely with many of the Federal, State, and local agencies in meetings and provided many analyses to this end. I find that many of the collective comments, professional opinions, and recommendations that were made in the past have been overlooked in this DEIS. Some of those recommendations were even presented at scientific conferences (Walker et al. 2008b).

Due to the size and extremely short amount of time given to review this document, my review focused on just a few specific topics within the DEIS. My review concentrated specifically on the coral reef habitat mapping aspects of the DEIS including the appropriateness of the use for this effort of a regional map I originally produced, the lack of GIS data integrity, the inability to replicate the impact areas presented in the EIS, and the lack of an accurate cumulative effects on the reefs previously affected by port dredging activities.

I support all of my fellow Nova Southeastern University colleagues' comments, including those of Dr. Richard Dodge and Dr. David Gilliam. I also support the comments of NOAA National Marine Fisheries Service, Joanna Walczak of Florida Department of Environmental Protection CAMA and those of NOAA AOML's Jack Stamates on the effect of increased water volume on the reefs. The outcomes of my comments reported here have been referenced by many other colleagues and agencies' comments to the DEIS.

Here is a list of my recommendations on making the DEIS a more accurate document and helping to ensure the project's negative environmental outcomes to the coral reefs are appropriately compensated for by the mitigation:



- Comment 1 1. Use the impact areas calculated here in the HEA to calculate mitigation (see enclosed).
- Comment 2 2. Consider all habitats in the channel as being directly impacted by the dredging.
- Comment 3 3. Do not use different discount rates in the economic model for feasibility and the HEA model for mitigation.
- Comment 4 4. Do not exclusively use boulders for mitigation. Include a variety of mitigation actions.
- Comment 5 5. Update the cumulative impacts section to reflect a more accurate depiction of past events (see enclosed).
- Comment 6 6. Dredge without using anchors.
- Comment 7 7. Calculate more realistic indirect impacts. 150m buffer around the port is not adequate to account for indirect impacts. Turbidity plumes have been seen trailing miles away on recent channel dredging activity at Port Everglades (see below). An aerial photograph at low tide on any given day will give a more accurate estimation of the amount of area affected by the turbidity plumes. All which be much greater than the 150 m buffer around the project area.



Photo by Brian Walker of the south side of Port Everglades inlet channel during hopper dredging activities on March 27, 2013. Image shows extensive turbidity well beyond the 150 m buffer.

- Comment 8 8. Account for the increased volume of polluted water carried onto the reef by a larger channel.
- Comment 9 9. Recalculate the HEA based on Dr. Richard Dodge's HEA assessment, including using a 3% discount rate and more appropriate recovery rates and mitigation cost estimations.
- Comment 10 10. Consider the NOAA NMFS mitigation alternative as the primary mitigation plan.
- Comment 11 11. Do not attempt to conduct the project, then determine what impacts occurred, and mitigate after the fact.

Enclosure

Regards,

Brian K. Walker
Research Scientist
Nova Southeastern University

Oceanographic Center
8000 North Ocean Drive • Dania Beach, Florida 33004-3078
(954) 262-3600 • Fax: (954) 262-4098

Dr. Brian K. Walker's comments on the USACE Draft Environmental Impact Statement for Navigational Improvements at Port Everglades Harbor Broward County, FL: coral reef habitat mapping, impact area assessment, and cumulative impacts.

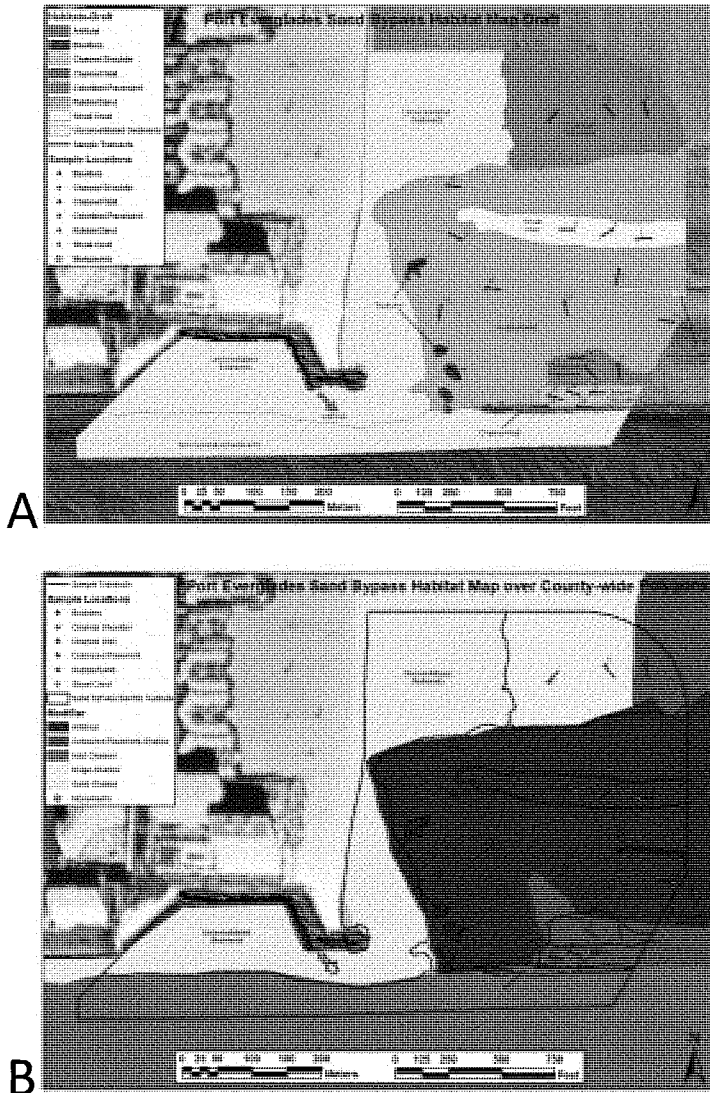
August 13, 2013

Hardbottom and Reef Community Mapping

The DEIS does not well explain what was done to determine the areas of impacts to the reef communities. It mentions that Dial Cordy mapped the area using video cameras and benthic assessments' however, no mapping protocols were provided to determine how the mapping was performed. Almost all of the figures showing the reefs (Figs. 6, 51, 73, and 74) depict polygons created by Nova Southeastern University for FWC and FL DEP without citation. Only Figure 59 in the DEIS cites the Dial Cordy habitat maps. No discussion is provided on how these polygons were drawn or the criteria and purpose behind them.

All mapping efforts are contingent upon their own objectives and scope. The results directly depend on the methodology, scale, and classification scheme developed to meet the mapping objectives. The maps used by the USACE were created by NSU for a county-wide mapping of benthic habitats (Walker et al., 2008; Walker, 2012). The scale of mapping reefs county-wide placed limits on the Broward mapping effort to draw polygons at a 1:3000 scale with a minimum mapping unit of 1 acre. The limitation on the polygon scale means that edges won't be precise at scales finer than 1:3000. This effects the amount of area calculated from the Corps polygons. Because it was not outside of original mapping scope to trace small feature at fine scale, the minimum mapping unit (polygon size) were set to 1 acre. This means that features less than 1 acre were not included in the map. This also effects the amount of habitat area calculated by the polygons. Finally the classification was designed around what habitats could be depicted at the scale and minimum mapping unit using the remote sensing datasets at hand. The primary remote sensing dataset was lidar from 2001 collected by Broward County. This was supplemented by aerial photography where possible, mostly in the nearshore. Therefore broader classifications were used to depict the environment than what might be used with different technology or on a project of smaller scale.

In the mid-2000s, members of the Port Everglades Research Group (FWC and NSU) recommended to the Corps the offshore reefs within the Port Everglades project footprint should be mapped at a finer scale. The USACE did not take this advice into consideration and it was not reported in Appendix E3, the Reef Group Recommendations Report. Although the NSU county-wide maps met their original project objectives well and were measured to be accurate at a large scale, a finer-scale map would have produced results more appropriate to determine impacts around Port Everglades. For example, Broward County is planning a sand bypass project on the north side of Port Everglades. Although the NSU maps were available, the county decided to perform a finer scale mapping for the project area. This resulted in a much finer-scale mapping effort with a scale and classification fitted to the sand bypass project objectives. Figure 1 shows a comparison of these results. The sand bypass polygons are the black outlines on top of the county-wide colored map. The edges of features changed significantly as well as habitat classifications and polygon sizes. These differences were due to a change in the scope of the mapping effort and the finer-scale mapping criteria used. A similar result would be expected from a finer-scale mapping around Port Everglades.



Benthic Habitat Impacts

The county-wide habitat maps are not a precise representation of the Port everglades project footprint and do not depict the habitats at the most appropriate scale for impact assessment. I use them here for comparison to the USACE methodology and results to determine impact areas for mitigation.

The DEIS does not well explain how benthic habitat impact areas were determined. The county-wide polygons appear to have been clipped to depth contours in the lidar data and the area shallower than a limit was summed for direct impacts. Proposed alternative 2E (TSP) has several areas listed for impacts based on the selected depth. Although this was done for 5 depths, we focused here on the -59 as it also pertains to the Port Everglades EIS Appendix 2E – Mitigation. Much of the following discussion may likely apply to the impacts at other depths as well. It is unfortunate that the DEIS is not clear about -57' or -59' as the chosen project depth.

Appendix 2E did not explain the methodology behind calculating the impacts areas for mitigation well. One confusing aspect was on page 12 it states "Scenario 2, i.e., in the event of no cable and anchor impacts, would result in 16.64 acres of impact to the middle and outer reef combined, of the project is dredged to the recommended alternative – 57 feet total dredge depth (50+7+1+1 = authorized depth (ft) + required underkeel clearance + required overdredge (ft) + allowable overdredge (ft))." This is confusing because, aside from grammatical errors, it states -57 ft depth yet parenthetically adds up to -59. I assume -59 to be the appropriate contour to allow for comparable results.

Before evaluating the habitat areas for direct impact, mapping data were inspected to see if all habitats were captured in the county-wide NSU maps. In 2008, Broward County conducted a repeat lidar survey with higher resolution and better processing techniques. These data depicted the seafloor better than the 2001 data. A visual inspection of these data showed that several apparent hardbottom features were not included in the original 2004 NSU maps. It was also apparent that some of the habitat edges needed adjusting due to a difference in map scale. New polygons were created to delineate the new features evident in the lidar data. I performed the interpretation. I have over 10 years' experience translating bathymetric data into benthic habitats throughout southeast Florida with greater than 90% accuracy depicting hardbottom habitats. The areas are labeled "Previously Unmapped Hardbottom/Boulder" in the figures. Next the -59 ft contour was created from the 2008 lidar digital elevation model to use for the polygon edge. Separate non-overlapping hardbottom habitat polygons were depicted above and below this line and areas were calculated for each. Figure 3 depicts the final map of direct impacts within the channel including the previously unmapped areas.

Next, the potential direct impacts from the cutterhead dredge anchoring operation was determined by clipping the anchor impact areas to the updated map polygons and calculating the acreage of each habitat (Figure 4). This was not limited to certain depths like the previous analysis.

Then, the indirect impacts were calculated for a scenario with anchoring (Figure 5) and without anchoring (Figure 6) in a similar manner as above for direct comparison to EIS area calculations. Finally the indirect impacts were calculated for a scenario with anchoring (Figure 7) and without anchoring (Figure 8) for the 150m buffer area (excluding channel habitats deeper than -59).

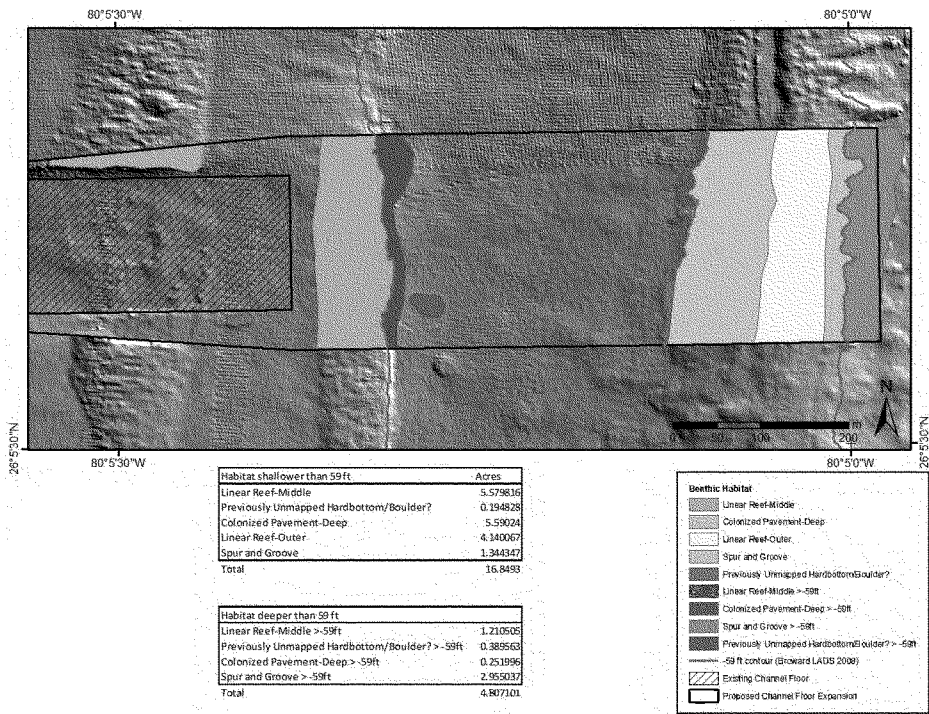


Figure 3. Updated habitat map with refined edges and previously unmapped hardbottom features within the proposed channel expansion area depicted. The red line is the 2008 lidar -59 ft contour. Areas are tabulated for all habitats shallower than -59 ft (top) and deeper than -59 ft (bottom).

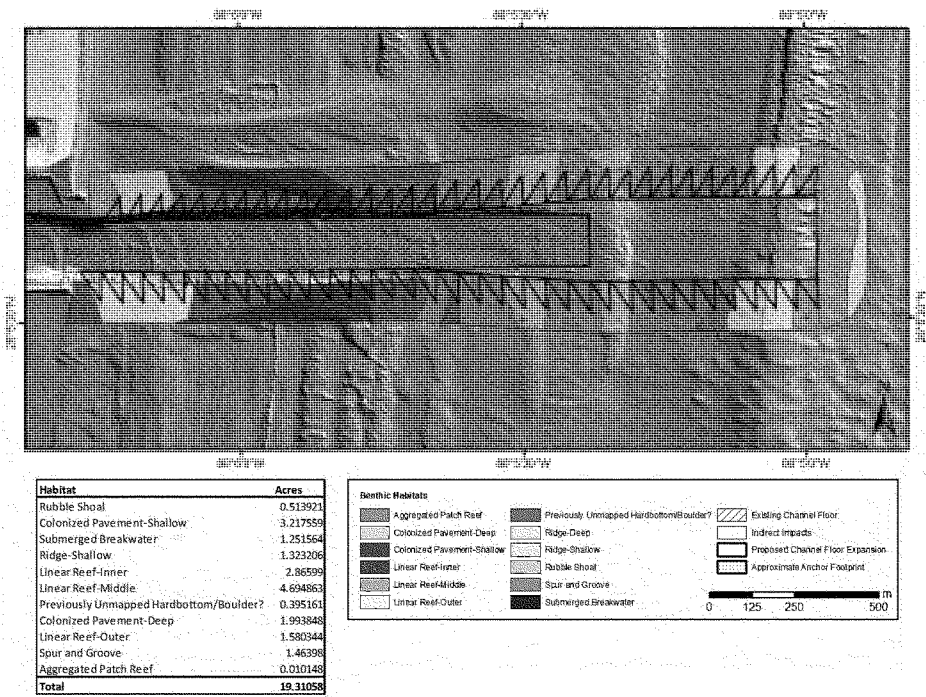


Figure 4. Updated map showing the potential anchoring impacts from a cutterhead dredge operation (habitats within triangles only). This map includes refined edges and previously unmapped hardbottom.

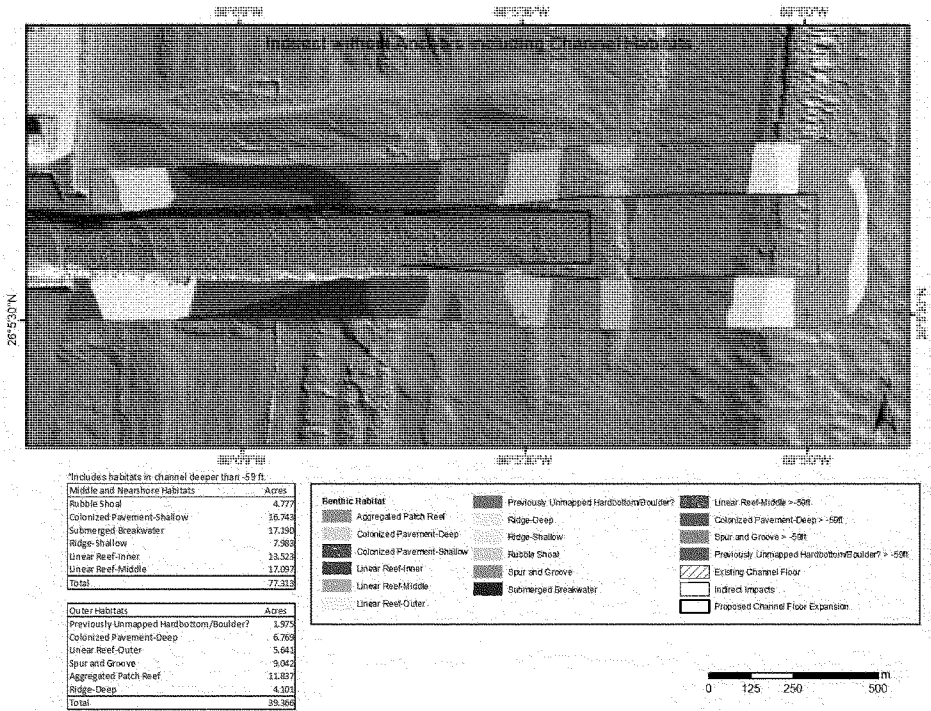


Figure 5. Updated map showing the potential indirect impacts dredge operation for scenario without anchoring. This map includes refined edges, previously unmapped hardbottom, and all habitats deeper than -59ft in the channel.

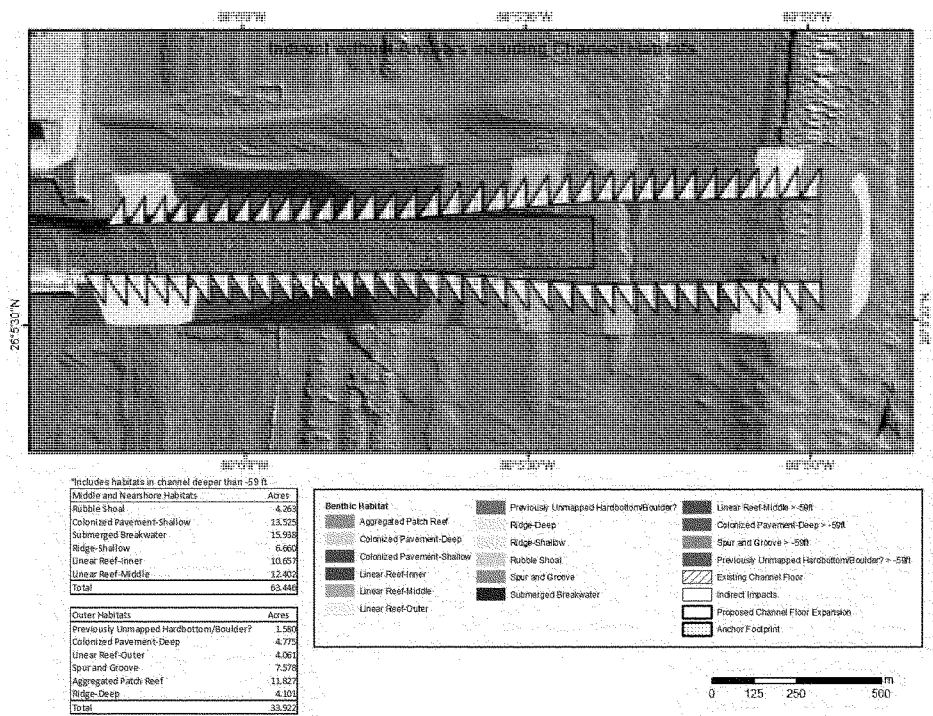


Figure 6. Updated map showing the potential indirect impacts from a cutterhead dredge operation with anchoring (habitats outside of triangles only). This map includes refined edges, previously unmapped hardbottom, and all habitats deeper than -59ft in the channel.

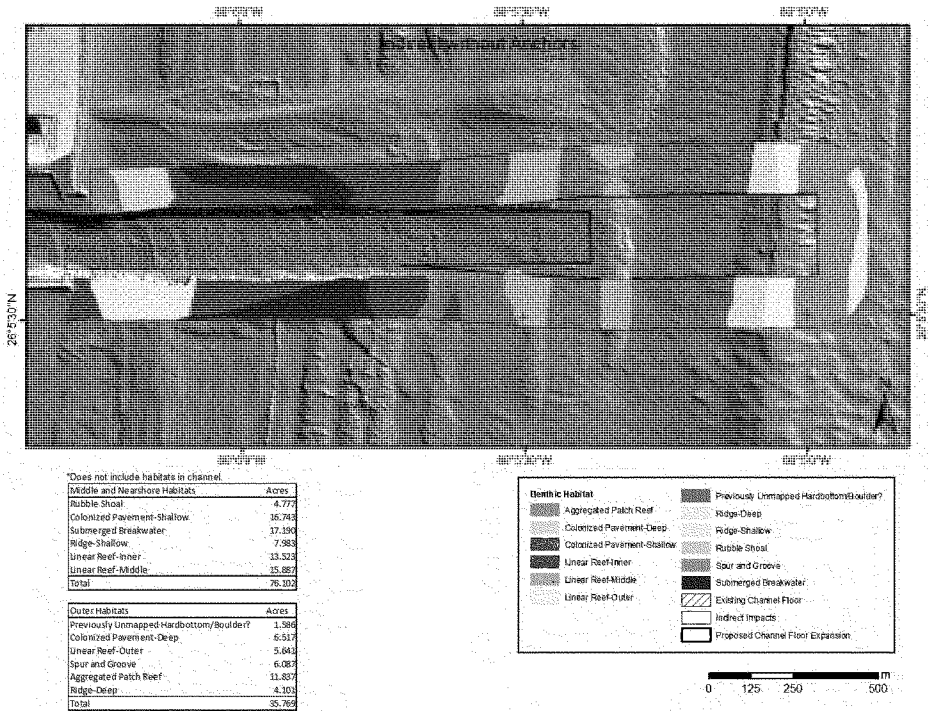


Figure 7. Updated map showing the potential indirect impacts dredge operation for scenario without anchoring. This map includes refined edges and previously unmapped hardbottom. It does not include any indirect impacts in the channel.

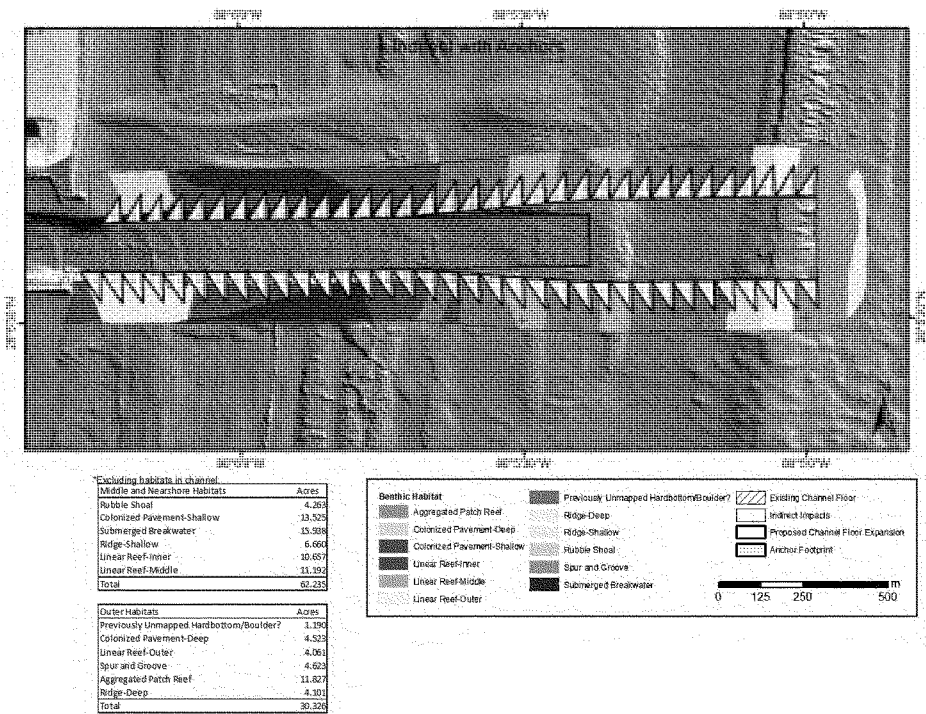


Figure 8. Updated map showing the potential indirect impacts from a cutterhead dredge operation with anchoring (habitats outside of triangles only). This map includes refined edges and previously unmapped hardbottom. It does not include any indirect impacts in the channel.

The results of my analysis differ from the DEIS. Direct impacts in the channel shallower than -59 ft were 16.85 acres as compared to 16.64 acres reported in the EIS Scenario 1. Anchoring would create an additional 19.31 acres of impacts for a total of 36.16 acres for Scenario 2. The EIS reports 33.12 acres of impact for Scenario 2 which is 3.04 acres less.

The EIS reported Indirect impacts to the Outer Reef in Scenario 1 as 32.65 ac while I calculated 33.92 ac. I found Scenario 1 Middle Reef impacts (63.45 ac) similar to those reported in the DEIS (63.46 ac). For Scenario 2 the DEIS reported indirect impacts for Outer and Middle reefs as 37.69 ac and 75.55 respectively, while my analyses found 39.37 ac and 77.31 ac respectively.

I do not agree that habitats deeper than -59 ft should be excluded from the direct impact calculations. When compared to the DEIS, my estimates were consistently larger in both scenarios. I recommend using these outcomes as the impact areas for each scenario.

Cumulative Impacts and Historic context of PE hardbottom communities

The draft EIS minimizes previous losses of hardbottom due to port construction activities by equating the proposed impacted amount (which is wrong according to Appendix 2E) to a percent of all the hardbottom in Broward County. Equating it to a percent makes the impacts seem much less. What's more relevant is the actual amount lost. Walker et al. (2012) published a peer-reviewed paper on the estimated historical losses of port and shipping activities in SE FL. They estimated that Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef due to improper dumping of spoil material. Using county-wide mean coral density (2.6 m^{-2}) and percent cover (3.75%), historically PE development has impacted 6,149,000 corals equating to 180 acres of live tissue area. Using these same numbers, the direct impacts for scenario 1 will impact 380,000 corals with 1.36 acres of live cover and scenario 2 will impact 177,000 corals with 0.63 acres of live cover.

Furthermore the EIS does not describe any cumulative impacts for hardbottom. Although the effect of impacting 6 million corals is difficult to measure, it surely must've had some impact on surrounding communities. In addition, the burial of 178 acres of Outer Reef due to improper spoil disposal had a lasting effect on the system. This spoil remains in place today where rocks of all sizes are piled on the reef. These likely shift during high energy events and continually impact the local community. This is why the communities in the Dial Cordy 2009 benthic assessment are lower than the controls at the previously impacted sites.

I recommend this section be rewritten to reflect a more accurate depiction of cumulative impacts on the reefs near Port Everglades.

References

- Walker, B. K., Riegl, B., & Dodge, R. E. (2008a). Mapping coral reef habitats in southeast Florida using a combined technique approach. *Journal of Coastal Research*, 24(5), 1138-1150.
- Walker, B. K., Dodge, R. E., & Gilliam, D. S. (2008b). LIDAR-derived Benthic Habitat Maps Enable the Quantification of Potential Dredging Impacts to Coral Reef Ecosystems. Paper presented at the ACES: A Conference on Ecosystem Services 2008: Using Science for Decision Making in Dynamic Systems, Naples, Florida, December 8-11, 2008.
- Walker, B. K. (2012). Spatial Analyses of Benthic Habitats to Define Coral Reef Ecosystem Regions and Potential Biogeographic Boundaries along a Latitudinal Gradient. *PLoS ONE*, 7(1), e30466. doi: 10.1371/journal.pone.0030466
- Walker, B. K., Gilliam, D. S., Dodge, R. E., & Walczak, J. (2012). *Dredging and shipping impacts on southeast Florida coral reefs*. Paper presented at the Proceedings of the 12th International Coral Reef Symposium, 19A Human impacts on coral reefs: general session, Cairns, Australia, 9-13 July 2012.



Robert B. Ledoux, Esq.
Senior Vice President & General Counsel

August 9, 2013

Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, Florida 32207

RE: USACOE Feasibility Study & Environmental Impact Statement for Port Everglades

Dear Ms. Jordan-Sellers:

Florida East Coast Railway (FECR) fully supports the deepening and widening project at Port Everglades. As you may be aware, Port Everglades is not only a leading container port in Florida but is one of the nation's leading container ports. It is among the most active cargo ports in the United States and is the main seaport for petroleum products for South Florida. The Port is also one of the busiest cruise ship ports in the world.

The continued long-term population growth in south Florida in combination with an active containerized cargo international trade connection creates an opportunity for future growth at Port Everglades. However, the existing depth of 42-feet does not provide adequate, safe depth for large tankers and container ships currently visiting the harbor. The next generation of container ships and oil tankers require significantly more channel depth to operate efficiently. Therefore, in order to remain a leader in international trade, Port Everglades must have deeper water to accommodate the newer and larger ships that are expected to pass through the expanded Panama Canal in 2015.

The combination of the Port's three priority cargo projects – the deepening, adding new berths, and the building of an on-port freight rail facility, will create 7,000 new jobs locally and support another 135,000 jobs statewide when at full capacity. The addition of the one-of-a-kind intermodal container transfer facility (ICTF) at Port Everglades will be utilized to transfer the international and domestic containers between ship and rail directly at the port resulting in removing an estimated 180,000 trucks annually off the roads by the year 2029.



Robert B. Ledoux, Esq.
Senior Vice President & General Counsel

FECR's new 42.5-acre near-dock ICTF will facilitate containerized cargo transfer through the Port to/from the FEC main line by mid-2014. The facility will be unique compared to similar facilities at other ports in that both domestic and international cargo will be handled at the site, which will result in the advantageous transfer for Port Everglades customers and local companies. FEC signed a long-term agreement with Broward County in March 2012 to build, operate and maintain the ICTF. Construction costs are estimated to be \$53 million, which is funded by an \$18 million grant from the Florida Department of Transportation (FDOT) and \$35 million from FECR (including a \$30 million State Infrastructure Bank loan from FDOT). Broward County contributed 42.5 acres of Port Everglades property, valued at \$20 million, for the ICTF.

It is important to note that NOAA, the federal agency in charge of the oceans and its health, is a formal partner and has proposed a reasonable, cost-effective and scientifically credible mitigation alternative. We recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation.

Based on the foregoing reasons and for Port Everglades to remain competitive, FECR highly recommends that the U.S. Army Corp of Engineers approve the Port Everglades deepening and widening project.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink that reads 'Robert B. Ledoux'.

Robert B. Ledoux



Florida House of Representatives
Representative Joe Gibbons

District 100

District Office:
 3150 S.W. 52nd Avenue
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 Pembroke Park, FL 33023
 (954) 893-5006

Tallahassee Office:
 212-The Capitol
 402 South Monroe Street
 Tallahassee, FL 32399
 (850) 717-5100

August 9, 2013

The Army Corps of Engineers
 Terri Jordan-Sellers, USACE Project Director
 4070 Boulevard Center, Suite 201
 Jacksonville, FL 32207

VIA EMAIL – Terri.Jordan-Sellers@usace.army.mil

RE: Widening of the Entrance Channel to Port Everglades

Dear Ms. Sellers,

I am writing this letter today in support of the Widening of the Entrance Channel to Port Everglades.

Broward County has an active and dynamic environmental community that understands the port's significance as an economic engine. Port Everglades supports 11,700 direct jobs locally and a total of 201,000 jobs statewide. This deepening project, along with the separate Turning Notch Extension and intermodal rail facility on the Port, is projected to create 7,000 new jobs regionally and support 135,000 new jobs statewide over the next 15 years for a total 143,000 jobs. These projects will allow the Port to continue to meet the needs of shipping customers who are focusing their ship-building efforts on larger capacity vessels.

Port Everglades is committed to working with its environmental partners to ensure this project is sensitive to our natural resources and that there are ways to grow the port while protecting and enhancing the environment. While there are a number of mitigation alternatives in the report, one proposed approach supported by NOAA is to use funds to grow and replace corals up and down the Broward coastline and with Nova Southeastern University's Coral Reef Institute located at the mouth of Port Everglades, we have the leading international research partner in our backyard.

Business counts on Port Everglades to remain one of the strongest economic engines in Florida and I feel this Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. Therefore I urge you to give this project favorable consideration. If you have any questions or if I can be of any further assistance please contact me at (954)893-5006.

Sincerely,

Joseph Gibbons
 State Representative, District 100

Committees: Appropriations Committee (*Democratic Ranking Member*) • Health Innovation Subcommittee (*Democratic Ranking Member*)
 Business & Professional Regulation Subcommittee • Economic Affairs Committee • Health & Human Services Committee
 Joint Legislative Budget Commission • Select Committee on Gaming



CITY of HOLLYWOOD, FLORIDA

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Phone (954) 921-3201 • Fax (954) 921-3314 • www.hollywoodfl.org

August 7, 2013

Ms. Terri Jordan-Sellers, District Engineer
U.S. Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, FL 32207

**RE: Response Comment to Public Notice
Port Everglades Harbor Feasibility Study and Draft Environmental Impact Statement**

Dear Ms. Jordan-Sellers:

This letter is provided in response to the public notice request for the above-referenced study. While the City of Hollywood is generally supportive of the recommended plan, several key issues are not adequately addressed within either the Feasibility Study or the Environmental Impact Statement (EIS). These issues are focused on changes to the regional sediment transport patterns and potentially negative impacts associated with the construction and long-term operation of the expanded navigation corridors. The extensive potential downdrift impacts to shoreline communities south of the inlet are considered to be an important element missing from the studies.

More specifically, the key issues are summarized in the following comments:

General Comments:

1. While the study does concede that Port Everglades is a complete barrier to littoral transport, both studies fail to recognize this condition as an environmental impact. Neither study specifically assesses this impact nor proposes any minimization or mitigation. The historic and chronic erosion of the beaches to the south (beaches along John U. Lloyd State Park, Hollywood, Dania Beach and Hallandale Beach) is directly attributable to impacts from the inlet. The studies fail to acknowledge this fact, do not adequately quantify the extent and magnitude of downdrift potential impacts both in terms of existing conditions and proposed alternatives. The studies also fail to provide an appropriate mitigative response. This point is of particular concern regarding the EIS as a failure to identify a major environmental impact which affects both designated critical habitat and listed species, and is contrary to EIS development guidelines.

Our Mission: We are dedicated to providing municipal services for our diverse community in an atmosphere of cooperation, courtesy and respect.
We do this by ensuring all who live, work and play in the City of Hollywood enjoy a high quality of life.

"An Equal Opportunity and Service Provider Agency"

Ms. Terri Jordan-Sellers, District Engineer
 U.S. Army Corps of Engineers
 August 7, 2013
 Page 2

2. Both studies fail to acknowledge the historic lack of effective sand bypassing or propose future alternatives to mitigate impacts to the downdrift shoreline. Both studies reference bypassing planning efforts by Broward County which have not been implemented and are beyond the jurisdiction or direction of the U.S. Army Corps of Engineers.

3. The study does not specifically address the potential for beneficial use of beach compatible dredge spoil to mitigate downdrift impacts. In total the preferred alternative prescribes the excavation of more than 5 million cubic yards of material, none of which was seriously considered for beneficial use to mitigate the well-documented impact of the inlet on the downdrift beaches. The supporting geotechnical investigations are lacking in sufficient design detail to assess the potential for beneficial use of beach compatible portions of the proposed dredge spoil. Further, both studies assume that all maintenance of dredged material will not be considered for beneficial use but will be deposited offshore within the Ocean Dredged Material Disposal Site (ODMDS) facility.

4. The social and economic impacts of the inlet deepening as they relate to the adjacent beaches are not addressed in either the EIS or the Feasibility Study. The beaches of South Florida are an important economic engine and as the inlet is acknowledged to be a barrier to sediment transport in the region, changes to the inlet system will have potential adverse environmental and economic impacts to downdrift communities. Beaches are buffers from storm protection and serve as the basis of tourism revenues for beachfront communities south of the inlet. The costs for maintaining a healthy beach system and the burdens of those costs on the downdrift communities must be evaluated as part of the process. Alternatives to offshore disposal, such as beneficial use of dredged material as beach fill, are acknowledged but are inappropriately ruled out because of cost reasons. These should be reconsidered in light of socio-economic impacts of maintaining a healthy beach system.

Specific Comments:

- a) Feasibility Study (Executive Summary). Environmental Impacts and Mitigation (pg ii). Document states, "*Every effort was made to first avoid and then to minimize environmental impacts through an interagency planning process.*" This statement is not correct as the study does not address impacts to adjacent beaches (which is an environmental impact not addressed within the study).
- b) Feasibility Study (Executive Summary). Areas of Controversy and Unresolved Issues (pg iii). The document fails to identify the impacts of the inlet to adjacent beaches as an area of controversy. The document fails to identify the lack of sediment bypassing as an unresolved issue.
- c) Feasibility Study (Executive Summary). Table A. Project costing fails to consider potential cost implications of beneficial use of beach compatible material.

Ms. Terri Jordan-Sellers, District Engineer
 U.S. Army Corps of Engineers
 August 7, 2013
 Page 3

- d) Main Feasibility Report. Section 2.2.10. Littoral Processes. Document states that the *"the proposed sand trap plan has been deactivated"*. Document should state that at present there is no adopted plan for sand bypassing and there is no active plan for sand bypassing implementation.
- e) Main Feasibility Report. Section 2.3 Environmental Resources. The beaches downdrift of the inlet are an environmental resource and designated critical habitat for listed species.
- f) Main Feasibility Report. Section 4.2. Problems and Opportunities. This section fails to identify the complete interruption of littoral transport as a problem and also fails to identify beneficial use of spoil material as an opportunity.
- g) Main Feasibility Report. Disposal Options. Page 81. Document states that *"the high cost of material processing the excavated material resulted in significantly higher costs relative to other disposal methods."* This statement is unsupported and not consistent with standard practice. It is additionally noted that the USACE recently screened similar material during construction of the Lake Worth Inlet Sand trap earlier this year.
- h) Main Feasibility Report. Section 7.1. Operations and Maintenance Considerations. Document states that maintenance costs will increase *"based on the increase in material needing to be removed from the channel."* This implies that the selected plan will increase deposition within the channel. This statement is contrary to the assertion that the selected plan will have no significant impact on sediment transport.
- i) Appendix A. Engineering Appendix. par 30. Document states that *"While there are regions of Port Everglades that may be susceptible to increase erosion and flooding, these regions are not within the scope of the present study,"* The EIS must consider these impacts.
- j) Appendix A. Engineering Appendix. 2.5. Shoaling and Maintenance. par 66. The section references the sand bypassing plan that has been de-activated by the County. The statement that *"the result is expected to be the alleviation of increased sand shoaling of the navigation channel"* is not accurate as there is currently no active plan to trap or bypass sand.
- k) Appendix A. Engineering Appendix. 2.5. Shoaling and Maintenance. par 67. The document correctly assumes that study should assume shoaling rates determined in the absence of a sand bypassing system. This assumption however, implies an unmitigated environmental impact to adjacent beaches.
- l) Appendix A. Engineering Appendix. 2.6. Sediment Budget. par 69. Sediment Budget States *"the combination of the inlet and jetty system at Port Everglades acts as a complete sediment barrier which interrupts the net southerly littoral drift, creating a sediment surplus to the north of the inlet and a deficit at the beaches to the south."* This environmental impact is not referenced within the EIS.

Ms. Terri Jordan-Sellers, District Engineer
 U.S. Army Corps of Engineers
 August 7, 2013
 Page 4

- m) Appendix A. Engineering Appendix. 3.6.3.3. Conclusions. par 173. Document states that *"The finding of Olsen indicate that widening and deepening associated with the expansion of Port Everglades will have negligible impact on sediment transport patterns along the shoreline north and south of the inlet."* This statement is incorrect. The Olsen study did not reach this conclusion and did not specifically consider any of the Port Everglades expansion alternatives.
- n) Appendix A. Engineering Appendix. 3.7.2. Material Types. par 184. States: *"By volume up to 90% of the material could be used as beach material with adequate processing."* This statement is in conflict with the EIS(Section 2.9.4 Disposal of Removed Materials which states *"None of the dredged material is expected to comprise beach-quality sand (based on geotechnical analysis) that could be used for renourishment of downdrift beaches."* At present the Engineering Appendix states that a significant portion of the dredge spoil can be utilized for beach nourishment while the EIS states that none of the material can be used.
- o) EIS Main Document. Environmental Consequences of the Tentatively Selected Plan.pg iv. Document states that avoidance and minimization of impacts was a major consideration during plan formulation. This is incorrect. The study did not include consideration of impacts to downdrift beaches.
- p) EIS Main Document. 2.9.4 Disposal of Removed Materials. Section fails to consider potential beneficial use of beach compatible sand.
- q) EIS Main Document. 3.7.2.3 Sea Turtles. Section fails to state impact of inlet (erosion) of downdrift turtle nesting habitat.
- r) EIS Main Document. 4.5.5.2 Alternative 2 (TSP). Section states *"USACE has reviewed all of the potential effects of the project on turtles protected under the ESA"* This study did not consider impacts to adjacent turtle nesting habitat or the potential for beneficial use of compatible dredge spoil to minimize impacts.
- s) EIS Main Document. 4.29.2 Past, Present and Future Actions. Section fails to identify lack of sand bypassing within past, present and future actions.
- t) EIS Main Document. 4.29.2 Past, Present and Future Actions. Section fails to identify lack of beneficial use of compatible dredge spoil to mitigate inlet impacts within past, present and future actions.
- u) EIS Main Document. 4.29.5. Resources Not Likely to be Cumulatively Affected. Geology and Sediments. The statement that *"there would be no cumulative adverse effect on the geology or coastal sediment budget/transfer for the area"* is incorrect. The current plan prescribes the disposal of all material including future maintenance material within the ODMDS. This will permanently remove sand from the coastal system and is a cumulative effect.
- v) EIS Main Document. 4.29.5. Resources Not Likely to be Cumulatively Affected. Adjacent Properties. Document states that *"it is not likely that any additional impacts to adjacent properties will occur within the foreseeable future projects."* This statement is incorrect. Placement of all material within the ODMDS with no bypassing of material will permanently remove sand from the coastal system and is a cumulative effect.

Ms. Terri Jordan-Sellers, District Engineer
 U.S. Army Corps of Engineers
 August 7, 2013
 Page 5

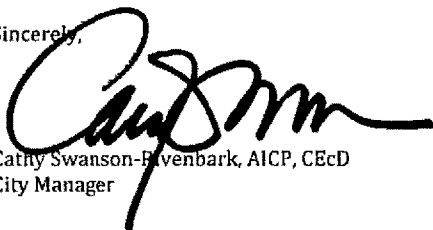
- w) EIS Appendix C. Florida Coastal Zone Consistency. 1. Ch 161. Document states, *"information will be submitted to the state for a permit in compliance with this chapter."* As the inlet currently does not have a history or current plan for sand bypassing, and this study has not adequately assessed the potential for beneficial use of dredge spoil, this plan is contrary to specific provisions of Florida Statute 161, the adopted Inlet Management Plan, and the Strategic Beach Management Plan (SBMP).

Thank you for the opportunity to provide comment on this study. Please include the City of Hollywood in any further correspondence on this study. Questions regarding these comments can be directed to the following:

Mrs. Susan Goldberg AIA, NCARB, LEED GA, Coastal Project Manager
 City of Hollywood
 Department of Public Works, Engineering, and Architectural Services
 2600 Hollywood Blvd, Room 308
 Hollywood, FL 33020
sgoldberg@hollywoodfl.org
 Phone(954) 921-3900

Mr. Michael Jenkins, PhD, PE
 Applied Technology & Management, Inc.
mjenkins@appliedtm.com
 Phone (561) 659-0041

Sincerely,



Cathy Swanson-Evvenbark, AICP, CECd
 City Manager

- c: Sylvia Glazer, Public Works Director
 Jon Vogt, Public Works Deputy Director/City Engineer
 Lorie Mertens-Black, Parking & Intergovernmental
 Jorge Camejo, CRA Executive Director

July 23, 2013

RE: The Port Everglades widening and deepening project

To Whom It May Concern:

As a native of Fort Lauderdale, I am particularly interested in seeing the Port Everglades widening/deepening project succeed. It is imperative that our coastal City remains competitive with other Ports vying for the same cargo and container shipments, ultimately leading to job creation and an improved economy. Now is the time to approve the funding for this project.

A handwritten signature in black ink, appearing to read 'Patrick Conness', followed by a long horizontal line extending to the right.

Patrick Conness
Fort Lauderdale Resident



Ms. Terri Jordan-Sellers
 U.S. Army Corps of Engineers
 701 San Marco Blvd.
 Jacksonville, FL 32207
 904-232-1817

Dear Ms. Jordan-Sellers:

On behalf of the Broward Workshop, I urge the US Army Corps of Engineers to approve the Feasibility Report and draft Environmental Impact Statement for the deepening and widening of Port Everglades Harbor.

The Broward Workshop was established in 1981 and is a private, non-profit, non-partisan group of over 100 CEO's representing over 33 industries in Broward County. Through the Workshop, business leaders seek to identify key issues that are critical to our community's economy and quality of life and work collaboratively with private, public and community organizations to achieve common goals (see attached membership list).

Port Everglades is an extremely important economic engine to our community and the region: It is the #1 seaport in Florida by revenue - \$143 million; #1 container port in Florida (#12 in US) by volume - 930,000 TEU's; #1 port for exports in Florida - \$14 billion; #1 Foreign-Trade Zone (for exports) in the US - \$2 billion; #2 petroleum port in Florida - 104.8 million barrels and the #3 cruise port in the world - 3.7 million multi-day passengers. These numbers are impressive; however, the story doesn't end there. This project will provide over 11,000 direct jobs and generate \$729 million of state and local taxes.

This \$313 million project will accommodate new mega-ships that are replacing the current older fleet. These ships are not only expected to pass through an expanded Panama Canal starting in 2015, but are coming to our Port today from Europe only partially loaded. Port Everglades is the shortest, straightest entrance channel on the Southeastern Atlantic coast, which saves fuel costs and time. This Port project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce.

We would also like you to consider utilizing a blend of mitigation options such as, artificial reef creation using rock/boulder and modules along with coral transplants; artificial reef placement on the existing "tire reef"; potentially restoring historic grounding sites using coral transplants; and possibly including a test site for coral propagation from in-water and land-based nurseries. We are the home to one of the world's leading coral research facilities at Nova Southeastern University. The expertise to make this a national standard of excellence for Port expansion is right in our backyard.

Thank you for your time and consideration.

Kareen Boutros
 Executive Director
 Broward Workshop



MEMBERSHIP LIST

<u>MEMBERS:</u>	<u>COMPANY</u>
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Joel Altman	The Altman Companies
Joe Amaturio	The Amaturio Groups
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Frank Scruggs	Berger Singerman
Kevin Senecal	Divers Direct
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Cyril "Sid" Spiro	Regent Bank
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Patrick Taylor	Holy Cross Hospital, Inc
Scott Verner	Nipro Diagnostics
Gary Wendt	Deerpath Capital Management
Richard "Dick" Wessel	
Lynne Wines	First Southern Bank
Steve Woods	Keefe McCullough

STAFF

Kareen Boutros Executive Director	Gaynel Smith Administrative Coordinator
--------------------------------------	--

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Comments on the Army Corps of Engineers Draft Environmental Impact Statement (DEIS) Relative to Potential Impacts to Nova Southeastern University

Official Comments directed to:

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From: Richard Dodge, PhD

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Nova Southeastern University (NSU) owns property fronting directly on Port Everglades. This is the Nova Southeastern University Oceanographic Center (NSU OC). The property is between the US Coast Guard station and the US Navy base.

Deepening and widening of Port Everglades is being considered in the above mentioned Draft Environmental Impact Statement (DEIS). Dredging is proposed to come very close to NSU property. There is a long deck over the water (wharf) at the NSU OC, an entrance channel to its marina, and seawall fronting the Port. NSU has some structural engineering design concerns. There are conditions along the NSU property fronting the port, including at the southern end, which may be impacted by the harbor deepening including if the Coast Guard marina is removed and channel transitions are created in its place.

The wharf attaches to a seawall at its east side. This seawall is designed for only a nominal amount of water to the mud line. There will need to be protection provided at this corner and along the length of the wharf including in the east to west direction to avoid deeper water turbulence problems which could undermine the existing concrete structures. There are many solutions to this protection problem and these solutions should be utilized as part of the harbor deepening project. Attention needs to be given that the dredging along the length of NSU property does not damage wharf, seawall, and other infrastructure.

Please attend to the important matter. Thank you.

Comments on the Army Corps of Engineers Draft Environmental Impact Statement (DEIS) on:

DEIS Appendix E: Port Everglades Navigation Improvements- Draft Comprehensive Mitigation Plan and Incremental Cost Analysis

And

DEIS Appendix E2: Mitigation Requirements Analysis for Hardbottom Resources Associated with Port Everglades Harbor Navigation Improvements

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Executive Summary:

The DEIS gives details of the Corps decisions on: extent of impact (direct and indirect) from entrance channel dredging, the type of mitigation (boulders) chosen, use of their "modified" Habitat Equivalency Analysis (HEA) to determine their amount of mitigation, and their estimate of project cost. The DEIS also contains a NOAA alternative analysis and a recommendation by NOAA for the type and amount of mitigation (including transplantation of nursery grown corals to enhance/restore natural reefs).

The NOAA mitigation alternative is recommended. This type of mitigation is more scientifically credible than the Corps choice of mitigation and has greater equivalency with services lost from

the dredging impact to the natural reef. The NOAA method replaces corals destroyed with corals created and transplanted to reefs in need of restoration. It also replaces lost three-dimensionality via boulder reefs. I recommend that NOAA be given the responsibility of mitigation design and implementation. NOAA is well experienced in coral reef restoration via nurseries and is the federal agency with responsibility for ensuring ocean habitat health.

Introduction

Port Everglades as a gateway for international trade and cruise vacations is one of the busiest cruise ports in the world and one of the Nation's leading container ports. Port Everglades is also a main seaport for receiving petroleum products, including gasoline, jet fuel and other alternative fuels. The Port currently supports over 11,700 direct jobs locally and a total of 201,000 jobs within the State of Florida as well as associated jobs throughout the country. The total regional economic activity attributable to Port Everglades is over \$15.3 billion dollars.

Port Everglades desires deeper water to accommodate the newer, larger generation of cargo ships that are expected to pass through the expanded Panama Canal in 2015. A Draft Environmental Impact Statement has been issued by the US Army Corps of Engineers that describes project impacts to offshore marine habitats and recommends mitigation alternatives.

Coral Reefs are among those habitats to be impacted. Reefs are extensive along the southeast Florida coast and are ecologically and economically valuable. It has been estimated in an economic study sponsored by NOAA and others that south and southeast Florida reefs result in an annual economic impact of over \$6 billion and 71,000 jobs.

I support the project with a recommendation that an appropriate mitigation type and amount should be included. My comments below recommend an appropriate mitigation type and amount which corresponds to NOAA's plan. The comments also review aspects and identify some concerns with the DEIS including with the Corps assessment of impacts, choice of mitigation, and cost findings.

The entire DEIS, including the Mitigation/HEA Appendix E2, and the Mitigation Cost Analysis Appendix E, is extensive and complex. It is not possible to provide a complete analysis in the short comment period allowed.

Recommendation of NOAA mitigation plan

The DEIS Appendix E2 includes “5.2.3 Preferred Reef Mitigation Alternative 2 (NMFS-Developed Plan)”. This is a plan put forth by NOAA NMFS a federal agency that been a cooperating agency with the Corps for development of the Draft Environmental Impact Statement (DEIS). NOAA has independently estimated the amount of impact of the tentatively selected plan. NOAA NMFS recommends mitigating these impacts by propagating coral colonies at in-water and land-based nurseries and then outplanting the colonies to suitable recipient sites in Broward County’s offshore waters. NOAA NMFS estimated that this approach would require approximately 20 years to complete and would cost approximately \$35.6M to \$42.3M (including risk contingencies).

The Corps DEIS recommends rock boulders with limited “avoidance” coral transplants as their preferred mitigation plan to replace the services that will be lost by the construction impact to coral reef habitat.

NOAA NMFS’s alternative is recommended as opposed to the Corps plan. The NOAA plan and is based on successful and scientifically valid coral propagation and enhancement programs in Atlantic and Caribbean waters, including those of the project area, Broward County.

The NOAA plan involves establishing a stock coral population in on-land and off-shore nurseries. The physical and genetic origin of each coral will be tracked to ensure that both nursery and outplanting operations are scientifically responsible. Regular maintenance will be performed on nursery structures and the corals. When nursery corals have grown to an appropriate size for high probability of survival on natural reefs (e.g., usually requires 12 to 18 months), the corals will be outplanted.

Species to propagate and outplant will include staghorn coral and other species based on findings from recent coral restoration studies, historical survey data, and results of monitoring.

Recipient sites would include those to maximize likelihood of survival and minimize risk from human disturbances.

NOAA will also include replacement of lost three-dimensionality using corals and artificial boulder reefs in their plan. In addition to eventually establishing coral colonies on recipient sites, NOAA NMFS assumes that additional coral translocation will occur as an impact minimization measure and that such costs will be included in the budget for minimization. This is a correct approach. The Corps plan incorrectly accounts for avoidance (minimization) as mitigation.

The cost of the NOAA plan is at par with or less than the Corps plan when more correct inputs to the Corps Habitat Equivalency Analysis are used to determine mitigation amount and when more correct cost/acre figures are used in the cost analysis. This is especially the case when

considering that the NOAA plan has better science credibility and greater environmental stewardship.

The NOAA program including the coral propagation and outplanting program is based on existing NMFS coral recovery programs, partnership with local resource agencies (e.g., FDEP), academic institutions (e.g., NSUOC), and others in Florida. The NOAA plan is designed to maximize the chances of successful coral reproduction; larval transport; settling and colonization areas; and genetic mixing. The proposal is consistent with the NOAA NMFS Acropora Recovery Strategy (under development) and for other coral species proposed to be listed under the Endangered Species Act.

I recommend that the NOAA NMFS plan become the preferred mitigation plan. It is also recommended that NOAA should be given responsibility for impact analysis, determination of mitigation type and amount, and implementation of the resultant program. Comment 1

Review of DEIS including of Corps determination of impacts, mitigation, and cost

Corps DEIS Habitat Equivalency Analysis (HEA) to Determine Amount of Mitigation.

The Corps DEIS in Appendix E2 presents results (for -57' dredging) for 5 categories of impact:

- Direct Impact (removal) of Outer and Middle reef/hardbottom,
- Direct Impact from placement of anchors and cables
- Direct Impact to the channel wall
- Indirect effects of sedimentation and turbidity to the Middle Reefs.
- Indirect effects of sedimentation and turbidity to the Outer Reefs.

The results are framed in two scenarios. The scenarios are identical with the exception that Scenario 1 includes an estimate of Direct Impacts from Anchor and Cables while Scenario 2 does not include Anchor/Cable impacts. This is because the Corps states they do not yet know which type of dredge will be used and the type of dredge will affect the degree of Anchor and Cable impact. Scenario 1 is stated to be the worst-case effects and Scenario 2 is the least case effects for this category of injury.

However, only mitigation results for Scenario 2 are presented in the Corps DEIS Appendix E Cost Analysis. Mitigation calculation for Direct Impact from Anchors and Cables is omitted. Comment 2

In addition, the Appendix E Cost Analysis uses different HEA input assumptions for the Direct Impact. This is inconsistent and confusing. Comment 3

The Corps states that mitigation for only the Direct Impacts on the Outer and Middle reef will be conducted initially. Mitigation for other impacts (Anchor and Cable direct and other impacts from sedimentation/turbidity) will be conducted after a post-hoc survey is accomplished to quantify that impact.

My comments below include a detailed discussion of results of the DEIS Appendix E Cost Analysis Scenario 2 for the four Corps considered categories of Impact:

- Direct Impact to the Outer and Middle Reefs,
- Direct Impacts to Mid Channel Wall,
- Indirect Outer reef Impacts and
- Indirect Impacts all other habitats.

I also provide an alternate HEA analysis that I believe uses inputs that are appropriate and accordingly provide results that are more valid.

Scenario 1 potential Direct Impact from Anchors and Cables while not included in the Appendix E DEIS Cost Analysis will also be discussed later.

There are many parameters that need to be included in an HEA to best determine the amount of compensation necessary. The following Table 1 provides the HEA parameters and their values used for the Corps DEIS HEA (of Appendix E Cost Analysis) and for the Alternate HEA calculated for these comments.

All Corps chosen parameter values are used in the Corps HEA. The alternate HEA uses all the Corps chosen parameter values except three. These are highlighted in Yellow. When there are two inputs listed, the Corps used input is provided first and the input for the Alternative HEA is provided second.

TABLE 1

INJURY: Direct to Mid Outer Reefs	HEA Input
Pre-injury service level	100%
Degree of service loss of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	15%
Injury recovery time to equilibrium (years)	50
COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%
Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	30y 0%-100%, then 20y at 100%
COMMON to INJURY & COMPENSATORY	

INJURY: Direct to Channel Wall	HEA Input
Pre-injury service level	100%
Degree of service loss of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	95%
Injury recovery time to equilibrium (years)	26
COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%
Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	26

INJURY: Indirect Outer and All Other Habitats	HEA Input
Pre-injury service level	100%
Degree of service loss of resources immediately following injury (mortality)	100%
Equilibrium level to which recovery can reach	98%
Injury recovery time to equilibrium (years)	3

COMPENSATORY ACTION: Boulders w/Transplants	
Pre-restoration service level	0%
Service level of CA upon initial installation	10%
Equilibrium level of service From CA expected	100%
Time for services to develop from installation to equilibrium	50

COMMON Parameters to INJURY & COMPENSATORY	HEA Input
# of injured area units	Corps values, NOAA values
Date of Injury/ Date of Compensatory Action	2012
Discount rate per time unit	0%, 3%
Shape of recovery trajectory/ trajectory to equilibrium =	Linear
Value-injured/value restored= 1/	1., .50
End of HEA Calculations	Non-in perpetuity, i.e., to times shown above

To re-iterate the only parameter values that are different between the Corps HEA and the Alternate HEA are the:

- Extent of impact
- Discount Rate
- Equivalence of the impact area (natural reef) to the compensatory action (the boulders).

Each of these parameter and values are discussed in more detail below.

Amount of Impact

The Corps, as discussed by NOAA and others, has used a lower than correct amount of acreage of impact for Middle and Outer Direct Impact (and for potential Anchor/Cable impact). A detailed analysis was provided separately by Dr. Brian Walker on the mapping miscues and errors in the DEIS. The major reason for the lower Corps impact determination is that Corps only considers the Direct Impact amount to habitat **ABOVE 57' depth**. This is not realistic. Reef habitat that exists in the dredging area **will be destroyed below 57'** and needs to be included in the Direct Impact area. For Middle and Outer Reefs, there are significant areas deeper than 57' of reef portions that will be directly affected by dredging generated rubble and subsequent rubble mobility. In the DEIS NOAA provides a cogent analysis that the reef areas below 57' should be treated as Direct Impact injury.

Comment 4

The Corps has determined the amount of Outer and Middle reef area to be destroyed above 57' to be 15.17 acres. NOAA has determined that impact to the Middle and Outer reefs when taking into account the amount of affected reef area below 57' is a total of 21.65 acres. The corrected acreage impacts have an increase of over 6 acres in Direct Impact to the Middle and Outer Reefs.

Discount Rate

Use of 0% Discount Rate

The Corps DEIS states that by law the Corps is permitted to only use a 0% discount rate in their HEA calculations.

However, page 29 of the DEIS Appendix E2 has the following statement:

"As previously stated, Under Office of Management and Budget Circulars A-4 and A-94 (Regulatory Analysis and Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, respectively), when federal agencies are determining costs and benefits of a federal water resources development project, no discounting should occur (emphasis added). Specifically Circular A-94 states "Specifically exempted from the scope of this Circular are decisions concerning water resource projects (guidance for which is the approved Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies." The Port Everglades Feasibility Study, and all of the components of that study, falls under the aforementioned water resource principles and guidelines."

Comment 5

The statement clearly indicates that the current project under consideration is exempt from the "no discounting" rule. This means discounting is permissible. Review of circulars A-94 and A-4 reveals that the Corps is not restricted to use a 0% discount rate. In fact the circulars discuss the use of a variety of non-zero discount rates.

The HEA method was designed to be used with a finite discount rate. The use of a finite discount rate is discussed in any HEA explanation in the literature. A good example is the document by Ray (Ray, G. L. 2007. Habitat equivalency analysis: A potential tool for estimating environmental benefits. EMRRP Technical Notes Collection (ERDC TN-EMRRP-EI-02). Vicksburg, MS: U.S. Army Engineer Research and Development Center). The explanation clearly cites the HEA's use of and NOAA's rationale for a finite discount rate.

The DEIS Appendix E2 in fact also explains the need for using a finite discount rate on page 2: *"Therefore, the quantities of ecological services occurring at different times are not valued on an equivalent basis and must be adjusted before they can be compared in a meaningful way. This adjustment process, known as discounting, permits one to examine quantities occurring at different times on a comparable basis."*

Use of 3% Discount Rate

It is common practice to use a 3% Discount Rate in an HEA. NOAA and others recommend this 3% amount in published literature. The Corps DEIS HEA does not utilize a discount rate (more properly it uses a 0% discount rate) for the calculations. The Corps refers to their method as the "modified HEA".

It is important to note that use of a 0% Discount Rate will provide a lower amount of mitigation in comparison to results using a Discount Rate above 0%. The functional effect is that the Corps is using the 0% Discount Rate which artificially lowers the amount of mitigation required.

It is noted that the Corps uses a Discount Rate of 3.75% in their Economic Analysis in the DEIS. They should be using a minimum of 3% in their HEA and to be consistent they should use a discount rate of 3.75%.

Comment 6

The Alternate HEA presented below uses a 3% Discount Rate as recommended by NOAA.

Degree of Equivalency of Natural Reef and Mitigation (Boulders)

The assumptions of an HEA require that the type of compensatory action (= mitigation) chosen should be equivalent to the habitat being injured. The DEIS clearly states this necessity in Appendix E that the services of the habitat of injury should be *“ecologically equivalent to the service that will be provided by the replacement habitat”*. Otherwise a factor must be applied to create equivalency.

The DEIS choice of mitigation for impacts to the reef are piles of boulders with a relatively small number of coral transplants. The DEIS assumes that the compensatory action choice of boulders, upon maturity, will have identically equivalent services as the natural reef to be impacted.

Comment 7

There is scientific literature which indicates that artificial reefs, including those composed of boulders, are not equivalent to those of natural habitat. For example, Miller et al. (2009) documented an overall lack of similarity between natural reef and artificial reef assemblages. Gilliam (2012) concluded the length of time boulder reefs require to mitigate lost reef resources in southeast Florida, assuming a total loss of the impacted community from events such as dredging, exceeds the age of the oldest boulder reef assessed in this study (17 years). Kilfoyle et al. (2013) show nearshore natural and artificial hardbottom habitats have dissimilar usage by the early life history stages of species managed under the fishery management plan for snappers and groupers. Statistically significant higher abundances occurred on natural nearshore hardbottoms compared to the artificial habitat

While the above references do not always specify the exact degree of dissimilarity, it is reasonable to say there is not 100% equivalence. This assumption is also valid in the “smell test” of logic. A pile of boulders with a few coral transplants is not equivalent to a coral reef and will not, over time, actually become a coral reef. The choice of boulders as mitigation will provide a lower degree of habitat services compared to those of a coral reef. This fact needs to be reflected in the input of the Corps HEA.

Comment 8

A reasonable approach would be to consider that the ratio of the services of the natural reef to a pile of boulders upon reaching equilibrium) would be on the order of $1.0/0.50 = 2.0$. In other words, upon maturity boulders would provide 50% of the services as the natural reef.

Comment 9

Results of Corps DEIS HEA compared to Alternate HEA

Table 2 below gives the results of the Corps Appendix E DEIS Cost Analysis HEA compared to the Alternate HEA using corrected impact area numbers for all categories, a 3% Discount Rate, and corrected equivalence of natural reef to boulders. Detailed *.hea files or printouts can be provided upon request. The same software used by the Corps was used in the alternate HEA.

Table 2: Comparison of results of Corps DEIS HEA to Alternate HEA

Scenario 2 Impact Amount & Mitigation Requirement in acres For dredging to -57'	Corps DEIS IMPACT -57'	Corps DEIS MITIGATION	ALTERNATE NOAA Corrected Impact -57'	ALTERNATE MITIGATION Using NOAA Corrected IMPACT, 3% DR, & Reef/Comp ratio= $1/.5=2$
Impact in Acres Category				
Middle and Outer Reef Direct Impacts	15.17	19.05	21.65	50.103
Middle Reef Channel Wall Impacts	0.36	0.32	0.36	0.61
Direct Anchor and Cable Impacts	0	0	0	0
Outer Reef Indirect Impacts -Construction	37.69	0.04	41.78	0.155
Middle/nearshore Impacts – Construction	75.55	0.08	78.25	0.289
Total Requirement		19.49		51.158

For Scenario 2, the DEIS Appendix E HEA results in 19.49 mitigation acres.
The Alternate HEA results in 51.16 acres.

DEIS Appendix E HEA results are nearly 32 acres underestimated. This is considerable.

The Corps DEIS “modified HEA” underestimates the mitigation required by using a 0% discount rate, by inputting a lower than the actual impact area, and by unrealistically equating the level of services of the boulders upon maturity as 100% in comparison to a natural reef.

A clear driver in the above total requirement is the amount of Direct Impact to the Middle and Outer Reefs. HEA results for the other categories, however, are also lower than appropriate due to Corps choice of other HEA input values. These could and should be recalculated using more correct values to be discussed later.

Cost Calculation Comparison

The Corps DEIS Appendix E2 document states on page 259 “The total estimated cost for this alternative, which includes the cost of coral translocation, is estimated at \$20.13M. Details can be found in Appendix E comprising the mitigation plan and related sub-appendices.”

Note that Appendix E Cost estimation is NOT easily found on the Web version of the DEIS. It is mislabeled. However, it is on the CD version.

Had the Alternate inputs to the Corps DEIS HEA been used, the amount of mitigation required and associated costs would have been higher and larger the costs of NOAA’s preferred alternative. In the Corps DEIS Appendix E Cost Analysis, the Corps Table 8 presents an area of 19.49 acres of their choice of mitigation multiplied by a cost of \$588,524 per acre plus \$8,662,380 (coral relocation) for a total cost of \$20,132,713. This is shown below in Table 3 above in column 1.

Table 3: Mitigation Cost Comparisons of ACE result to the Alternate HEA

	Col. 1	Col. 2	Col. 3
	Cost with Corps Table 8	Cost with Corrected Area	Cost with Corrected Area & corrected Cost/Acre
Total mitigation area (acres) required to offset impacts	19.49	51.16	51.16
Cost per Acre	\$588,524	\$588,524	\$1,225,000
Coral Relocation (Not more than 12,235 colonies) (included above)	\$8,662,380	\$8,662,380	\$8,662,380
Total Mitigation Cost	\$20,132,713	\$38,771,267.84	\$71,333,380.00

With HEA inputs of the Alternate HEA, the mitigation area is 51.16 acres. Using the ACE cost estimate \$588, 524 per acre plus \$8,662,380, the revised total cost is: \$38,771,268 in Column 2 of Table 3 above.

Cost/Acre

Comment 10

The Cost/Acre figure of \$588, 524 in the Corps DEIS Appendix E Cost Estimate Table 8 provided for boulder mitigation and coral transplants is not justified by the Corps. This figure stands in contrast to the cost/acre of other and similar options which are circa \$1.2M or greater. Without adequate justification, the \$588, 524 appears artificially deflated. Instead, using the \$1,225,000 cost /acre estimate provided in Table 8 for essentially the same mitigation (boulders with coral transplants placed on top of tires), the total cost is **\$71,333,380** as seen in Column 3 of Table 3 above.

The DEIS stated the cost of the NOAA NMFS mitigation recommendation is estimated to cost approximately \$35.6M to \$42.3M (including risk contingencies) which is a median value of \$39M. Hence the cost NOAA NMFS plan is significantly less than the Corps plan had it been correctly calculated.

Other Considerations: Indirect Impact Mitigation Calculations

The Corps indicates in the DEIS in Appendix E2 and in the Appendix E Cost Estimate that they will not calculate the amount of mitigation (and hence the costs) prior to construction for indirect impacts. Surveys will be taken after construction to determine the amount of impact and this will be used to determine the amount of mitigation. The Corps then takes an inconsistent approach and in fact estimates indirect impact and other potential direct impact.

In DEIS Appendix E2, the Corps HEA Scenario 1 includes Direct Impact from the Anchors and Cables. These Anchors and Cables may well be needed depending on the type of dredge as well as the indirect from sedimentation and turbidity. In the Cost Estimate, however, the potential Indirect Impact from Anchors and Cables is excluded.

There are problems with excluding the potential Indirect Impact.

Comment 11

First, mitigation for the Anchors and Chains impact should be calculated and included as a contingency. Amounts for Indirect Impact mitigation contingencies do not seem to be budgeted in the DEIS. The Corps has had sufficient experience with dredging to be able to reasonably include a probability factor about the kind of dredge to be used. The amount of Corps modified HEA calculated Anchor and Chain mitigation as shown in Table 17 of DEIS Appendix E2 is large (7.83 acres) and would be even larger if calculated with the correct HEA inputs. The Corps has only considered the impact on the Anchor footprints to be only 50%. Because the footprint would likely involve complete removal of all living organisms, a more correct 100% injury as well as the other inputs used in the Alternate HEA (3% discount rate,

Comment 12

proper equivalence of boulders to natural reef) should have been and should be used to calculate possibly needed mitigation.

Second, the impacts associated with sedimentation and turbidity have been predicted by the Corps to be miniscule (2%) and to only last 3 years. The dredging itself is predicted by the Corps to last up to 5 years. There is likely to be injury associated with the sedimentation and turbidity. Such injury will not instantly be healed upon cessation. There will be lasting effects. Hence the mitigation for these categories has been substantially underestimated. The DEIS uses too low of an estimate of impact (2%) and of recovery time (3 years) for the Corps HEA. These estimates should be revised upwards (e.g. at least on the order of 15% and 50 years) to be more accurate and thus to provide for contingency funds for mitigating likely indirect impacts. Comment 13

The Corps states the amounts of indirect impacts will be determined by post-construction monitoring, and these will determine the amount of mitigation. However, it is unclear if the DEIS cost estimate includes sufficient amounts of funds to be available if for mitigation if needed.

To summarize this section: An accurate estimate of the amount of Direct Impacts of Anchor and Cables and Indirect Impacts of sedimentation and turbidity should be conducted and included in the HEA so that accurate costs can be determined and contingency funds made available to secure additional mitigation if needed.

Indirect Impact Monitoring

Comment 14

The Corps specified monitoring for determination of the extent of indirect impacts is insufficient to accurately determine effects. The proposed sampling design presented is incomplete and does not provide a power analysis that will allow determination of sample size needed to detect differences of various amounts. This needs to be corrected.

Battelle

P 4 of the DEIS states "... the outcomes presented in this report were calculated with input values selected by USACE in consultation with DC&A. DC&A, in associated with the Battelle Memorial Institute, developed these input values for these HEAs using peer-reviewed scientific literature, ..."

There is no reference given to the Battelle contribution. Battelle did review the Corps mitigation plan and found issues with Corps choice of parameters. Comment 15

Time for recovery

On p4 of the DEIS the Corps states "For the purpose of the Port Everglades HEA, the method employed by the Corps uses a Landscape HEA with stony corals as the representative proxy for the entire habitat affected. While stony coral coverage is <1% in the project footprint and vicinity (Gilliam *et al.* 2004, DC&A 2008), we did not use a proportional analysis to calculate the coral impacts. Instead, the losses are calculated as the amount of time it would take for the slowest-growing members of the ecosystem, in this case the stony corals, to recover to baseline, for the entire project footprint."

This is worth noting for discussion of recovery rates. The Corps has used 50 years for direct impacts and for the compensatory action (boulders) to reach maturity. These time estimates are underestimated given the age of oldest corals on similar habitat in the vicinity of the Port in excess of 100 years. 100 years for recovery is more correct and preferred. The Corps choice of recovery rate in their HEA is incorrect.

Comment 16

Inappropriate Counting Avoidance Minimization as Mitigation

The Corps is assigning their 50 year recovery rate to boulder mitigation by including a factor due to transplantation of corals from the impact area to them. In the Cost Estimate Appendix E a time of 30 years to maturity (100% is assigned that persists an additional 20 years to end at 50 years.

This time limit and time reduction is inappropriate. The first step in impact analysis is avoidance and minimization. Avoiding impact by removing corals from the impact site minimizes impact. As an example, a more correct way to determine the reduction of injury impact would be to calculate the total number of corals that would be killed from the Direct Impacts to the Outer and Middle Reefs. Table 4 below illustrates the possible credit, if any, that might be given for avoidance. For illustration, it uses information supplied by the Corps DEIS.

Table 4

DEIS Appendix E2	Corals to be Killed with no removal
Middle Reef Corals	10,801.0
Outer Reef Corals	89,943.0
Total	100,744.0

DEIS Cost Estimate	Corals to be Removed
Mid & Outer Reefs	12,235.0

% impact reduction	12.14%
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Using information from the DEIS Appendix E2, the total number to be killed is 100,744. The DEIS Cost estimate indicates up to 12,235 would be removed. Thus this would be a 12% reduction of impact.

Even if the translocated corals are used for reduction of time to maturity for the ACE choice of mitigation, such credit for discussion purposes at the Core groups meetings was only 10 years.

Even with a conservative approach and assuming that the correct recovery rate is 75 years. Taking off 10 years for the contribution to recovery rate would be a recovery period of 65 years. This was used as a possible conservative assumption by the Core Group.

It is telling that the DEIS inconsistently uses 50 years in Appendix E2 and 30 years in the Cost Estimate. This gives the appearance of modifying recovery figures for use as HEA inputs to minimize HEA outputs.

Comment 17

Other Inconsistencies:

The Abstract results of the main DEIS is not consistent with those presented in DEIS Appendix E2.

Comment 17

The Appendix E2 HEA inputs are inconsistent with the HEA inputs of the Appendix E Cost plan.

Comment Summary

- It is an important advance in the DEIS that NOAA, the federal agency in charge of the oceans and their health, is a formal partner and has proposed a reasonable, cost-effective, and scientifically valid and credible mitigation alternative. The NOAA mitigation is preferred and recommended over the Corps plan.
- For speedy resolution of environmental issues it is recommend to afford NOAA a leadership and responsibility role in mitigation design and implementation. It is recommended that NOAA implement the NOAA plan to grow and replace corals up and down the Broward County Coastline and.
- The NOAA recommended mitigation is more cost efficient than the Corps version, had the Corps used alternative HEA inputs and cost/acre.
- The Corps determination of area of impact neglects significant areas below the 57' dredging depth that will be affected Direct Impacts.
- The Corps uses a 0% discount rate in its "modified" HEA. The HEA is an economic model and not intended to be used with a zero discount rate. A 3% discount should have been used.

- The Corps choice of mitigation is boulders with limited coral transplants. This mitigation type will not provide services upon maturity equivalent to those of the natural reef. It also incorrectly uses transplants as mitigation when they are more properly considered avoidance.
- The HEA inputs and results in Appendix E2 and not the same as those of the Appendix E Cost Analysis.
- Some of the important DEIS HEA input parameters used by the ACE appear are not supported by available science.
- An Alternate HEA has been developed as part of these comments using: Direct Impact areas for the Outer and Middle Reefs to include the area below 57'; 3% discount rate; and equivalence that boulders upon maturity reach 50% of services of the natural reef.
- I support the project assuming there is an appropriate mitigation type and amount. NOAA's plan provides an appropriate mitigation type and amount.
- The inputs chosen by the Corps for their HEAs estimate a lower amount of mitigation than using the above inputs.
- The text of and prose explaining Corps DEIS Appendix E Cost-Estimate Table 9 of the Cost estimate presents no justification for using a \$588,244 cost per acre of boulders with transplants. A more appropriate cost estimate is at least \$1,225,000 per acre.
- Recalculation of costs indicates the NOAA mitigation alternative is most cost effective.
- The Corps plan lacks input from the ACE's independent technical review performed by Battelle
- The Corps has inappropriately taken time credit for coral transplantation while this should be counted as avoidance.

From: [Jack Bennings](#)
To: [Jordan-Sellers, Terri SA](#)
Subject: [EXTERNAL] Support for the Port Everglades Expansion
Date: Tuesday, August 13, 2013 8:49:10 AM

Terri Jordan-Sellers

Project Director

United States Army Corps of Engineers

Terri, I wanted to extend my support of the Port Everglades expansion project. I had the opportunity to attend the afternoon session and felt there was an overwhelming support for this project.

As we discuss and support the economic impact to Broward County in various industries the jobs expansion projections are vital to our growing economy in South Florida. We recently had another Alliance meeting at the Nova Coral Reef Oceanic Center and Dr. Dodge commented about the issues of creating the artificial reef and using their expertise and advice to blend the economic impact with the environmental concerns makes Broward County and the Port good stewards for the environment.

I wanted to through in my personal support of the expansion of Port Everglades and working toward a vibrant Port for years to come.

Continued success and your support is greatly appreciated to move this project along in an expeditious manner.

Jack Bennings

Director of Workforce Development
WorkForce One/Greater Fort Lauderdale Alliance

Broward County's Official Economic Development Partnership

Alliance Map <<http://goo.gl/maps/FlvZn>>
P: 954.627.0136 C: 954.822.2012

jbennings@gflalliance.org | www.gflalliance.org <<http://www.gflalliance.org/>>

Upcoming Alliance Events:

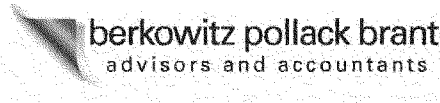
August 29, 2013 | Gulfstream Park | Alliance Council Connect Cocktail Party

October 17, 2013 | Alliance Annual Dinner

Please RSVP for these events and meetings at www.GFLAlliance.org <<http://www.gflalliance.org/>>

Greater Fort Lauderdale Alliance - Winner of Business Facilities 2013 "Excellence in Economic Development Award" and Business Facilities 2012 inaugural "Achievement in Public-Private Partnership Award." To read more, please click here <<http://www.gflalliance.org/index.php?src=news&srctype=detail&category=Press%20Releases&refno=1688>> .

Why <<http://www.youtube.com/browardall#p/a/u/0/3dzX1Kpql8A>> have so many companies relocated to Greater Fort Lauderdale? Click here <<http://www.youtube.com/browardall#p/a/u/0/3dzX1Kpql8A>> to find out! (90 second video)



August 12, 2013

Terri Jordan-Sellers
Project Director
United States Army Corps of Engineers (USACE)
Via Email: Terri.Jordan-Sellers@usace.army.mil

Dear Ms. Jordan-Sellers:

Our Firm has offices in Fort Lauderdale and as part of our expansion in Broward County, the economic development of Broward County is very important for our Firm. The marine, cruise and cargo industries in Broward County are vital to Broward County's economic success and the project to deepen and widen Port Everglades is a critical component of that success. Port Everglades is one of the largest cruise ports in the United States as well as one of the largest cargo ports. Increasing the depth and width of the Port will enable it to accommodate larger ships and freighters which will increase jobs and stimulate the economy in Broward County.

In addition to helping the marine industry, cruise industry, tourist industry and cargo industry, the Port Everglades project will also provide much needed environmental protections for the Port. Artificial reefs can be created using rocks/boulders and modules along with coral transplants; artificial reef placement on the existing "tire reef"; potentially restoring historic grounding sites using coral transplants; and possibly including a test site for coral propagation from in-water and land-based nurseries. Broward County is the home to one of the world's leading coral research facilities at Nova Southeastern University and the expertise to make this a national standard of excellence for Port expansion is right in our backyard.

Our elected officials at the local, state and Federal levels have all worked hard to push this initiative forward. The time is **now** if we want this project to make it into the authorizing legislation for 2013. Your support of the Port Everglades project is appreciated. Thank you very much.

Very truly yours,

RICHARD A. BERKOWITZ
CEO

RAB:cr

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August 13, 2013

Ms. Terri Jordan-Sellers
U.S. Army Corps of Engineers
701 San Marco Blvd., Jacksonville, FL 32207
Email: Terri.Jordan-Sellers@usace.army.mil

Re: Navigation Improvements
Port Everglades Harbor,
Broward County, Florida

Draft Environmental Impact Statement

Public Comments Submitted by Tropical Audubon Society

Dear Ms. Jordan-Sellers:

Introduction

The undersigned environmental and civil groups, collectively representing thousands of Floridians, hereby submit their comments and concerns regarding the pending navigational improvements intended for the Port Everglades Harbor in Broward County. The comments and questions submitted below focus on the methods used to make these improvements and the efforts intended to mitigate the great impact that the expansion of the channels into the harbor will have on the environment and the lack of a lower consumption no-action alternative.

The proposed action by the U.S. Army Corps of Engineers (USACE) to deepen, widen, and extend the channels and turning basins of the Port Everglades Harbor have been deemed necessary in order to allow for increased safety and efficiency of Post-Panamax vessels and accommodate for an increased size of the world's fleet of container ships through 2060. The primary objectives of the project are to (1) decrease costs caused by vessel congestion, channel restrictions, and berth deficiencies; (2) decrease transportation costs through increasing economies of scale for vessels at the Port; and (3) increase channel safety and maneuverability at the Port for existing and larger vessels. These objectives are pursued while incorporating the Environmental Operating Principles, which include fostering sustainability, proactively considering environmental consequences, and creating economic and environmentally sustainable solutions.

The navigation improvement project, if permitted, will have profound impacts on the spectacular but fragile environment in the Port Everglades Harbor, with several anticipated days of blasting and dredging and disposal of dredge and excavation materials offshore and onshore, and no concrete assignment of where all the materials will be disposed if the Offshore Dredged Material Disposal Site (ODMDS) is not expanded.

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The necessity of receiving these larger vessels is predicated on an increased demand, especially for petroleum, in South Florida created by the projected increases in the region's population. While the Environmental Impact Statement (EIS) considered a significant number of alternatives, it does not properly consider decreased dependency on petroleum products, or support any alternatives that would result in such a decreased dependency. Additionally, the fuel consumption projections used for the year 2015 were made by the Florida Department of Environmental Protection in 2005. More recent projections would more accurately predict near future trends. A heavy emphasis on decreasing our dependency is necessary for the long term economic and environmental health of South Florida's local communities. No-action alternatives were rejected on the reasoning that different methods of increasing supply of petroleum would become necessary even without the completion of this project. These other methods (trucking and rail) would ultimately result in more environmental damage than this project would cause, and thus the proposed plan appears to be the least damaging method on the environment for increasing access to petroleum in the region. The no-action alternatives in particular did not consider decreasing demand for petroleum products, and instead focused exclusively on ways of increasing supply.

The U.S Global Research Program has projected a global average of sea-level rise to be 3.5 feet by the end of the century while the Atlantic and Gulf regions of the United States will experience above the global average sea-level rise.¹ Florida is one of the most sensitive areas to climate change on the planet due to its lengthy coastline, low relief, high coastal population density, ecologically and economically vital beaches, estuaries, and wetlands, and porous limestone geology.² The consequences of any project on drinking water quality and real estate value merit serious consideration. Further increasing the dependency on petroleum products is not a sustainable solution.³

Thus, the best possible situation for the local environment would be a no-action alternative and emphasis on reducing the consumption of petroleum based products. Although such a no-action alternative is extremely unlikely, there is a real likelihood that the dredging of Port Everglades Harbor will not be effective in attracting the anticipated volume of Post-Panamax shipping volume.

The Port of Miami is currently authorized to receive deepening in order to receive the vessels this project intends to accommodate. This is dismissed and only currently capable ports

¹ *Global Climate Change Impacts in the United States*, Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, 2009, available at <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf>.

² *A Multi-Disciplinary Review of Current Sea-Level Rise Research in Florida*, Anna C. Linhoss, Lisa G. Chambers, Kevin Wozniak, and Tom Ankersen, Institute of Food and Agricultural Sciences, University of Florida, Feb. 2013, available at <http://edis.ifas.ufl.edu/sg125>.

³ *Rapid Accumulation of Committed Sea-Level Rise from Global Warming*, Benjamin H. Strauss, Climate Central, available at <http://assets.climatecentral.org/pdfs/Strauss-PNAS-2013.pdf>.

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(Virginia, New Jersey, etc.) and shallow ports (Jacksonville, Tampa) that require a project like this or other methods of accepting these large vessels such as lightering and offshore unloading were considered in the no-action alternatives. Rather than attempting to accommodate the larger shipping vessels, Port Everglades has an opportunity to focus on the significantly more maneuverable and less depth restricted cruise ships while maintaining a more attractive environment for such traffic. This is particularly true because the Port of Miami has already taken significant steps to improve its harbor to attract these Post-Panamax ships. Thus, there is no guarantee that the completed Port Everglades Harbor project will result in an increase of the sought after ships coming to Fort Lauderdale. Instead of pursuing an uncertain course, Broward County can capitalize on the negative environmental impact that Miami-Dade County will experience from its dredging project and continue to receive the current transportation ships while attracting more cruise vessels. The long-term cumulative impacts of transforming the Harbor into one of the largest and busiest ports has the potential to devastate the environment.

In today's economy there is a great concern with the number of jobs available. This project proposes to ultimately create jobs in the port and surrounding area. However, the tourism and fishing industries in the local area are significant and should not be overlooked. To minimize negative impacts associated with the proposed port expansion, it is extremely important that the environmental permitting process for this project be rigorous and extensive, that community outreach be paramount and that no shortcuts be made in terms of the time needed to fully explore the consequences of this project. This should include seeking out agency and community input from local, state and federal levels. There should also be no shortcuts in either the costs that will be incurred to ensure best management practices or to employ the least environmentally harmful methods available. The highest quality mitigation strategy is required to protect our existing resources. Quality mitigation plans should have an end result of restoring habitats to keep intact resources healthy, effectively resolving anticipated issues, and taking into account any likely, yet unanticipated, secondary impacts.

Ultimately, expansion of the Port will almost certainly have a negative effect on the environment that the tourism and fishing industries rely upon. In 2012, 1,058,000 persons were directly employed by the tourism industry in Florida, and approximately 91.4 million tourists came to the state to spend \$71.8 billion dollars.⁴ In addition to being a major attraction for year round visitors, South Florida's coasts are a focal point of community life. The net gain of jobs from this project will ultimately be diminished without extensive environmental considerations to protect the significant number of individuals employed by the tourism and fishing industries.

The proposed plan dismisses potentially less destructive means of navigating the reef tract in favor of more direct paths for these large ships. This sacrifice of the environment for economic expediency is short-sighted. The proposed plan includes cutting a direct route to the

⁴ VISIT FLORIDA Research, available at <http://www.visitflorida.com/en-us/media/research.html>.

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Port—this will result in the destruction of “only” the top of the reef. But the types of impacts anticipated from this project can have irreversible effects.

Hard corals are the primary reef building corals and living corals grow on top of their dead predecessors.⁵ Corals only lay down from .2 cm to 10 cm a year of the calcium carbonate which provides the foundation for the reef.⁶ Destroying several feet off the top of a coral reef—where the living corals are—can have extremely destructive results. Even just touching or grazing coral polyps has the potential to harm corals by damaging the polyp or mucous membrane they use for protection from disease, or by leaving it vulnerable to overgrowth or predation.⁷

Coral reefs also provide an extremely valuable service as storm protection, protecting our coasts, and reducing the costs created by hurricanes and other storms. Additional consideration should be given to the economic importance of coral reefs in providing storm protection. Coastal storms cause approximately 71% of all disaster damage in the United States and each meter of reef protects an estimated \$47,000 of property value.⁸

The well-being of the environment should be prioritized in order to ensure the long-term health and economic vitality of South Florida. Other alternatives better protect South Florida’s assets. In particular, we direct your attention to comments most recently released by the National Oceanic and Atmospheric Administration. Additionally, environmental groups have presented alternatives that have a greater positive impact on the environment while still permitting the expansion of the port to occur. Chief among these is the comment letter submitted by The Nature Conservancy regarding an alternative mitigation plan to the one proposed in the draft EIS statement. To these aforementioned comments, we add our voices of concern.

Given that the tourism and fishing industries drive the region’s economy and both are dependent upon a healthy environment, the environment should merit the highest possible protection and negative effects should be carefully considered. The importance of natural resources should not be overlooked in pursuit of rapid expansion. South Floridians should be especially wary of sacrificing the environment for efficiency due to the economic and cultural reliance we have on our unique and valuable environment.

Below please find a list of concerns, comments, and questions that we are raising (categorized by issue).

⁵ *Coral Anatomy and Structure*, NOAA Coral Reef Conservation Program, available at <http://coralreef.noaa.gov/aboutcorals/coral101/anatomy/>.

⁶ *Id.*

⁷ *Threats to Coral Reefs*, Reef Relief, available at <http://reefrelief.org/threats-to-coral-reefs/>; *Hands Off Diving: Research on the Effects of Touching Corals*, D. Kent Backman, Sustainable Ecosystems Institute, available at <http://www.sei.org/touch.html>.

⁸ *Coral Reefs Protect Coastlines*, NOAA, available at http://www.noaa.gov/features/protecting_1208/coastlines.html.

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We hereby submit the following questions and comments regarding the following plans:

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Disposal Management Plan

A majority of the dredged materials will be placed in an Ocean Dredged Material Disposal Site (ODMDS), which is currently proposed to expand. The proposed expansion is being conducted by the USEPA, but the USEPA opted not to incorporate their analysis into the Port Everglades EIS. The EIS states, "If the ODMDS is not expanded, the maximum amount of material that can be placed within the existing ODMDS will be deposited, and further alternatives will be explored for the disposition of the remaining material." Potential alternatives should be clearly articulated as the project is considered by the public.

Additionally, only a small upland disposal site is available for any material that does not qualify for deposit at the offshore disposal site. Even though previous projects have indicated acceptable levels for heavy metals were not exceeded, some dredged material may require toxicity testing if they are scheduled to go to the ODMDS.

Questions:

- In the event that further toxicity is discovered in dredged materials where will these materials be sent?
- What potential alternatives for deposit of dredging materials outside of the ODMDS could be explored and why aren't they being explored initially?

Blasting Impacts

The use of explosives can adversely affect aquatic ecosystems and organisms.⁹ The primary cause of damage to aquatic life or other structures is due to the shock wave resulting from the explosion. This proposed project includes 300-400 blast days. Mitigation will be done primarily through observation with a Caged Fish Study conducted as well as fish kill monitoring from the surface only. Additionally, blasting will be limited seasonally and only occur at certain times of day and will incorporate fish repulsion. While these mitigation efforts are promising, they should not preclude the incorporation of additional mitigation measures.

Other mitigation techniques to reduce the potential for mortality to aquatic life include: 1) review of the explosive design and provide mitigation recommendations based on that design; 2) evaluation of the potential impact and mitigation recommendations based on biological considerations; and, 3) evaluation of potential impact and require physical measures (such as bubble curtains or physical barriers) to minimize impacts.¹⁰ Given the importance of the area's environment as well as the property of local residents and businesses, the adoption of additional mitigation measures should be encouraged.

⁹ *The Environmental Effects of Underwater Explosions with Methods to Mitigate Impacts*, Thomas M. Keevin, Ph.D. and Gregory L. Hempen, Ph.D., P.E., R.G., U.S. Army Corps of Engineers St. Louis District, August 1997, available at <http://www.denix.osd.mil/nr/upload/underwaterexplosions.pdf>.

¹⁰ *Id.* at 78.

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Comments:

- The adoption of additional mitigation measures should be encouraged.

Questions:

- Can additional blasting mitigation efforts be incorporated beyond the minimum standard set by the Port of Miami project?

Turbidity and Sedimentation Standards

Water quality is significantly impacted by influxes of sediment, whether it is accumulated on surfaces or suspended in the water column. Even though typical increases in suspended sediment are restricted spatially and not persistent, acute effects on marine organisms still occur at elevated sediment concentrations.¹¹ Influxes of sediment will occur both during the dredging process as well as during the disposal of dredge materials. Dredging activities that result in changes in sediment texture will alter the organism composition of the area. Sediment suspension results in decreased primary production, fish gill clogging and irritation, and effects on filter-feeding organisms.¹² Depending on the sediment composition, the effects of sedimentation can vary dramatically. For example, organically rich sediments can result in algal blooms, and increased turbidity can cause reduced primary production and drastically lower oxygen levels and increased turbidity can affect the immune function and physiological condition of organisms.¹³

The turbidity mitigation best management practices (BMPs) are not incorporated into the EIS in anticipation of requirements being made by the state permit. Typical BMPs include turbidity monitoring with contingency shutdown stipulations, limitations, and real time tracking of overflow. USACE expects the turbidity and sedimentation to be similar to the 2004 and 2006 O&M dredging events of the Key West entrance channel, or the 1980-1981 deepening of Port Everglades where “no effects directly linked to the dredging were observed or reported.” However, the Lower Keys Fishing Guides Association observed an immediate and significant decline in sport fish such as tarpon in the area of the channel expansion, with the loss of coral, sponges and other organisms from the channel bottom, there was reduced habitat for the bait fish that attracted tarpon, and without this food supply the tarpon did not accumulate off Key West and instead dispersed to other locations.¹⁴ In Key West there are fears that repercussions could be “permanent and devastating,” as communities in Texas and Homosassa have observed, where the

¹¹ *Turbidity and Sedimentation, Problems Associated with Turbidity and Sedimentation*, NOAA, available at <http://nerrs.noaa.gov/doc/siteprofile/acebasin/html/modules/watqual/wmtursed.htm>.

¹² *Id.*

¹³ *Id.*

¹⁴ *Dredging the Key West Channel for Larger Cruise Ships*, Last Stand, June 23, 2013, available at <http://last-stand.org/issues-news/dredging-key-west-channel-larger-cruise-ships-referendum-horizon>.

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fisheries were impacted in such a way that certain species no longer frequent the areas at all.¹⁵ Dredging for port construction in southeast Florida has accounted for impacts to over 684 hectares of coral reef habitats, including the destruction of 4.5 million corals through burial.¹⁶ Previous Port Everglades projects have been estimated to account for 32.1% of the total impacted area.¹⁷

Comments:

- Dredging, especially for port projects, has been recognized as significantly detrimental to local habitats including coral reefs and other benthic communities.

Questions:

- What additional protection can USACE provide for the habitats that will be affected by this project?
- How can the experience with turbidity and sedimentation in previous projects be improved for the Port Everglades?

Natural Resources Affected

Concerns regarding the seagrass communities, hardbottom and reef communities, fisheries, and protected species impacted by this projected are significant. In both the public meeting and the focus meeting, the main focus was on the coral reef and hardbottom habitats. We want to make sure that these other species are not overlooked by the USACE plan as it moves forward. Seagrass and mangrove habitats will also suffer unavoidable impacts. Additionally, those working on the port expansion would need to account for the unpredictable nature of the protected species. While the mitigation efforts incorporated in the project are noteworthy, continued additional monitoring and maintenance of the affected areas is desired. Previous projects that required mitigation in South Florida by the Corps have resulted in only 41% replacement of habitat directly lost to project impacts.¹⁸ Additionally, in completed projects where monitoring was required only 46% had monitoring performed.¹⁹ Finally, even where habitat was replaced, one third of the mitigated habitat was determined to have been less than adequately mitigated for project impacts.²⁰

¹⁵ *Harbor Dredging*, Lower Keys Guides Association, available at <http://lkgg.org/LowerKeysGuidesAssociation/News.html>.

¹⁶ *Dredging and shipping impacts on southeast Florida coral reefs*, Brian K. Walker. (2012).

¹⁷ *Id.* at 4.

¹⁸ *Investigations of Mitigation for Coral Reef Impacts in the U.S. Atlantic: South Florida and the Caribbean*, United States Fish and Wildlife Service, available at <http://www.fws.gov/southeast/es/pdf/finalcrtfatlanticreport.pdf>.

¹⁹ *Id.* at 33.

²⁰ *Id.*

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The proposed mitigation plan states that Broward County will bear the responsibility of construction, monitoring, and success of mitigation efforts for the losses of seagrass and mangroves at West Lake Park. Seagrasses provide shelter fish such as snapper, crustaceans, and shellfish and serve as food for many marine mammals and water birds.²¹

Special consideration should be given to the long term effects the habitat destruction caused by blasting and dredging as well as increased ship traffic will have on protected species in the area. Johnson's Seagrass, Sea Turtles, and West Indian Manatee will all be negatively impacted by this project directly or indirectly.

Comments:

- Comments presented in the National Oceanic and Atmospheric Administration in Appendix H should be considered.

Questions:

- What measures have been put into place to ensure that contractors are ultimately being held accountable for any potential breaches in the monitoring plans for protected species?

Mitigation Plan: Hardbottom Habitats

The proposed mitigation plan, as it pertains to the hardbottom habitats, stemmed from a preliminary calculation of the impact acreages for various habitats in the harbor (e.g., the inner, middle, and outer reefs). The Habitat Equivalency Analysis (HEA) that was conducted developed two impact scenarios for consideration. Scenario 1 considered that 32.30 acres of direct impacts would occur, whereas Scenario 2 considered that 15.17 acres of direct impacts would occur. The HEA also included that channel walls could function as a habitat, and the walls were included in the mitigation analysis. The ultimate decision was to adopt the second scenario, which would require considerably less compensatory mitigation, unless “actual damages to reefs occurred due to anchor and cable impacts (and is verified by post-construction surveys).” (Port Everglades Navigation Improvements – Draft Comprehensive Mitigation Plan and Incremental Cost Analysis at App. E 23). The choice of the second scenario exposes a much larger risk of damage to the reef habitat, if the calculations of impacts were underestimated.

In addition, coral transplantation projects require significant monitoring and maintenance and there needs to be some insurance that coral transplantation projects will be sustained to the extent that coral production can be guaranteed. The corals that are damaged by the channel dredging should be included in the mitigation projects, especially given the unidentified ability of corals to recover such disturbance. There is a high risk that transplanted corals will not survive

²¹ *Florida's Seagrasses*, Florida Department of Environmental Protection, available at <http://www.dep.state.fl.us/coastal/habitats/seagrass/>.

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without effective management.²² NOAA has recommended mitigation of corals through propagation and outplanting off the Broward County coast.

Comments:

- Uncertainty in the plan: During the public meetings held on July 23 and 24, 2013, USACE representatives explained that the precise methods that will be used to conduct the port expansion were uncertain because the contractors would be selecting the best ways to complete the job. In order to be completely accurate in the understanding of the impacts, the Environmental Impact Statement should create a limit to the methods that could be used to complete the job.
- Completion of the plan: Also during the public meeting, USACE representatives explained that the disposal site for the waste that would be produced by the project was not finalized. In order to avoid unforeseen obstacles, the Environmental Impact Statement should have a definitive alternative that has the capacity.
- Lessons Learned from the Port of Miami Dredging Project: USACE now has the benefit of the current plan for the Port of Miami project. Taking into consideration some of the similarities in the projects, the Port Everglades project should consider the best practices used in the Port of Miami plan.
 - Although the proposed mitigation plan explains that artificial reef is the most cost-effective, the Port of Miami plan discovered a way to include both the artificial reef restoration plan and an alternative such as coral transplantation. Multiple approaches to restoring the hardbottom habitats create a greater opportunity to ultimately achieve the mitigation plan. USACE should consider absorbing one or more of the alternatives presented by alternative research groups in order to create greater opportunities for success. In particular USACE should consider adopting the plan suggested by The Nature Conservancy.
 - The Port of Miami plan also included a detailed accountability plan that accompanied its mitigation and monitoring plans.

Questions:

- Has the U.S. Fish and Wildlife Service provided any additional feedback after their original participation in the study?
- What supporting information did USACE consider to find the conclusions of what to include as direct impacts to the coral reef and indirect impacts to the coral reef in the cost-benefit analysis?

²² *Coral Transplantation*, Reef Resilience Toolkit, available at http://www.reefresilience.org/Toolkit_Coral/CCRd0_Transplantation.html.

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Secondary and Cumulative Impacts

Expanded Port activities will increase the occurrence of groundings and potential for damage to nearby reef, seagrass, and hard-bottom communities. Additionally, it is reasonably foreseeable that increased traffic will result in more localized pollution from ships as well as physical contaminants falling off of ships and harming the local areas. The cumulative impacts were deemed to be negligible by USACE, but we disagree. The cumulative impacts are a grave concern and should not be dismissed without further consideration given to potential for future problems.

Conclusion

Although we can appreciate the need for the continued economic viability of Port Everglades, the natural resources embodied in our coastal environments must not be compromised. While the proposed plan is the most environmentally friendly of those presented within the EIS, the EIS failed to consider certain alternatives that would be more environmentally friendly than the proposed alternative. The EIS incorrectly concludes that no-action alternatives can only result in solutions that have a more negative environmental impact. The local environment is extremely important not only from an aesthetic point of view but from an economic perspective as well. This project is primarily focused on decreasing costs for transportation into the Port, but the decreases in cost for transportation are being garnered at the expense of the local environment.

It is not clear from the EIS that efforts have been made to calculate the overall economic benefits of the expansion plan by implementing a holistic analysis that adequately considers the economic cost of the damage to the environment. The environment powers the massive tourism industry, which is the foundation of our economy. Any sacrifices in the environment should be taken with tremendous caution and projects such as this port expansion should be heavily scrutinized. And scrutiny should be brought to bear on any economic studies that support the growth projections proffered by business stakeholders in favor of the port expansion. It may well be that the harms to the local environment are needless when the nearby Port of Miami has already undertaken the burden of a similar dredging project. Perhaps no-action alternatives that explore options of reduced consumption will ultimately be the most favorable, both environmentally and economically.

Thank you for your diligent work thus far to protect South Florida's unique and fragile natural resources. We appreciate your time and attention in these matters.

Please add the undersigned to the list of organizations and individuals to be notified by the U.S. Army Corps of Engineers in all matters related to this issue.

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Doug Young

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Stanley Pannaman

Programs Chair
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Monday 12 August 2013

Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Blvd
Jacksonville, FL 32207
terri.jordan-sellers@usace.army.mil
Phone: 904-232-1817

Dear Ms Terri Jordon-Sellers:

The Port Everglades Association, Inc. has supported and sustained the development of Port Everglades for nearly 35 years. Its member companies represent the vast majority of jobs at Broward County's commercial seaport.

The Army Corps of Engineers recent Draft EIS and Feasibility Study represents a leap forward that the Association considers essential to the continued vitality of Port Everglades.

The Association's membership – bulk and container cargo, petroleum terminals, cruise lines, warehousing, the railroad and harbor pilots – to a business supports the widening and deepening of the entrance channel and harbor at Port Everglades.

The Association appreciates that NOAA is a formal partner in the Draft EIS and hopes that the scientifically-credible mitigation proposal to grow and replace coral will be given serious consideration.

On behalf of the 80-member Port Everglades Association I want to thank you for your efforts to keep our seaport modern and competitive and growing.

Sincerely,

Margaret Kempel
Executive Director
Port Everglades Association
1850 Eller Drive, Suite 405
Fort Lauderdale, FL 33316
PH 954-463-2801
www.portbiz.org



August 13, 2013

Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Blvd
Jacksonville, FL 32207
terri.jordan-sellers@usace.army.mil
Phone: 904-232-1817

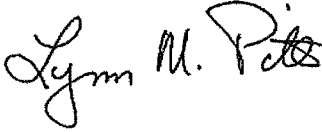
Dear Ms. Terri Jordon-Sellers:

Florida Power & Light Co. has supported and sustained the development of Port Everglades for many decades. We would like to see continued growth and vitality at the port and by way of this letter are voicing our support. The importance of the port and the latest proposed activities are many:

- Port Everglades is the gateway for International Trade and Cruise Vacations. It is one of the busiest cruise ports in the world and one of the Nation's leading container ports. In addition, Port Everglades is the main seaport for receiving petroleum products, including gasoline, jet fuel and other alternative fuels.
- The Port currently supports over 11,700 direct jobs locally and a total of 201,000 jobs within the State of Florida, not to mention those associated jobs throughout the country. The total regional economic activity attributable to Port Everglades is over \$15.3 billion dollars.
- In order to remain a leader in International Trade, Port Everglades must have deeper water to accommodate the newer, larger generation of cargo ships that are expected to pass through the expanded Panama Canal in 2015.
- It is an important advance in the DEIS that NOAA, the federal agency in charge of the oceans and its health, is a formal partner and has proposed a reasonable, cost-effective, and scientifically credible mitigation alternative.
- For speedy resolution of environmental issues I recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation.

On behalf of Florida Power & Light, our customers, employees and shareholders I want to thank you for your efforts to keep our seaport modern and competitive and growing.

Sincerely,

A handwritten signature in black ink, reading "Lynn M. Pitts". The signature is fluid and cursive, with the first name "Lynn" being the most prominent.

Lynn M. Pitts
Director
Office of Economic Development
Florida Power & Light Co.



August 13, 2013

Terri Jordan-Sellers
 US Army Corps of Engineers
 701 San Marco Blvd
 Jacksonville, FL 32207
terri.jordan-sellers@usace.army.mil
 Phone: 904-232-1817

Dear Ms. Terri Jordon-Sellers:

I am writing in support of the widening and deepening of the entrance channel and harbor at Port Everglades. As a member of the Executive Committee of the Greater Fort Lauderdale Alliance, and as a Board Member of the Port Everglades Association, I am deeply aware of how crucial Port Everglades is to the continued economic development of Broward County. The importance of Port Everglades to maintaining our global competitiveness cannot be overstated. In your decision making process, please take into account the following points.

- Port Everglades is the gateway for International Trade and Cruise Vacations. It is one of the busiest cruise ports in the world and one of the Nation's leading container ports. In addition, Port Everglades is the main seaport for receiving petroleum products, including gasoline, jet fuel and other alternative fuels.
- The Port currently supports over 11,700 direct jobs locally and a total of 201,000 jobs within the State of Florida, not to mention those associated jobs throughout the country. The total regional economic activity attributable to Port Everglades is over \$15.3 billion dollars.
- In order to remain a leader in International Trade, Port Everglades must have deeper water to accommodate the newer, larger generation of cargo ships that are expected to pass through the expanded Panama Canal in 2015.
- It is an important advance in the DEIS that NOAA, the federal agency in charge of the oceans and its health, is a formal partner and has proposed a reasonable, cost-effective, and scientifically credible mitigation alternative.

- For speedy resolution of environmental issues I recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and implementation.

Fostering economic growth is, perhaps, the most important challenge that our nation faces in the coming years. I want to thank you for your efforts to keep our seaport modern, competitive and growing so that we may do our part foster that growth.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ben Wesley', with a long horizontal flourish extending to the right.

Ben Wesley
External Affairs Manager
Florida Power & Light Co.



Office of the President
Willis Holcombe Center
111 East Las Olas Boulevard, Fort Lauderdale, FL 33301
Phone: 954-201-7401/Fax 954-201-7357

J. David Armstrong, Jr., President

August 13, 2013

Terri Jordan-Sellers
Project Director
United States Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, FL 32207

Dear Mr. Terri Jordan-Sellers:

It is with great pleasure that I write to support the deepening and widening project at Port Everglades.

As President of Broward College, I am privileged to serve our students, faculty and staff, all of whom stand to benefit tremendously from this expansion project. Broward College currently has an estimated One billion dollar impact on Fort Lauderdale's local economy. Our students go on to become community and business leaders, educators, health care experts, technical professionals, law enforcement officers, and marine and automotive industry specialists.

Academic training begins with us, and expertise is acquired upon graduation through local community partners and industry leaders who assist our students by offering them unique job and internship opportunities.

Thus, it is through Broward College's commitment to watching our graduates succeed in their professional lives that I express my support for this outstanding Port expansion project in our own backyard.

We look forward to watching as our graduates thrive and prosper as professionals in an ever growing Broward County.

Sincerely,

J. David Armstrong Jr.
President

Steven Miller, Ph.D.
305 451 9030
smiller52@gmail.com

233

August 13, 2013

Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Blvd
Jacksonville, FL 32207
Submitted via email to: terri.jordan-sellers@usace.army.mil

Subject: Comments on the Army Corps of Engineers Draft Environmental Impact Statement related to the Port Everglades Navigation Improvements (Appendix E) and Mitigation Analysis for Hardbottom Resources (Appendix E2)

Dear Ms. Jordan-Sellers:

I am writing in response to the mitigation strategies proposed for the Port Everglades Navigation Improvement Project, specifically related to proposals by the Army Corps and the NOAA alternative. I am a coral reef scientist with over 20 years of experience in Florida. I am currently a Senior Research Scientist at Nova Southeastern University. I am also on the Board of Directors of the Coral Restoration Foundation (CRF), where I chair their Science Advisory Committee, which includes scientists from around the country who have expertise relevant to coral reef restoration. My remarks are my own and should not be considered to represent the university or CRF.

Both plans include similar elements related to the use of boulders (from dredge materials) to replicate three-dimensional structure that is relevant to reef function. The Army Corps plan also emphasizes rescue of corals from the proposed impact areas, for transplanting to adjacent hardbottoms and nurseries. The NOAA plan acknowledges the value of replacing coral colonies, but emphasizes that replicating three-dimensional structure with living coral is important. NOAA uniquely emphasizes *Acropora cervicornis* (staghorn coral) in their mitigation plan (and other coral species) as an option to replace three-dimensional structure, using land-based nurseries, six offshore nurseries, and reared corals for transplants to enhance natural reefs or restore degraded

Steven Miller, Ph.D.
305 451 9030
smiller52@gmail.com

sites. The Army Corps plan involves five years of work and the NOAA plan is estimated to take 20 years to complete. My comments focus on *A. cervicornis* outplanting as a mitigation strategy.

NOAA states in their June 7, 2013, Discussion Draft, *...coral propagation and outplanting, predominantly using Acropora spp., has been successfully used over the past decade in Florida and the Caribbean for reef rehabilitation. And, ...supplemented corals improve local reef structure and function but more importantly increase the likelihood of successful sexual reproduction and contribute directly to the pool of coral larvae available to colonize adjacent reefs.* These two statements encapsulate the excitement and potential that coral propagation and transplanting hold in the realm of coral reef science and management. There are, however,

Comment 1 caveats. Survivorship of transplanted corals can initially be high, but mortality can also be high, especially after four or five years. Factors responsible for mortality of transplants are not well understood. Sexual reproduction by transplanted corals, to colonize other areas, is a goal of restoration, but not something that has yet been achieved. Sexual reproduction by transplants has
Comment 2 been observed, but only on a couple of occasions in Florida. There is great potential for success, but no reefs have been successfully restored to the point of self-sustaining thickets that successfully reproduce through fragmentation and sexual reproduction.

The excitement of coral reef restoration, so far for *Acropora cervicornis*, is based on results that suggest despite all of the existing stressors (including coral bleaching, coral diseases, hurricanes, and pollution, and the fact that southeast Florida is considered the northern geographic boundary for coral reefs in this part of the world) tens of thousands of corals are currently growing and thriving in coral nurseries in the Florida Keys, and thousands more have been transplanted to offshore reefs. Restoration programs are active throughout region, including significant research and monitoring elements. These programs are focused on helping to recover the species, which is listed as Threatened under the US Endangered Species Act. Initial successes are currently measured over a period of several years (in some cases up to five years), when the relevant ecological time frame is decadal. Thus, much remains to be learned about what it takes to successfully restore reefs using this relatively new approach.

Steven Miller, Ph.D.
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Specific to Broward County and the Port Everglades Project, *Acropora cervicornis* is present but not common. In terms of numbers of colonies, it is much less abundant than in the Florida Keys, where large numbers remain, but none develop larger clumps or thickets that previously characterized the region. Patches of *A. cervicornis* off Broward County have attracted considerable attention in recent years. The patches appear to be persistent and they migrate somewhat depending on storms that cause fragmentation. That such features exist along this part of the Florida coast suggest that they are either random features, or they are an expansion northward possibly related to warming. The presence of these patches (but not specifically in the project area) suggests that restoration work for *A. cervicornis* off Broward County is not unwarranted. However, the premise of the NOAA recommendation, that restoration will be successful in the long-term (20 years), is not yet able to be confirmed.

Comment 3

My personal involvement in coral reef restoration is based on what I see as its great potential. Within the context of science and management, the strategy to routinely and abundantly transplant corals to reefs, using many different strategies, and ultimately additional species of corals, makes sense because we don't know exactly what will work in the long run. It's also important not to wait for science to exactly tell us the best way to proceed, but instead to try many different and promising avenues at once, then use science to help inform the process. There is much urgency to find a solution. Frankly, coral reef restoration has advanced because of the vision and efforts of Ken Nedimyer and others, who went to work and made it happen. I believe that there is a role for coral reef nurseries and outplanting in the Port Everglades Project, but I recommend that nurseries and outplanting should be initially limited, then scaled up only if

Comment 4

results warrant. Such restoration work also needs to be conducted within the context of the existing abundance of coral species in the work area, where *Acropora cervicornis* is rare. I don't believe that the paucity of these corals in the project area should disqualify the species as a candidate for restoration work, since the growth rate of *A. cervicornis* is among the fastest among all corals in the region, and under the right set of circumstances (which are not yet known) small numbers can potentially develop quickly (decadal is the relevant time frame) into a large population. It is important to note, that nurseries and outplanting of other coral species,

Comment 5

Steven Miller, Ph.D.
305 451 9030
smiller52@gmail.com

that might be proposed for mitigation purposes, are even less understood and developed than *A. cervicornis*.


NOAA's plan actually recommends a combination of mitigation approaches be used, combining the boulder approach of the Army Corps plan plus the more innovative approach of using nurseries and outplanting. Adaptive Management is the term used by NOAA to acknowledge that progress and performance needs to be monitored and evaluated. For the NOAA approach, I

Comment 6 support multiple nurseries to mitigate potential coral losses from cold fronts, storms, and other stressors, as well as using different outplanting strategies, including various coral densities and sizes and outplant timing, as informed by science and monitoring work. It is relatively straight forward to design a five-year program to get things started, and NOAA and its partners (including the Coral Restoration Foundation (CRF) and Ken Nedimyer) have the needed

Comment 7 expertise – NOAA and CRF are world-leaders in coral reef restoration. A staged approach to expand, refine, or contract the effort is appropriate. Monitoring will need to be conducted to document that coral growth (and condition), survival, and reproduction occur in an ecologically relevant manner. Success will be measured by persistence and growth of transplants into larger three-dimensional structures, which clearly have a role in supporting reef function. This defines the promise of coral reef restoration, but not yet its reality.

To summarize, I recommend a mitigation approach that uses elements of both plans, including boulders, rescuing and transplanting corals, and rearing and transplanting *Acropora cervicornis*. Integrating NOAA's Mitigation Alternative into the Army Corps plan should be considered. I do not view the two plans as competing, from a science perspective related to mitigation strategies, but complementary. I look forward to learning about how the Port Everglades Mitigation Plan develops and please let me know if you have any questions. I am happy to help in any way to advance the goals of the project.

Sincerely,



Steven Miller, Ph.D.

http://www.nova.edu/ocean/overview/faculty-staff-profiles/steven_miller.html



August 13, 2013

Ms. Terri Jordan-Sellers
U.S. Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, Florida 32207

Dear Ms. Jordan-Sellers:

As President/CEO of the Greater Pompano Beach Chamber of Commerce, a business organization representing over 700 partners and their businesses, I am writing to you in support of the channel deepening and widening at Port Everglades, located in here in Broward County, Florida.

The Greater Pompano Beach Chamber urges you to issue the Chief of Engineer's Report as quickly as possible to position Port Everglades favorably for project authorization in the Water Resources Development Act (WRDA) bill, which is currently scheduled to be marked up in September.

The businesses in Pompano Beach's industrial corridor with over 33,000,000 square feet of industrial/manufacturing space are dependent upon Port Everglades for both import and export of products produced locally. This community, its businesses and residents plead with you to move without further delay.

Port Everglades can no longer wait. Completion of the final report by the end of this year, and project authorization by Congress is required before Port Everglades can compete for federal funding to move forward with this project. After nearly two decades of waiting, the state of Florida needs your resolute commitment to the immediate issuance of the Chief's Report.

Sincerely,

Ric Green

Ric Green
President/CEO
Greater Pompano Beach Chamber of Commerce

*The Greater Pompano Beach Chamber of Commerce, 2200 East Atlantic Boulevard, Pompano Beach, Florida 33062
Telephone (954) 941-2940, Fax; (954) 785 8358, Toll Free (888) 939 5711, www.PompanoBeachChamber.com*



CITY of HOLLYWOOD, FLORIDA

Office of the Mayor and Commissioners

2600 Hollywood Blvd. • P.O. Box 229045 • Hollywood, Florida 33022-9045

Phone (954) 921-3321 • Fax (954) 921-3386 • kbiederman@hollywoodfl.org • www.hollywoodfl.org

Kevin D. Biederman
Commissioner
District 5

August 13, 2013

Ms. Terri Jordan-Sellers
Project Director
U.S. Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, FL 32207

Dear Ms. Jordan-Sellers:

Nearly eighty percent (80%) of Port Everglades is located within the City of Hollywood. For the past two years, Broward County elected officials and business leaders have been working to advance the critical deepening and widening of the Port Everglades navigation channels to accommodate new mega-ships that are replacing the current older fleet. This long anticipated project has been 17 years in the making. To this end, the City of Hollywood supports the U.S. Army Corps of Engineers (USCAE) efforts to improve the operational capacity of Port Everglades.

Today, Port Everglades supports 11,700 direct jobs locally and a total of 201,000 jobs statewide. This deepening project, along with the separate Turning Notch Extension and intermodal rail facility on the Port, is projected to create **7,000 new jobs** regionally and support 135,000 new jobs statewide over the next 15 years for a total 143,000 jobs. These projects will allow the Port to continue to meet the needs of shipping customers who are focusing their ship-building efforts on larger capacity vessels. Broward County needs this project authorized by Congress and subsequent funding to remain competitive as the #1 container port in Florida.

The Corps commitment to minimizing the potential negative environmental impact is equally important as the improved operability of the channels. While the City of Hollywood supports the USCAE efforts to make Port Everglades more competitive, it is imperative that the USCAE corps and the federal government participate in creating solutions for the negative impact the inlet has upon beaches to the south. In particular, the sand by pass project is critically needed to help to restore the flow of sand to the beaches southward. We hope that as the deepening project moves forward, the bypass project can also be escalated as a high priority.

We recognize that in the next few months, Congress may decide whether or not this project will be authorized for subsequent funding. Without this authorization, not only will we lose jobs, but Port Everglades, one of Florida's key economic engines will lose its competitive edge. The City of Hollywood provided written comments during the July 23, 2013 Public Hearing and re-affirms its support in this correspondence.

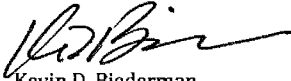
Our Mission: We are dedicated to providing municipal services for our diverse community in an atmosphere of cooperation, courtesy and respect. We do this by ensuring all who live, work and play in the City of Hollywood enjoy a high quality of life.

"An Equal Opportunity and Service Provider Agency"

Ms. Terri Jordan-Sellers
Project Director
U.S. Army Corps of Engineers
August 13, 2013
Page 2

If you have any additional questions, please do not hesitate to contact me at kbiederman@hollywoodfl.org or at 954-921-3321.

Sincerely,

A handwritten signature in black ink, appearing to read 'KBiederman', with a stylized flourish at the end.

Kevin D. Biederman
Commissioner, City of Hollywood

c: Senator Bill Nelson
Senator Marco Rubio
Congresswoman Debbie Wasserman Schultz
Congresswoman Frederica Wilson
Terry Stiles, Chair, Port Everglades Action Team
Bob Swindell, President & CEO, Greater Fort Lauderdale Alliance
Anne T. Hotte, CEO/Executive Director, Greater Hollywood Chamber of Commerce
Mayor and Commissioners, City of Hollywood
City Manager, City of Hollywood



CITY of HOLLYWOOD, FLORIDA

Office of the Mayor and Commissioners

2600 Hollywood Blvd. • P.O. Box 229045 • Hollywood, Florida 33022-9045

Phone (954) 921-3321 • Fax (954) 921-3386 • lsherwood@hollywoodfl.org • www.hollywoodfl.org

Linda Sherwood
Commissioner
District 6

August 13, 2013

Ms. Terri Jordan-Sellers
Project Director
U.S. Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, FL 32207

Dear Ms. Jordan-Sellers:

Nearly eighty percent (80%) of Port Everglades is located within the City of Hollywood. For the past two years, Broward County elected officials and business leaders have been working to advance the critical deepening and widening of the Port Everglades navigation channels to accommodate new mega-ships that are replacing the current older fleet. This long anticipated project has been 17 years in the making. To this end, the City of Hollywood supports the U.S. Army Corps of Engineers (USCAE) efforts to improve the operational capacity of Port Everglades.

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We recognize that in the next few months, Congress may decide whether or not this project will be authorized for subsequent funding. Without this authorization, not only will we lose jobs, but Port Everglades, one of Florida's key economic engines will lose its competitive edge. The City of Hollywood provided written comments during the July 23, 2013 Public Hearing and re-affirms its support in this correspondence.

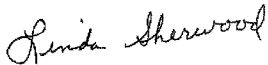
Our Mission: We are dedicated to providing municipal services for our diverse community in an atmosphere of cooperation, courtesy and respect. We do this by ensuring all who live, work and play in the City of Hollywood enjoy a high quality of life.

"An Equal Opportunity and Service Provider Agency"

Ms. Terri Jordan-Sellers
Project Director
U.S. Army Corps of Engineers
August 13, 2013
Page 2

If you have any additional questions, please do not hesitate to contact me at lsherwood@hollywoodfl.org or at 954-921-3321.

Sincerely,

A handwritten signature in cursive script that reads "Linda Sherwood".

Linda Sherwood
Commissioner, City of Hollywood

c: Senator Bill Nelson
Senator Marco Rubio
Congresswoman Debbie Wasserman Schultz
Congresswoman Frederica Wilson
Terry Stiles, Chair, Port Everglades Action Team
Bob Swindell, President & CEO, Greater Fort Lauderdale Alliance
Anne T. Hotte, CEO/Executive Director, Greater Hollywood Chamber of Commerce
Mayor and Commissioners, City of Hollywood
City Manager, City of Hollywood

**Palm Beach County
REEF RESCUE**

P.O. Box 207
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Email: etichscuba@aol.com
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August 13, 2013

U.S. Army Corps of Engineers
701 San Marco Blvd., Jacksonville, FL 32207

Via email: Terri.Jordan-Sellers@usace.army.mil

Re: Comments and Questions

Draft Environmental Impact Statement Port Everglades Expansion

Other than the obvious removal of coral habitat an underlying tenet in the Draft EIS appears to be that if presently existing coral colonies are capable of surviving initial injury from turbidity, suspended solids or direct burial that there will be no lasting impacts to their biology. No consideration is given to long-term or cumulative impacts from this and past projects on the already degraded coral reef ecosystem. In addition, there is little or no focus on the potential impacts to the coral's natural biological functions, such as reproduction, larval dispersal, settlement and recruitment. This is particularly disturbing since the project is proposed to take place in federally designated protected Acroporid coral habitat critical to the survival of the species. The Draft EIS fails to assess potential project impacts on coral reproduction and preservation to essential habitat identified by NOAA/NMFS as necessary for the survival of the species. Failure to consider any impact short of total annihilation is a glaring omission and suggests a narrow and archaic view of coral reef biology.

The Army Corp of Engineers (ACOE) Draft EIS appears to underestimate the impact to coral reef habitats from the project. The ACOE calculation fails to address impacts to the coral reef's east and west facing slopes below the proposed 57 foot deep channel excavation. Elevated turbidity, sedimentation, mechanical damage and rubble generated from reef-top excavation will very likely result in negative impacts to the deeper reefs zones.

Why haven't the impacts to the reef zones below 57 feet been taken into consideration in the ACOE loss of coral habitat calculations? The failure to include the added coral loss also results in an underestimation of coral mitigation needed resulting of project impacts.

Palm Beach County REEF RESCUE

The Draft EIS describes secondary impacts to coral habitat up to 150 meters from the channel excavation, but fails to provide any rationale or justification to support this estimate.

Was this estimation based on any scientific methodology?

Based on observations of coastal dredge and fill projects along the southeast coast of Florida it is our opinion that sediment and turbidity impacts will extend well beyond 150 meters from the channel excavation area.

How will any and all negative impacts beyond 150 meters from the channel be documented?

Considering the potential for a substantial increase in tidal flushing through the enlarged channel after expansion, has the ACOE evaluated potential interruption of larval coral transport from increased flushing along the reefline?

Has the ACOE considered impacts on coral spawning, larval transport and survival?

How has sedimentation and turbidity impacts to *Acropora* coral critical habitat been evaluated?

At the July 2012, 12th International Coral Reef Symposium in Cairns, Australia, 2,600 of the world's most respected coral reef scientists signed a Consensus Statement urging governments to take action for the preservation of coral reefs for the benefit of present and future generations. The Consensus Statement *calls on all governments to ensure the future of coral reefs, through global action to reduce the emissions of carbon dioxide and other greenhouse gases, and via improved local protection of coral reefs. Coral reefs are important ecosystems of ecological, economic and cultural value yet they are in decline worldwide due to human activities. Land-based sources of pollution, sedimentation, overfishing and climate change are the major threats, and all of them are expected to increase in severity.* The Statement specifically addresses sedimentation stating *"Coral reef death also occurs because of a set of local problems including excess sedimentation, pollution, habitat destruction, and overfishing. These problems reduce coral growth and vitality, making it more difficult for corals to survive climate changes."*

Currently, one Endangered Species Act (ESA) protected coral (*Acropora cervicornis*) occurs within the EIS impact area. The National Marine Fisheries Service (NMFS) is

To monitor, preserve and protect the coral reef ecosystem of South Florida through research, education and public awareness

Palm Beach County REEF RESCUE

now in the process of considering an additional 82 coral species for ESA protections due to their potential extinction risk. Of the 82 corals, seven are found in Broward County and within the footprint of the proposed port expansion. According to NMFS Biological Review Team's findings, of these seven, five topped the list of the 82 corals as most likely to become extinct by the end of the century unless protective measures are instituted.

Impacts from turbidity and sedimentation on corals are well documented and range from direct burial, increased metabolic stress to degradation of substrate preventing coral recruitment. Sediment deposition and accumulation affect the overall amount of suitable substrate available for larval settlement, recruitment, and fragment reattachment (Babcock and Davies 1991, Birrell et al. 2005); both sediment composition and deposition affect the survival of juvenile corals reducing available substrate for larval recruitment. Habitat degradation from sediment deposition can disrupt cues for larval settlement, leading to limited or failed recruitment potential and increased larval mortality.

Coral reproduction and recruitment are far more sensitive to changes in water quality than adult corals (Fabricius 2005). Accumulation of sediments can be a cause of mortality in coral recruits (Fabricius et al. 2003). Settlement rates for coral larvae and reattachment rates for fragments are near-zero on sediment-covered surfaces (Fabricius 2005).

Rogers (1983) investigated the effects of sedimentation on several coral species documenting a single application of 200 mg/cm^2 to colonies caused coral tissue death. Hodel and Vargas-Angel (2007) noted degenerative histopathological changes in staghorn coral exposed to sedimentation rates of 200 mg/cm^2 , indicating sub-lethal damage to the coral and compromised health. Riegl and Branch (1995), documented sedimentation rates greater than 100 mg/cm^2 can kill exposed coral tissue within a period of a few days. Sedimentation levels less than 100 mg/cm^2 reduce photosynthetic yields in corals (Philipp and Fabricius, 2003), and the removal of settled particles by coral polyps increases metabolic costs (Telesnicki and Goldberg, 1995).

In coral colonies, sedimentation stress increases linearly with the duration and amount of sedimentation: for example, a given amount of sediment deposited on the coral for one time unit exerts the same measurable photophysiological stress as twice the amount deposited for half the time (Philipp and Fabricius, 2003). Coral damage appears to not only depend on the amount and duration of sedimentation, but also strongly depends on the sediment type. Tissue damage under a layer of sediment increases with increasing organic content and bacterial activity and with decreasing grain sizes (Hodgson, 1990;

Palm Beach County REEF RESCUE

Weber et al., 2004). Low-level sedimentation (12 mg/cm^2) when combined with exopolymer particles (possibly polysaccharides exuded by bacteria) kills newly settled coral recruits. These and similar data demonstrate the critical interactions between sediment quality and quantity on coral damage (Fabricius and Wolanski, 2000). They also show that short exposure to sediments (a few days) can cause long-term effects in populations, by removing cohorts of young corals and thus retarding reef recovery after a disturbance.

Rogers (1979) simulated sediment shading in a 20 square meter area of reef. Three weeks after shading was initiated, most colonies of staghorn coral were bleached. Shading was terminated after 5 weeks. After six weeks, the growth tips of the staghorn coral were deteriorating or had been grazed away. A few branches recovered; most were dead and covered with algae. After seven weeks, there were more algae on the branches and further disintegration of branch tips.

Light affects both reproduction and recruitment, as coral fecundity decreases in low-light conditions, and coral larvae use light quantity and quality to choose their settlement site.

At low light levels, corals preferentially settle on upper surfaces, where the risk of sedimentation damage is high, rather than on vertical or downward facing surfaces (Birkeland et al., 1981). At highly turbid conditions, coral recruits may undergo reverse metamorphosis, indicating conditions are unsuitable for continued development and growth (Te, 1992).

Sedimentation strongly inhibits successful coral reproduction, especially coral settlement and recruit and juvenile survival. Sedimentation mortality thresholds for coral recruits are an order of magnitude lower than those for larger colonies (loads of tens rather than hundreds of mg/cm^2 ; Fabricius et al., 2003). Few coral larvae settle on sediment covered surfaces, and survival on such surfaces is minimal.

Local divers have been observing ever-increasing accumulations of sediment on offshore coral reefs resulting from past coastal construction projects. At many sites the sediment accumulations have obscured resident crustose coralline algae (CCA) populations. Larval corals preferentially colonized CCA sites. Successful coral recruitment involves specific cues that connect planktonic larvae with CCA during settlement (Doropoulos et al 2012).

How does the ACOE intend to monitor potential regional large-scale sediment degradation to the Acropora critical habitat substrate as it relates to larval coral recruitment and survival?

To monitor, preserve and protect the coral reef ecosystem of South Florida through research, education and public awareness

Palm Beach County REEF RESCUE

How will the turbidity monitoring protocol employed to protect the surrounding Acropora critical habitat from immediate and long-term post-project impacts ensure there will be no loss or negative impact to the federally protected critical habitat substrate?

Will there be penalties for permit turbidity violations?

What methodology will be employed to assess sediment accumulation during and after project construction as it relates to protecting substrate to ensure successful larval coral settlement and survival?

What sediment accumulation value will be considered as protective to the reef substrate to ensure future successful coral recruitment and larval survival?

Impacts from the proposed project on coral spawning, larval settlement and recruit survival have not been adequately addressed in the Draft EIS.

The Draft EIS fails to take into consideration the chemical nature of the suspended solids impacting the receiving environment during excavation of sediments within the port. Results of sediment analysis published by the Florida Department of Environmental Protection (Florida coastal sediment contaminants atlas a summary of coastal sediment quality surveys, 1994) found both metal and organic contamination are ubiquitous in intracoastal sediments (<http://ufdc.ufl.edu/UF00099283/00001/2x>)

Ports, marinas and boatyards are notorious for containing contaminated sediments, including Polycyclic Aromatic Hydrocarbons (PAH's), organic contaminants, heavy metals and most notably tributyltin (TBT). TBT, a component of marine antifouling paints, is toxic to aquatic organisms such as mussels, clams, and oysters. At low levels, TBT can cause structural changes and growth retardation. TBT binds strongly to suspended particles such as minute organic material or inorganic sediments, it is well documented that TBT persists in marina/boatyard sediments. Liberation and suspension of entombed TBT and other hazardous material can have a devastating impact on invertebrate reproduction.

In addition to the above listed shipyard related contaminants, there is a high likelihood agricultural and urban runoff pollutants may be present in sediments within the proposed port expansion footprint. The Port Everglades receives runoff from the Everglades Agricultural Area (EAA). Contaminates present in EAA sediments can include arsenic, pesticides, herbicides, DDT and its degradation products. The South Florida Water Management District, Ambient Pesticide Monitoring Network Technical Publication 105

Palm Beach County REEF RESCUE

(October 2009) lists the following 21 most frequently detected pesticides, herbicides, Aroclors and degradation products found in EAA drainage sediments: aldrin, alpha endosulfan, ametryn, atrazine, bromacil, beta endosulfan, chlordane, dicofol, dieldrin, diquat, diuron, p,p'-DDD p,p'-DDE, p,p'-DDT, endosulfan sulfate, ethion, norflurazon, PCB-1016, PCB-1242, PCB-1254, PCB-1260.

(http://my.sfwmd.gov/portal/page/portal/pg_grp_tech_pubs/PORTLET_tech_pubs/sfwmd_105.pdf, Table 7)

What chemical and physical analysis of port sediments was performed/reviewed in preparation of the Draft EIS?

What are the anticipated impacts from suspension of contaminated sediments, routes of exposure and long-term effects on the public health, flora and fauna during and post-project?

Sincerely,
Palm Beach County Reef Rescue,
submitted by Ed Tichenor, Director
on behalf of Palm Beach County Reef Rescue

South
Florida
Regional
Planning
Council



August 13, 2013

Ms. Terri Jordan-Sellers
U.S. Army Corps of Engineers
701 San Marco Blvd.
Jacksonville, FL 32207

RE: SFRPC#13-0602, Army Corps of Engineers FL# 2013-0626-6640C, Feasibility Study and Draft Environmental Impact Statement for navigation improvements to the Port Everglades Harbor in Broward County.

Dear Ms. Jordan-Sellers:

The Port Everglades Harbor Feasibility Study was initiated in 2001 with a primary purpose of investigating improvements to the Federal navigation project at Port Everglades. Proposed improvements focused on ways to 1) decrease costs associated with vessel delays from congestion, channel passing restrictions, and berth deficiencies through the year 2060; 2) decrease transportation costs through increasing economies of scale for cargo and petroleum vessels through the year 2060; 3) increase channel safety for maneuverability for existing vessels as well as larger next generation vessels requiring more channel depth to operate efficiently; and, 4) comply with USACE environmental operating principles.

We reviewed the above-referenced Feasibility Study and Draft Environmental Impact Statement for the Port Everglades Harbor Channel Expansion Project and have the following comments:

- Port Everglades is a leading container port in Florida, among the most active cargo ports in the United States, and is the main seaport for petroleum products for South Florida. Additionally, the port is one of the three largest cruise ports in Florida; had an economic impact of nearly \$26 billion of total business activity in 2012; and, generated \$729 million in state and local taxes in 2012.
- The expansion projects at Port Everglades are expected to create 7,000 new jobs in South Florida and support 135,000 new jobs statewide. Today, Port Everglades impacts more than 143,000 Florida jobs, including 10,000 jobs who work directly for companies that offer services to Port Everglades.
- In March 2011, the Broward County Board of County Commissioners unanimously approved the Port Everglades 20-Year Master/Vision Plan that includes market projections and plans for increased berth space to support next generation vessels that require more channel depth to operate efficiently.
- The project should be consistent with the goals and policies of the Florida Department of Environmental Protection's Bureau of Beaches and Coastal Systems, as well as the Broward County's Comprehensive Master Development Plan and its corresponding land development regulations. It is important for the applicant to coordinate permits with all governments of jurisdiction.

- The project should be closely coordinated with the Broward County's Port Everglades Authority, Broward County Department of Environmental Resource Management, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, and all other applicable agencies of jurisdiction.
- Staff recommends that, if the Project is authorized: 1) impacts to the natural systems be minimized to the greatest extent feasible and 2) the permit grantor determine the extent of sensitive marine life and submerged communities in the vicinity of the project and require protection and/or mitigation of disturbed habitat. This will assist in reducing the cumulative impacts to native plants and animals, wetlands and deep-water habitat and fisheries that the Goals and Policies of the *Strategic Regional Policy Plan for South Florida (SRPP)* seek to protect.
- The Goals and Policies of the *SRPP*, in particular those indicated below, should be observed when making decisions regarding this project:

GOAL 7 **Protect, conserve, and enhance the Region's water resources.**

Policy 7.7 Require all inappropriate inputs into Natural Resources of Regional Significance to be eliminated through such means as redirection of offending outfalls, treatment improvements, or retrofitting options.

GOAL 16 **Enhance and preserve natural system values of South Florida's shorelines, estuaries, benthic communities, fisheries, and associated habitats, including, but not limited to, Florida Bay, Biscayne Bay, tropical hardwood hammocks, and the coral reef tract.**

Policy 16.3 Enhance and preserve coastal, estuarine, and marine resources, including but not limited to, tropical hardwood hammocks, mangroves, seagrass and shellfish beds and coral habitats.

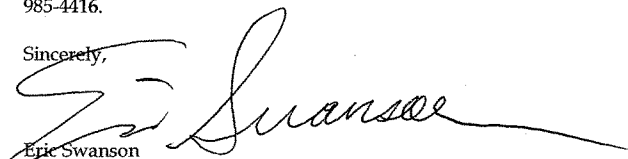
Goal 17 **Maintain a competitive, diversified, and sustainable regional economy.**

Policy 17.4 Continue to seek and take advantage of global opportunities that increase diversification of the Region's economy.

Policy 17.5 Support efforts to solidify the role of international trade in the Region, including South Florida's role in the Free Trade Area of the Americas.

Thank you for the opportunity to comment. If you require further information, please contact me at 954-985-4416.

Sincerely,



Eric Swanson
Regional Planner

Cry of the Water

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reefteam2@yahoo.com

August 13, 2013

Ms Terri Jordan –Sellers
U.S. Army Corps of Engineers
701 San Marco Blvd, Jacksonville, FL 32207
Terri.Jordan-Sellers@usace.army.mil

Public Comment on Draft Environmental Impact Statement

Dear Ms. Jordan-Sellers:

Cry of the water is a coral reef conservation group with members throughout Broward County, Florida and the United States. We were established by a group of professional scuba divers. We have been reviewing and conducting dives to document coral reef resources and the impacts to the reefs from dredge and fill beach projects, inlet dredging, fiber optic cables, gas pipelines, and ocean tire disposal sites. Over the last 15 years we have learned how important independent oversight of projects are. Paid consultant and contractors too often fail to report the true extent of the resource in and around the projects or the impacts to those resources during and after the projects. We have worked with other local dive groups to conduct this oversight that has led to the documentation of:

- Miles of coral reef burial.
- Hundreds of acres of reef covered and impacted by chronic long term silt, sediment and turbidity.
- Dozen of water quality turbidity violations.
- Mechanical damage from dredges and their anchors.
- Cable drags that sweep across reefs dislodging corals and sponges.
- Pipelines and cables were laid over coral crushing and abrading them.
- Contractor placing mitigation on hard bottom and not following many permit conditions.
- Contractors working outside of designated areas.

Because of our experience in conducting review and oversight of 15 years of past projects we are very skeptical of much of what is in the draft EIS for Port Everglades. It is for that reason that we ask that this letter with our comment and question be attached to the EIS as part of the Official Record.

Acres of Direct Impacts to Coral Reef Habitat

The Corps estimates that the direct impacts to coral reef habitat from the dredging of the shipping channel to be 15.17 acres. This assumption is flawed because the Corps states that the coral reefs will be directly impacted up to -57 ft. coral reef habitat deeper than -57 ft will only be impacted by sedimentation and turbidity. A dredge is not a surgical instrument, rock and rubble will roll down the face of the reef. This increased rubble will partial bury coral reef as it moves down the slope. These impacts will affect an additional 6.49 acres of reef habitat. This will bring the acres of direct impact of coral reef to over 21.5 acres. Coral reef communities in the channel would be directly impacted through fractured reef framework. The production of rubble creates an unsuitable environment for coral growth. Sediment and rubble will continue to move down the slope. These problems will become long term and chronic during future storm events that may further erode the fractured reef and this rubble will cause abrasion to the adjacent reef.

Focus Group meeting with Corps July 24, 2013

At the July 24 meeting the question of the discrepancy of direct impacts was discussed. The following is the question that was submitted and the answer from Terri Jordan-Sellers's power point.

QUESTION: There is a discrepancy of 6.11 acres between the ACOE's and NMFS's estimates of the acres of coral which will be impacted by the proposed expansion, how does the ACE account for this discrepancy?

ANSWER: NOAA attributes this impact to be equal to impacts seen with grounding. However, a review of the Miami Harbor project from 1991 where the 3ed reef was cut did not show the types of impacts that NOAA is stating will occur, and based on the actual after-dredge surveys conducted by Miami-DERM, USACE disagrees with NOAA's assessment of these impacts. We Plan to add a short discussion about this concern to the final EIS.

When we questioned Terri about this surveys she stated that there was video from 1993 to ground-truth these findings. What Terri failed to mention and maybe failed to realize is that we had a major event in Miami-Dade County in 1992. Between the times the dredging had taken place in 1991 and the video was recorded in 1993, Hurricane Andrew made a direct hit on Miami. Hurricane Andrew drastically changed the underwater landscapes, even as far away as Broward County. On Broward reefs we saw large volumes of sand and rubble moved around. We saw 200 ft. freighters, sunk as artificial reefs, in over 100 ft of water, ripped in half and relocated. For this reason we find it difficult to believe that any video shot in 1993 can ground truth all of the impacts from 1991 project, before the hurricane.

Our question is: Can the Corps better answer why they do not believe that the rubble will not roll down the slop face of the reef, below -57 ft. further impacting more acres?

Additional direct impacts if a cutterhead dredge is selected

Additional direct impacts to reefs to the north and south of the channel would be caused by anchoring and mooring of the cutterhead dredge. The Corps estimates an additional 17.13 acres of reef impact from the mooring process. The placement of large anchors and mooring is not an exact science. If you add the impacts of tidal changes, cross currents, and margin of error in placement and cable drags the possibility of impacts from these mooring may be much higher. A good example of this would be when a professional contractor that conducted Geo-Tec boring for the proposed natural gas pipeline and caused unplanned anchor damage while drilling only a few holes just south of the Port Everglades. The risk for human error and unforeseen anchor impacts is very high if cutterhead dredge is to be used and the risk will be compounded by the high number of mooring placements.

We are also troubled that after all these years of planning and the millions of dollars that has been spent on the Feasibility Study that the Corps is still unable to determine the type of equipment and methodologies that will be used for the dredging process. It is said that they do not know if they will use a cutterhead dredge, dynamite and use a clamshell dredge or if they will use dynamite and suction head dredge. It is impossible to estimate the true impacts to this project or establish a monitoring plan to document the impacts without knowing the methodology to be used to conduct the work. We believe that after all these years of planning this is no accident on the Corps part. Not having these details in the EIS makes it easier for the Corps to be vague about construction and mitigation cost of this project.

Our question is: Why more of these details have not been put into the EIS?

As we have seen in past projects there is always the potential for additional mechanical impacts from ship, workboat grounding and cable drags from contractors straying outside of the work area. There is also the potential risk to other reefs from vessels going to and from the disposal site. Grounding, cable drags, and leaking disposal material during transport has been seen in past projects such as the Boynton Beach Inlet dredging, Hillsboro Inlet, and Miami Port project. Often times Special Conditions are set for transportation corridors, however contractors often like to cut corners and not follow Special Conditions. As we have been told in past projects special GPS devices will be placed on work vessels and dredges to track their movements. In the past we have seen, the downloads from these devices are coded and sometime unable to be read by even the regulatory agencies as in the Deerfield beach dredge and fill project and the Broward County Segment III dredge and fill project. (Contact Martin Seeling for more information on this matter)

Our question is: What will be done to insure that the public and regulatory agencies will be able to conduct oversight of the movement of all work vessels? Will the GIS information be decoded to useable GPS numbers?

In the past when I requested this information, I received countless pages of numbers that were useless for us and the regulatory agencies.

Our question is: Will there be penalties and fines if the contractor tries to play this game again to hide there noncompliance with permit conditions?

Indirect Impacts to Coral Reef Habitat

The draft EIS describes indirect impacts to 130.37 acres of coral and hardbottom habitat 150 meters around the channel. The army Corps does not describe how this estimate was developed nor the severity of the impacts expected.

Our question is: Please describe how the USACE estimate was developed for the 130.37 acres of indirect impact and the severity of the impacts that are expected?

As we have seen with other dredging projects the turbidity plume can travel for miles depending on current and weather conditions. This may be especially true in a place like Port Everglades that has a huge tidal influence. As we have seen with our decades of diving out of Port Everglades, large plumes of green water can at times move out of the Port on an outgoing tide. We have seen these plums move north with the current past Sunrise Blvd. where many of our artificial reefs are located. On occasion we were able to outrun these plumes with our boat, arriving at the wrecks with over 100 ft. of blue water visibility. Sometimes before we can complete the dive, the green water moves north and directly reduced visibility to 10 ft or less.

Our question is: What will happen if the turbidity plumbs from this project are picked up on these outgoing tides and transported to the reefs miles to the north?

Our question is: How will a monitoring Plan be established to capture these events?

Our question is: How many days will this dredging process go on?

Our question is: What will be the long term impact to the reefs from these chronic silt, sediment and turbidity events?

Our questions are:

How far will the turbidity monitoring be required from the project area?

How far from the project area will the sedimentation monitoring be conducted?

How does the Army Corps justify this short distance for sedimentation monitoring?

After reviewing the monitoring plan, it would appear that sediment monitoring will only take place within about 30 meter of the channel. Are we reading this correctly? This must be a mistake.

This is particularly troubling since Terri stated that the mixing zone for turbidity would be 1,500 meters from the work area. Terri stated that this was a new Florida State law that the mixing

zone had been changes from 150 meters to 1,500 meters. If this is the case sediment monitoring should be extended to include the area within the 1,500 meter mixing zone.

We are also concerned by the methodology of the use of the sedimentation blocks. We believe that the blocks that will be painted with anti-fouling paint will be sweep clean by tidal influences since they are so close to the inlet. The sediments will most probably settle onto nearby reefs as they are deposited by the outgoing tides. The monitoring plan seems to fail to incorporate additional monitoring stations to capture these events. Additional monitoring stations must be added.

Another problem with the sedimentation monitoring plan is that it allows for 1.5 mm per day of sediment but only requires monitoring once a week. This would allow for as much as 10 mm of sediment to be laid down in a single day and still be in compliance. The adjacent reef could be completely silted out and buried before monitoring took place. Also according to this plan such an event would not stop work but only require that the dredge move 400 ft. This plan would allow work to contain while depositing an unlimited amount of silt and sediment onto the adjacent reefs.

Not only must additional sedimentation stations be established on the adjacent reefs but also biological monitoring stations. Because the biological monitoring stations in the plan are within 30 meters of the channel they too may be swept clean by tidal influence. Again the material that is sweep away by the outgoing tide, will not just disappear it will settle out of the water column as it moves away from the channel. The biological monitoring plan appears to be grossly inadequate to document these impacts to the adjacent reefs. Potentially this plan could report no negative impacts at the currently proposed biological monitoring stations, while adjacent reefs are being buried and smothered. As we have seen with past projects, if the monitoring plan does not extend far enough from the work area to capture impacts the responsible party will deny that the silt and sediment that buries the adjacent reef came from their project. This was a problem with Broward County Segment III beach project, where we asked that transects be established further off shore to document potential impacts. Unfortunately, that was not done, so the true extent of the damage in Segment III was never recorded. It is stated in many reports, that impacts were seen beyond the transects. A huge amount of silt and sediment will be generated from this project. A much more robust monitoring plan must be put in place to capture the impacts this material will have on the adjacent reefs. Also fines that settle between the reef tract will be re-suspended in storm events with may lead to long term chronic silt sediment and turbidity problems.

Our questions is: Could the Army Corps and other regulatory agencies put more stringent mixing zone rules in place because of the proximity of this project to some of the States best coral reef resources?

We do not agree that sedimentation and turbidity impacts would be limited to this 150 meter zone. Chronic high levels of sedimentation and turbidity can be as damaging to coral reefs as acute stress (Rogers, 1979).

Sedimentation strongly inhibits successful coral reproduction, especially coral settlement and recruit and juvenile survival. Sedimentation mortality thresholds for coral recruits are an order of magnitude lower than those for larger colonies (loads of tens rather than hundreds of mg/cm²; (Fabricius et al., 2003). Few coral larvae settle on sediment covered surfaces, and survival on such surfaces is minimal.

Light affects both reproduction and recruitment, as coral fecundity decreases in low-light conditions, and coral larvae use light quantity and quality to choose their settlement site. At low light levels, corals preferentially settle on upper surfaces, where the risk of sedimentation damage is high, rather than on vertical or downward facing surfaces (Birkeland et al., 1981). At highly turbid conditions, coral recruits may undergo reverse metamorphosis, indicating conditions are unsuitable for continued development and growth (Te, 1992).

We demand that a more conservative turbidity standard is warranted for Port Everglades. The harbor dredging project in Key West received a 15 NTU standard instead of the 29 NTU standard that is required by the State of Florida. This Florida Standard was established for all State waters and not meant for coral reef habitat, which is much more sensitive.

Our question is: Why did the Keys receive a 15 NTU standard and the Port Everglades project received a 29 NTU standard?

Just because the corals in the Keys are in a National Marine Sanctuary does that make our corals any less valuable or able to sustain higher turbidity levels?

Our questions are: If the 1,500 meter mixing zone is incorporated in this project how many acres of reef will fall within that 1,500 meter mixing zone?

How many of those acres will be monitored for silt, sediment and turbidity?

It appears that only reef within 30 meters of the channel will be monitored for sediment.

Our question is: Are we to presume that turbidity monitoring will only take place at the edge of the 1,500 meter mixing zone?

These questions are of particular concern because as we have seen with past projects when the silt settles onto the corals and accumulates it causes lesions that open these corals up to a host of pathogens that lead to diseases. This is much like a person getting a cut on their skin, allowing infection in. Often times these disease spread causing loss of tissue and sometimes the mortality of the entire colony.

Our question is: What biological monitoring will be done to the adjacent reefs to document these impacts?

Our question is: How many biological monitoring sites will be established? How far away from the work area will the biological monitoring sites be? Will they be monitored pre, during and post construction? Will a baseline be established before the work is to start?

Our question is: Has the Army Corps looked at the cumulative impacts of silt and sediment that has been put into the system from past dredging projects in the area, such as Broward County Segment III, inlet maintenance dredging and the currently proposed Segment II 750,000 cu yd truck haul project by Broward County, the 150,000 cu yd Army Corps beach project in Segment II and the current fine (Florida Inlet Navigation project) to dredge and deepen the Intracoastal Waterway and Dania Cut Off channel?

Corals

We have seen the reefs that we have learned to dive on buried and smothered with past Broward County dredge and fill projects. We have seen harmful algae blooms and bleaching events kill corals. Climate change and the rise in CO2 levels are having a devastating effect on corals not only from thermal stress, caused by the rise in sea surface temperatures but also ocean acidification which is affecting corals ability to ecrate calcium carbonate from the water. This is happening not only here, but on reefs world wide. Here in South Florida these effects are compounded by the decline in water quality from urban runoff, dumping of polluted water from the agreaculture area and Lake Okeechobee. This combined with the chronic silt, sediment and turbidity from all these projects have created a lethal cocktail for our reefs and estuaries. These impacts have caused a number of corals to be listed under the Endangered Species Act (ESA). Two *Acropora* species have been listed as Threatened and are currently proposed to be elevated to Endangered.

A number of other species are currently proposed to be added to the Threatened ESA list. *Acropora cervicornis* that is proposed for elevation to Endangered has not been documented in the dredge area but has been documented within 150 meter of the channel (Gilliam and Walker 2011). 4 of the proposed corals for threatened ESA listing *Agarica lamarcki*, *Dichocoenia stokesii*, *Montastraea annularis* and *Mycetophyllia ferox* have been documented in the project area. To protect these endangered species Broward County has been Designated Critical Habitat (DCH). The Army Corps states that 15.17 acres of this Critical Habitat is within the dredge area. NOAA has calculated this to be 22 acres of essential Critical Habitat in the dredge area. The Army Corps does not discuss the potential impacts to Critical Habitat outside of the dredge area but calculations put the potential impact to essential DCH at 118 acres within the 150 meter of the dredge area. As we discussed earlier we do not believe that the 150 meter area realistic.

Acropora cervicornis was just starting to make a recovery in the south of Port Everglades from past dredge and fill projects. Unfortunately we documented many of these colonies being buried and smothered by the Segment III 2005-2006 dredge and fill project. We are afraid that the impacts from additional silt and sediment from this Port project will destroy many of the cervicornis colonies to the north. This area is of particular concern to us because from Port Everglades to Lauderdale-by-the-Sea has never had a dredge and fill project and still contain some of the best nearshore coral reef resources. We believe that this is due to the fact that large amounts of harmful silt and sediment have not been introduced to these reefs. It is time we learned from past mistakes and stop the whole sale destruction of our coral resources. Compensatory mitigation for the burial of the lost corals in Segment III has still not taken place.

Our question is: Why has the additional mitigation for Segment III not taken place?

Compensatory Mitigation for Coral Reef Impacts

As we have seen with past projects compensatory mitigation seldom if ever is an adequate replacement for natural habitats.

- As seen in a report by Miller et al. (2009) that documents an overall lack of similarity between the benthic species at natural and artificial reefs.
- In a report by Gilliam (2012) it concludes the length of time boulder reefs require to mitigate lost reef resources in southeast Florida exceeds the age of the oldest boulder reef examined in the study (17 years).
- Kilfoyle et al. (2013) shows nearshore natural and artificial hardbottom habitats have dissimilar usage by the early life stages of species managed under the fishery management plan for snappers and groupers with significantly higher abundances occurring on natural nearshore hardbottoms compared to artificial habitat.
- Boulders (even with transplanted corals) will never have the same service of natural coral reef.
- USACE is trying to get double credit for transplantation – both as a minimization measure and as a compensatory action – this is not allowed under the USACE and Environmental Protection Agency’s Mitigation Rule in 2008.
- All corals greater than 5 cm in size should be moved from the project impact area as minimization not only the corals that are greater then 10 cm proposed in the Draft EIS. The EIS only describes moving 12% of the corals.

In this case compensatory mitigation proposes to move corals away from the inlet and seagrass mitigation proposes to move seagrass mitigation 3 miles from current location being mitigated for. This will result in a loss of conductivity between these habitats. They form an enchanted braid of life and a food web that supports different life cycles that are a vital part of our fisheries.

The loss of the conductivity between these habitats will have a cascading impact on our fisheries. This problem is compounded by past losses of vital EFH up and down the coast. The problem is becoming worse every day from the discharge of water from Lake Okeechobee and the Everglades, which is currently destroying Essential Fish Habitat and estuaries. We question the wisdom of the Corps to be willing to dynamite the reef, destroy seagrass and mangrove at a time when our Essential Fish Habitat of Partial Concern and juvenile fish habitats are under siege.

Our questions are:

- **When do we reach the tipping point that leads to a collapse of our fisheries?**
- **Will the FEIS better address the loss of EFH up and down the coast to look at cumulative impacts?**
- **If the Federal government currently has an extra \$180 million to put into WRDA, wouldn't that money not be better spent for the Corps to fix the dike around Lake Okeechobee and increase the storage capacity, to decrease the billions of gallons of water that is being put to tide each day destroying our Essential Fish Habitats?**

Far too little is known about the intricate relationship of the organisms that make up the coral reef habitat for us to ever hope to replace the natural reef with man made mitigation. No matter how much money we spend.

As we have seen in the past, compensatory mitigation is never adequate replacement for coral reefs. Also as we saw with the Broward Segment III beach project, if additional unplanned impacts occur, additional compensatory mitigation is not built. Although it is promised as a condition for getting a permit approved.

At the public meeting for Port Everglades we raised this issue with Terri Jordan and asked why 7 years after the Segment III reef burial, additional compensatory mitigation for Segment III has not been built. We had seen a report by State Biologist Vladimir Kosmynin, which documented over 60 acres of additional reef burial, had taken place. Terri stated that she heard that the State was not going to require any additional mitigation; we asked how this could be in light of Dr. Kosmynin's report and surveys that had been conducted after the project. I was surprised and told her that I thought the truth was supposed to have a part in the regulatory process. I was shocked when Terri responded "not if people want to keep their jobs". After this statement we have little faith in any claims that Terri has about this or any other project.

Our questions are:

- 1. If the State is not requiring additional Compensatory mitigation for Segment III does the Corps Regulatory branch have the authority to do so?**
- 2. If the Corps does have the authority to do so, why have they not asked for additional mitigation 7 years after the project?**

Seagrass

- Army Corps of Engineers seagrass assessment does not integrate multiple surveys – they take a snapshot in time approach.
- A cumulative cover approach is supported by the best available science and application of that approach more than doubles the impact.
- Army Corps of Engineers functional assessment (UMAN) scores for seagrass habitat is unusually low (1 or 2 out of 10) and does not reflect agency input.
- The mitigation sites are located over 3 miles away and there is not much intermediate habitat for fish to use for shelter while trying to get back and forth to the coral reef habitats.

Mangroves

The Facts and Information hand out that was provided at the Army Corps Port Everglades Public meeting states the loss of 1.16 acres of mangroves (a reduction of up to 98% impacts based on initial plans) includes the creation of seagrass and mangrove habitats in partnership with the Broward County Parks Department's. This is very deceptive since the port master plan still calls for the removal of over 8.5 acres of mangroves from the Conservation Easement that was established as mitigation for the last Port Expansion project. This is being done to increase the size of the new turning notch. This portion of the project and its mitigation has been removed from this Draft EIS and the Cost Benefit Analysis. However, over 8.5 acres of mangroves are proposed to be dredged by the Port and the EIS then describes further deepening this area. The ACOE should not get avoidance credits for this.

Our question is: Why was the destruction of the mangroves in the Conservation Easement and their mitigation removed from the EIS and the Federal Cost Share of the project?

We believe that it was done to reduce the mitigation cost in the Federal project in an effort to make the numbers work in the Cost Benefit Analysis. We also believe that this is the reason that the Army Corps of Engineers is denying the severity of impacts to hardbottom and reef resources in the channel below the -57 ft. depth.

Our question is: Is it true that the Corps is denying the severity of impacts to hardbottom, reef resources, mangroves and seagrasses in an attempt to lessen the mitigation cost in order to make the Cost Benefit Analysis feasible?

It appears that the Corps has chosen to not use best available science and not look at the cumulative impacts at, and around Port Everglades. Walker et al. (2012) published a peer-reviewed paper that estimates Port Everglades has historically dredged 58.5 acres of hardbottom and buried 178 acres of Outer Reef due to the improper dumping of spoil material. This equates to over 6 million corals. This is not included in the Draft EIS and should be.

Summary

It would appear that the Port Everglades EIS does not use best available science when evaluating impacts and calculating the amount of needed mitigation. We have to ask why Broward County and the Army Corps have chosen to remove the destruction of the 8.5 acres of mangroves and their mitigation for the EIS. We find it hard to believe that the County is wishing to pay for this on their own out of the goodness of their hearts. Which brings us to our next recommendation that if the County really believes that the destruction of the reefs is justifiable for the Cost Benefits let them pay for destruction of the reef and its mitigation too.

We also have many questions about the need for this project and if there will be enough Post-Pan/Max traffic to Port Everglades to justify the environmental and financial cost of this project. The Port of Miami is currently being deepened to accept these ships and do we really need 2 deep water ports within 40 miles from each other. The fact that we are at the end of a peninsula in South Florida logistically makes us a poor location for over land transport of goods going to other parts of the nation. It would be far cheaper for shipper to unload Post Pan/Max cargo at more northern, centrally located ports.

In a Socioeconomic study the reefs, Broward County generate \$2.1 billion a year in reef related expenditures, including fishing, diving, and tourism and created 36,000 jobs (Hazen and Sawyer 2001). Many of us in South Florida depend on the coral reefs not only for our livelihood but also recreation and enjoyment. Special interest should not be allowed to destroy these national treasures while asking the federal government and taxpayers to pay for their destruction. If the federal government and the politicians can find an additional \$180 million to add to the WRDA bill, that money should be spent to repair the dike around Lake O and the dike around the Conservation Areas which are in danger of collapse. See Army Corps studies. If those dikes collapse during a hurricane or storm event it will cut a path of death and destruction that will make New Orleans and Katrina look like a minor event. The federal agencies have an obligation to look out for the well being and safety of the people of South Florida not just the special interests.

It is time we took a common sense approach to marine resource management in Southeast Florida.

We look forward to your timely response.

Sincerely,

Dan Clark

Cry of the Water

Julie Berry
2505 N.E. 7th Place
Fort Lauderdale, FL 33304
954.562.3270

August 12, 2013

Ms. Terri Jordan-Sellers
Project Director
United States Army Corps of Engineers (USACOE)

Re: Deepening and widening project at Port Everglades

Dear Ms. Jordan-Sellers,

This letter is written in support of the deepening and widening project at Port Everglades. I am a resident of Fort Lauderdale. I was born at Broward General Hospital and raised in the area just north of the airport and Port Everglades. I have a son who was born here and attends school. I am deeply concerned about our community and the environment. I am also deeply concerned about the economic future of Broward County and our residents.

Port Everglades has been an important "corporation" for Broward County. Expansion is needed and we do not want to lose the jobs and economic impact to the area by sending the expansion business to another area. The business will go somewhere, it will not disappear. The efforts our leadership on all levels has taken to minimize the effect of this expansion on the environment is impressive. As a diver and marine life enthusiast, this was a concern to me. When I attended meetings and heard the steps which have been taken to reduce the impact, I was amazed.

As home to one of the world's leading coral research facilities at Nova Southeastern University at the entrance to Port Everglades, we are in a position to be leaders in artificial or cloned reef placement and in potentially restoring historic grounding sites using coral transplants. With this and other progressive projects through Nova and other partners, we have the opportunity to set an example for a national standard of excellence for Port expansion. Another positive environmental impact includes the fact that Port Everglades provides the shortest, straightest entrance channel on the Southeast U.S. Atlantic coast, which saves ships fuel costs and time.

Our area does not attract a large number industrial distribution and corporate companies therefore we rely on our unique resources to provide jobs for our community. Broward County depends on our unique positioning of the Port and the airport to attract marine and cargo business. The ability to increase our cargo shipments will open up additional international relationships, which enhances the diversity of our community. Additionally, Fort Lauderdale/Broward County has depended on its reputation as the "Yachting Capital of the

World" with its deep channels and inlet which accommodate large vessels and yachts. Yachting crews are attracted to the proximity of the amenities; hotels, restaurants beach, activities, etc. The Port supports all of these businesses thorough its job base which keeps the area thriving and attracts the marine businesses. The Port (and marine related industry - cruise, cargo, etc.) is heartbeat of Broward County. This is why our elected officials at the local, state and Federal levels have all worked hard to push this initiative forward. It is critical for this project to make it into the authorizing legislation for 2013. I have close friends who have experienced the impact of the declining economy through the loss of jobs, homes, etc. Support of this project will result in an estimated 7,000 new regional jobs and 135,000 jobs statewide, at full operation.

Please know that as a native who grew up here, we knew an airport where we had to wait for a train and walk out on the tarmac, we went to a drive-in theatre on (now) Port property, we rode horses on the west side of the airport, etc. so was very concerned about any egregious impact on this area. After learning so much of what has been done to enhance our area, and gaining respect for the leaders working on this initiative to insure minimal environmental impact and maximum economic relief to the community, I am in full support of the deepening and widening of Port Everglades.

I respectfully request that you provide support for the deepening and widening of Port Everglades.

Thank you.

Respectfully,

Julie Berry
2505 N.E. 7th Place
Fort Lauderdale, FL. 33304

954.562.3270



Cliff Berry, Incorporated
Environmental Services

241

Terri Jordan-Sellers
US Army Corps of Engineers
701 San Marco Blvd
Jacksonville, FL 32207

RE: USACOE Port Everglades Feasibility Study and Environmental Impact Statement

Dear Ms. Sellers;

I write you today in support of the referenced study; knowing full well the strategic importance a deeper channel and berthing accommodations will have on our marine community. It is imperative that this study moves forward for Port Everglades to remain a viable alternative to accommodate the newer, larger generation of cargo ships that are expected to pass through the expanded Panama Canal in 2015. There are numerous reasons for me to say this:

- Port Everglades is the gateway for International Trade and Cruise Vacations. It is one of the busiest cruise ports in the world and one of the Nation's leading container ports. In addition, Port Everglades is the main seaport in the South east for receiving petroleum products, including gasoline, jet fuel and other alternative fuels.
- The Port currently supports over 11,700 direct jobs locally and a total of 201,000 jobs within the State of Florida, not to mention those associated jobs throughout the country. The total regional economic activity attributable to Port Everglades is over \$15.3 billion dollars.
- NOAA, the federal agency in charge of the oceans and its health, has proposed a reasonable, cost-effective, and scientifically credible mitigation alternative for the reef systems off the Broward County coastline. Accordingly, I recommend supporting the NOAA plan to grow and replace corals up and down the Broward County Coastline and to afford NOAA a leadership and responsibility role in mitigation design and restoration implementation.

As a business owner that relies on the Port (as well as the Port Community) for a major portion of my company's revenue stream, I have followed this issue closely. That is why I feel it is so vitally important to the future of Port Everglades that the USACOE Port Everglades Feasibility Study and Environmental Impact Statement be approved.

Thank You,

A handwritten signature in black ink, appearing to read "Cliff Berry II", written over a horizontal line.

Clifford Berry II
President



FLORIDA SEAPORTS

CHARTING OUR FUTURE

Florida Ports Council

Canal/Port Authority - Port of Calumet - Port of Everglades - Port of Fernandina - Port of Fort Pierce - Jacksonville Port Authority -
 Port of Key West - Manatee County Port Authority - Port of Miami - Port of Palm Beach - Panama City Port Authority - Port of Pensacola
 Port St. Joe Port Authority - Port of St. Petersburg - Tampa Port Authority
 Doug Wheeler, President and CEO

August 9, 2013

Ms. Terri Jordan-Sellers
 U.S. Army Corps of Engineers
 701 San Marco Boulevard
 Jacksonville, Florida 32207

Dear Ms. Jordan-Sellers:

I am writing to you in support of the channel deepening and widening at Port Everglades, located in Broward County, Florida. First, please allow me to thank you for providing an opportunity for the business community to participate in the recent U.S. Army Corps of Engineers (ACOE) public meeting on the Draft Feasibility Study/Environmental Impact Statement (FS/EIS). We understand there was a large turnout with strong support from an overwhelming majority of participants. Businesses count on the \$26 billion in annual economic activity generated by Port Everglades, which benefits all Broward County and South Florida residents as well.

Next, the Council would like to urge you to issue the Chief of Engineer's Report as quickly as possible to position Port Everglades favorably for project authorization in the Water Resources Development Act (WRDA) bill, which is currently scheduled to be marked up in September. With its unreliable history of passing, it becomes even more important to take advantage of the potential for the bill to pass this year.

Port Everglades continues to be a strong regional and state-wide economic engine, generating thousands of well-paying jobs, including almost 1,500 permanent positions for the deepening and widening project alone. Locally, Port Everglades supports 11,700 direct jobs and a total of 201,000 jobs statewide. Together, the deepening project, the turning notch extension, and the intermodal rail facility on the port are projected to create **7,000 new jobs regionally** and support 135,000 new jobs statewide over the next 15 years. That's a total of 143,000 jobs!

The size of the world's container fleet is growing. **Forty-three percent of container vessels on order today are in excess of 8,000 TEUs. Compare this to the current fleet composition: only about 7 percent of the current world container fleet is in excess of 8,000 TEUs. Therefore, in the near future, the size of container ships will require a 47-50 ft. shipping channel.** These projects at Port Everglades will allow them to continue to meet the needs of a global shipping industry focused on larger capacity vessels.

Page 2

August 9, 2013

Ms. Terri Jordan-Sellers

Port Everglades can no longer wait. Completion of the final report by the end of this year, and project authorization by Congress is required before Port Everglades can compete for federal funding to move forward with this project. After nearly two decades of waiting, and over \$10 million in increased costs for the Feasibility Study alone, the state of Florida needs your resolute commitment to the immediate issuance of the Chief's Report.

Sincerely,

A handwritten signature in black ink, appearing to read 'Doug Wheeler', written over a horizontal line.

Doug Wheeler, President and CEO
Florida Ports Council



US Army Corps
of Engineers.
Jacksonville District

243 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I DO Support
the Dredging Project
as planned. Only
Benefits can come
of it. - Move Jobs
- Move Money for Port
- Bigger Ships
Port Everglades
Will be a much
Happier and Deeper
Place

Norm Pilot Boat Capt.

NAME AND TITLE (PLEASE PRINT)

MAILING ADDRESS

Ft Lauderdale FL 33316
CITY STATE ZIP CODE

PHONE NUMBER

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

244 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I support the dredging
of the Port Everglades
to accomodate larger
vessels to come in

James Swartzell

NAME AND TITLE (PLEASE PRINT)

4431 NE 20th Ave #8

MAILING ADDRESS

Ft. Lauderdale FL 33308

CITY

954 294-6004

STATE

ZIP CODE

PHONE NUMBER

jswartzell@bell/south.net

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

245 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

Dean Grant "support" the
dredging and deepening
of the channel.

Reasons Being:

Accomodate large ships

Create jobs

Protect the environment

Stay competitive with other
ports

Reduce carbon emissions
from trucks on Hwy

Dean Grant

Dean Grant Harbor Pilot

NAME AND TITLE (PLEASE PRINT)

303 NE 2nd Place

MAILING ADDRESS

Denia Bch FL 33004

CITY

STATE

ZIP CODE

954-929-5907

PHONE NUMBER

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

246 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I Am IN support
of deepening the Port
Everglades Channel

The Economic Impact
for our community will
be significant. Employment
and influx of capital will
help all who live and work
in the Area.

The consequence of not
deepening will mean a contraction
in port business and not
a negative impact on
our community.

Andrew Edelstein

NAME AND TITLE (PLEASE PRINT)

501 NE 10th Ave

MAILING ADDRESS

Fort Lauderdale FL 33301

CITY

STATE

ZIP CODE

954-523-5555 5491

PHONE NUMBER

Permon@BellSouth.net

EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

247 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I SUPPORT THE
DREDGING PROJECT IN
PORT EVERGLADES.
IT WILL HELP STIMULATE
THE ECONOMY AND CREATE
MORE JOBS.

BENJAMIN W. ORSAEN II
NAME AND TITLE (PLEASE PRINT)

312 SW 22ND STREET
MAILING ADDRESS

FORT LAUDERDALE, FL 33315
CITY STATE ZIP CODE

(954) 695-2719
PHONE NUMBER

FLS10BEN@AOL.COM
EMAIL ADDRESS



**US Army Corps
of Engineers.**
Jacksonville District

Comments/ Questions ²⁴⁸

See Privacy Act Statement
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SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:



OFFICIAL COMMENT
(Comment WILL be included in
the final report)



GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

ON ~~SEP~~ Aug 6, President
OBAMA appeared on tonight
show with DAVID LETTERMAN.
He specifically expressed
his opinion and concerns that
due to increase in Panama Canal
we need to deepen our ports
on the EAST COAST. He stated
if we do not, those ships
are going to go somewhere
else. I agree with the
expressed opinion of the
President of the United States.

CAPT. JAMES RUFF (PORT. EV.
Harbor Pilot)
NAME AND TITLE (PLEASE PRINT)

MAILING ADDRESS

CITY

STATE

ZIP CODE

PHONE NUMBER

EMAIL ADDRESS

249



US Army Corps
of Engineers.
Jacksonville District

Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I support dredging and
deepening of the channel.

This will help create
new jobs as larger vessel
carrying more cargo will
require additional manpower.

The larger vessels transiting
the Panama Canal are
already being built and are
destined for US East
and Gulf Coast ports and
we need to stay competitive
with other ports.

Keith Hoyer

NAME AND TITLE (PLEASE PRINT)

P.O. Box 13017

MAILING ADDRESS

Port Everglades

CITY

FL

STATE

33416

ZIP CODE

954-968-8089

PHONE NUMBER

EMAIL ADDRESS



**US Army Corps
of Engineers.
Jacksonville District**

250
**Comments/
Questions**

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:
☒ **YES** ☐ **NO**

OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION

(Informational only. Comment WILL NOT be included in the final report)

COMMENTS/QUESTIONS

COMMENTS/QUESTIONS I support the dredging in part even I believe it will keep us on track with the ships that are getting deeper draughts.

Tim DeLuca
NAME AND TITLE (PLEASE PRINT)

2519 SW 30th Ave
MAILING ADDRESS

Fort Lauderdale FL 33316
CITY STATE ZIP CODE

(954) 661-9005
PHONE NUMBER

EMAIL ADDRESS Capt Deluca@hotmail.com



US Army Corps
of Engineers
Jacksonville District

251 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Pla

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS I AM IN

SUPPORT OF THE DREDGING AND
DEEPENING OF THE CHANNEL HERE AT
PORT EVERGLADES. THIS PROJECT WILL
ALLOW THE PORT TO ACCOMMODATE
LARGER SHIPS AND THUS BE ABLE
TO COMPETE WITH OTHER PORTS. THIS
PROJECT WILL CREATE JOBS AND
ALLOW FOR SAFER AND MORE EFFICIENT
VESSEL TRANSITS. 90% OF THE
WORLD'S CARGO IS MOVED BY SHIPS
AND DESPITE THIS FACT INTERNATIONAL
MARITIME SHIPPING ACCOUNTS FOR
APPROXIMATELY 2.7% OF THE WORLD'S
ANNUAL GREENHOUSE GAS EMISSIONS.
THIS PROJECT WILL HELP EASE THE
AMOUNT OF CARGO THAT MOVES ON THE
HIGHWAY AND INSTEAD ALLOW IT TO BE
MOVED ON SHIPS WHICH HAVE BEEN PROVEN
TO BE THE MOST EFFICIENT MODE
OF TRANSPORTATION FOR GOODS. THIS
PROJECT AND OTHERS LIKE IT HELP
TO REDUCE OUR CARBON FOOTPRINT,
EASE TRAFFIC ON OUR HIGHWAYS, CREATE
JOBS AND ENSURE THE CONTINUED
PROSPERITY OF OUR LOCAL ECONOMY.

CAPTAIN CARL MAHLER

NAME AND TITLE (PLEASE PRINT)

1460 NE 54th SE

MAILING ADDRESS

FT LAUDERDALE

FL 33334

CITY

STATE

ZIP CODE

516-818-9282

PHONE NUMBER

Mahler.Carl@gmail.com

EMAIL ADDRESS



US Army Corps
of Engineers.
Jacksonville District

252 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Plan

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS

I SUPPORT THE WIDENING &
DEEPENING OF PLE. THIS WILL
ALLOW SHIPS TO TRANSIT THE
PORT MORE SAFELY & ALSO
ALLOW FOR THE NEW CLASS
OF CARGO, DEEPER SHIPS TO
CALL ON PORT EVERGLADES, THUS
CREATING MORE JOBS.

CAPTAIN SAM STEPHANSON

NAME AND TITLE (PLEASE PRINT)

1933 SE 17TH ST.

MAILING ADDRESS

FORT LAUDERDALE FL 33316

CITY

STATE

ZIP CODE

954-336-9664

PHONE NUMBER

CAPTAIN STEPHANSON@G.SHAVER.COM

EMAIL ADDRESS



US Army Corps
of Engineers
Jacksonville District

253 Comments/ Questions

See Privacy Act Statement
on reverse side

SUBJECT/EVENT: Port Everglades Tentatively Selected Pla

DATE: July 23, 2013

CHECK ONE:

☒ OFFICIAL COMMENT
(Comment WILL be included in
the final report)

☐ GENERAL QUESTION
(Informational only. Comment WILL NOT
be included in the final report)

COMMENTS/QUESTIONS I totally
SUPPORT the DREDGING PLANNED
FOR PORT EVERGLADES. THE
AMOUNT OF DREDGING WILL NOT
IMPACT ANY LIVING REEFS, I AM
A DIVER AND THERE IS LITTLE
TO NOTHING IN THE CHANNEL
WHERE YOU PLAN TO DREDGE
I ALSO WORRY IF PORT EVERGLADES
DOES NOT GET DREDGING IT WILL NOT
KEEP UP WITH OTHER PORTS THAT ARE
DREDGING IN THIS STATE AND OTHERS,
JOBS WILL BE LOST.
THE DREDGING WILL INCREASE
THE SIZE AND NUMBER OF SHIPS
THAT CAN MORE SAFELY TRANSIT
THE PORT BRINGING MORE
JOBS AND PROSPERITY TO
ALL. THANK YOU

CAPTAIN CHERYL A. PHIPPS
NAME AND TITLE (PLEASE PRINT)

2108 SUNRISE KEY BLVD
MAILING ADDRESS

Fort Lauderdale FL 33304
CITY STATE ZIP CODE

954-467-2965
PHONE NUMBER

ANJINSANPE@AOL.COM
EMAIL ADDRESS



Save the Manatee® Club

The Voice For Manatees Since 1981

Ms. Terri Jordan-Sellers

U.S. Army Corps of Engineers, Jacksonville District

701 San Marco Blvd.

Jacksonville, FL 32207-8175

Sent via email to: Terri.Jordan-Sellers@usace.army.mil

August 13, 2013

Re: Port Everglades Harbor Feasibility Study and Environmental Impact Statement- June 2013

Dear Ms. Jordan-Sellers,

We have reviewed the Subject documents and offer the following comments and concerns:

1. The Feasibility Report's Economic Appendix states that "with-project" construction is not expected to significantly change the number of vessels visiting Port Everglades. **We request that the Corps' permit restrict the level of future use (number of annual vessel calls) to those numbers detailed in Table 36, which has been inserted on page 2 of this letter.**
2. We understand that the local sponsor is responsible for the agreement with FDEP to remove 8.6 acres of the current mangrove protected area west of the existing turning notch from the conservation easement in order to expand the turning notch- an action that is planned, but not yet permitted (draft EIS p.249- Present/Forseeable Actions). We will be following up with FDEP and the Port to learn more about this agreement that would result in enhancement of 16.5 acres of upland/wetland habitat in exchange for release of the conservation easement and an unknown amount of mitigation for removing mangrove wetlands. **We would not support any widening that would encroach on the existing conservation easement (beyond that portion of the easement which has been deeded to FDEP).**

Table 35 Vessel Call Analysis for With- and Without-Project Conditions in 2060

Vessel Type	2012	Future Without Project (2060)			Future With Project (2060)			Difference with- vs without-project
	Baseline Calls	Future Calls w/o project	Change from Baseline	Percentage change from Baseline	Future Calls w/ project	Change from Baseline	Percentage change from Baseline	
Cruise Ships / Ferry	538	1,098	261	24%	1,098	261	24%	0
Container Ships	1,867	3,332	1,465	44%	3,272	1,405	43%	-60
General Cargo/ Bulk Ships	194	229	35	15%	223	29	13%	-6
Petroleum Tankers/ Barges	618	503	(115)	-23%	473	(145)	-31%	-30
Navy/USCG	16	N/A			N/A			-
Other (Bunkers/ Tugs)	467	N/A			N/A			-
Total excl. Navy/USCG/ Other	3,533	5,163	1,646	32%	5,067	1,550	30%	-96
Total	4,000							

3. The mitigation report (Appendix E) explains the UMAM calculations for seagrass and mangrove impacts, then explains that “because mitigation construction has already been initiated, revised UMAM calculations during the upcoming Preconstruction Engineering and Design (PED) phase of the project will likely indicate that fewer functional units will be required. This is because the time lag factor (time to which mitigation reaches full function) in UMAM will be reduced or nearly eliminated by the time impacts occur.” **We respectfully request that the amount of mitigation not be reduced, but be maintained at the levels detailed in this report** (2.4 seagrass functional units [18.47 acres of seagrass creation/restoration] and 1 mangrove functional unit).

Thank you for your consideration of our comments.

Sincerely,



Katie Tripp, Ph.D.

Director of Science and Conservation

Jason Evert

From: Jordan-Sellers, Terri SAJ <Terri.Jordan-Sellers@usace.army.mil>
Sent: Wednesday, July 31, 2013 11:41 AM
To: 'RMUSSER@broward.org'; Jason Evert
Subject: Fw: Support for Port Everglades Expansion Project

Sent from my blackberry.

From: Gina Alexis [<mailto:gina@thealexisgroup.com>]
Sent: Wednesday, July 31, 2013 11:31 AM
To: Jordan-Sellers, Terri SAJ
Subject: Support for Port Everglades Expansion Project

Dear Terri,

Earlier this year I watched a program on the Discovery Channel about the dire need to expand the Panama Canal because "the world of commercial shipping is beginning to pass it by . . . the new super cargo ships are too long and too wide to fit through the canal . . . either the Panama Canal grows with the commercial shipping industry, or it will be left behind."

Likewise, the Port Everglades expansion project should not be delayed any further because it will permanently disadvantage our community in competing for global commerce. We've waited too long already. Industry at Port Everglades creates jobs – and when people are working, our economic mood changes and we all begin to engage in doing more business with one another.

Even though my business isn't directly tied to the Port, the \$26 billion in annual economic activity generated by the Port benefits all Broward residents.

The time for research and analysis is over, it's now time to take action to ensure that Port Everglades and Broward County become the model for commercial shipping!!

All the best,



Gina Alexis
 President
 The Alexis Group Consultants, Inc.
Technology & Life Science Communications
 1835 E. Hallandale Beach Blvd., #125
 Hallandale Beach, FL 33009
 T: 954.456.2966
 E: Gina@TheAlexisGroup.com
 I: www.TheAlexisGroup.com/Life-Science-Marketing

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**U.S Army Corps of Engineers
Jacksonville District**

Subject: Port Everglades Tentatively Selected Plan

Date: July 28, 2013

OFFICIAL COMMENT

I am writing this comment in support of the Tentatively Selected Plan for the deepening and widening of the channels and basins of Port Everglades as described in the public meeting of July 23, 2013 in the Broward County Convention Center.

The ever increasing needs of the expanding population of Florida, South Florida in particular, has caused a desperate need for this project. The larger ships which will necessarily be calling on Port Everglades, especially after the Panama Canal expansion, will require deeper channels and more maneuvering room. This project will also provide a greater margin of safety and scheduling efficiency for the vessels that are already calling this port. This, in turn, will provide better protection for the sensitive ecosystems in South Florida. Additional environmental benefit comes from the ability to bring in more cargo on a single ship which will reduce the number of trucks required to bring in cargo from other ports. This is a tremendous reduction of carbon emissions on Florida's already congested highways.

Economically, this project will keep Port Everglades viable and competitive in the global marine industry. Additionally, larger ships along with larger and more efficient port facilities translate into more jobs in our local community.

James J. Ryan
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**U.S Army Corps of Engineers
Jacksonville District**

Subject: Port Everglades Tentatively Selected Plan

Date: July 28, 2013

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I am writing this comment in support of the Tentatively Selected Plan for the deepening and widening of the channels and basins of Port Everglades as described in the public meeting of July 23, 2013 in the Broward County Convention Center.

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