

harassment of animals would occur. Parts would be archived by the NMNH and used to support research studies and incidental education. A five-year permit is requested.

*File No. 15471:* Michael Adkesson, D.V.M. is requesting authorization to import biological samples (blood, swabs, feces, blubber, biopsies and milk) taken from both live and dead South American fur seals (*Arctocephalus australis*), during ongoing health assessment studies in Punta San Juan, Peru. Samples may be archived, transported, and analyzed by researchers in order to optimize the amount of biological information gained from each animal. There will be no non-target species taken incidentally under this permit because the permit would only cover import and possession of samples from animals taken legally under other permits. A five-year permit is requested.

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), an initial determination has been made that the activities proposed are categorically excluded from the requirement to prepare an environmental assessment or environmental impact statement.

Concurrent with the publication of this notice in the **Federal Register**, NMFS is forwarding copies of this application to the Marine Mammal Commission and its Committee of Scientific Advisors.

Dated: June 24, 2010.

**Tammy C. Adams,**

*Acting Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service.*

[FR Doc. 2010-15771 Filed 6-28-10; 8:45 am]

**BILLING CODE 3510-22-S**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**RIN 0648-XX12**

**Caribbean Fishery Management Council; Public Hearings**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice of public hearings.

**SUMMARY:** The Caribbean Fishery Management Council will hold public hearings to obtain input from fishers, the general public, and the local agencies representatives on the Public Hearing Draft Document for Amendment 2 to the Fishery Management Plan for the Queen Conch Fishery of Puerto Rico and the U.S. Virgin Islands and Amendment 5 to the Reef Fish Fishery Management Plan of Puerto Rico and the U.S. Virgin Islands (with Draft Environmental Impact Statement).

**DATES AND ADDRESSES:** The public hearings will be held on the following dates and locations:

**In Puerto Rico**

July 19, 2010, DoubleTree by Hilton San Juan Hotel, De Diego Avenue, San Juan, Puerto Rico.

July 20, 2010, Centro de Usos Múltiples de Fajardo, Apartado 865, Municipio de Fajardo, Fajardo, Puerto Rico.

July 21, 2010, Ponce Holiday Inn and Tropical Casino. 3315 Ponce By Pass, Ponce, Puerto Rico.

July 22, 2010, Rincon of the Seas Grand Caribbean Hotel, Rd. 115, Km. 12.2, Rincón, Puerto Rico.

**In U.S. Virgin Islands**

July 20, 2010, The Buccaneer Hotel, Estate Shoys, Christiansted, St. Croix, U.S. Virgin Islands.

July 21, 2010, Windward Passage Holiday Inn Hotel, 3400 Veterans Drive, St. Thomas, U.S. Virgin Islands.

All meetings will be held from 7 p.m. to 10 p.m.

**FOR FURTHER INFORMATION CONTACT:** Caribbean Fishery Management Council, 268 Muñoz Rivera Avenue, Suite 1108, San Juan, Puerto Rico 00918-1920, telephone (787) 766-5926.

**SUPPLEMENTARY INFORMATION:** The Caribbean Fishery Management Council will hold public hearings to receive public input on the following management alternatives:

**4.0 Management Alternatives**

The Council at its 134th Regular Meeting held April 7-8, 2010, in St. Thomas selected the preferred alternatives for most actions in this amendment. These are marked as (PREFERRED) for those cases when a preferred alternative was identified. This does not mean that this is the final decision by the Council. Instead, the

alternatives including the designated preferred alternatives will be vetted at public hearings and then further discussed at the Council's 135th Regular meeting to be held after public hearings.

**4.1 Action 1: Amend the Stock Complexes in the Reef Fish Fishery Management Units (FMU)**

**4.1.1 Action 1(a) Grouper Complex**

Alternative 1. No action. Do not change the species groupings within the grouper complex.

Alternative 2. (PREFERRED) Separate Grouper Unit 4 into Grouper Unit 4 (yellowfin, red, tiger plus black grouper) and Grouper Unit 5 (yellowedge and misty grouper). Move creole-fish from Grouper Unit 3 into the 'data collection only' unit.

*Discussion:* Action 1(a) proposes several changes to the grouper Fishery Management Units for the U.S. Caribbean, including the removal of creole-fish (*Paranathias furcifer*) from Unit 3, addition of black grouper (*Mycteroperca bonaci*) to Unit 4, and movement of yellowedge grouper (*Epinephelus flavolimbatus*) and misty grouper (*E. mystacinus*) into a Unit of their own (Table 4.1.1).

**4.1.2 Action 1(b) Snapper complex**

Alternative 1. No action. Do not change the species groupings within the snapper complex.

Alternative 2. (PREFERRED) Modify the snapper FMUs by adding cardinal snapper (*Pristipomoides macrophthalmus*) to SU2 and moving wenchman (*Pristipomoides aquilonaris*) into SU1.

*Discussion:* The wenchman, *Pristipomoides aquilonaris*, is currently included in SU2 along with the queen snapper (*Etelis oculatus*). However, the species commonly captured in the commercial fishery apparently is locally known (particularly in Puerto Rico) as the wenchman although it actually appears to be *Pristipomoides macrophthalmus*. The latter is commonly referred to as the cardinal snapper. The cardinal snapper clusters strongly with queen snapper based upon analyses of landings records and habitat utilization patterns by depth (SEDAR 2009). In contrast, *P. aquilonaris* is most closely associated with those species comprising SU1, again based upon similarities in habitat utilization by depth.

TABLE 4.1.1—CURRENT AND PROPOSED FMUS FOR VARIOUS SPECIES OF CARIBBEAN REEF FISH

Reef Fish Complex	Current	Proposed
Grouper Unit 3 .....	Red hind .....	Rock hind.

TABLE 4.1.1—CURRENT AND PROPOSED FMUS FOR VARIOUS SPECIES OF CARIBBEAN REEF FISH—Continued

Reef Fish Complex	Current	Proposed
Grouper Unit 4	Coney	Coney.
	Rock hind	Rock hind.
	Graysby	Graysby.
	Creole-fish.	
	Yellowfin	Yellowfin.
	Red	Red.
	Tiger	Tiger.
Grouper Unit 5	Yellowedge	Black.
	Misty.	
		Yellowedge.
Snapper Unit 1		Misty.
	Silk	Silk.
	Black	Black.
	Blackfin	Blackfin.
Snapper Unit 2	Vermilion	Vermilion.
		Wenchman ( <i>Pristipomoides aquilonaris</i> ).
	Queen	Queen.
	Wenchman ( <i>Pristipomoides aquilonaris</i> )	Cardinal ( <i>Pristipomoides macrophthalmus</i> ).

4.2 Action 2: Management Reference Points

The MSA requires that FMPs specify a number of reference points for managed fish stocks, including:

- Maximum Sustainable Yield (MSY)—The greatest amount or yield that can be sustainably harvested under prevailing environmental conditions.
- Overfishing Threshold—The maximum rate of fishing a stock can withstand (MFMT) or maximum yield a stock can produce (OFL), annually, while still providing MSY on a continuing basis.
- Overfished Threshold (MSST)—The biomass level below which a stock would not be capable of producing MSY.
- Annual Catch Limit (ACL)—The annual level to which catch is limited in order to prevent overfishing from occurring.
- Optimum Yield (OY)—The amount or yield that provides the greatest overall benefit to the Nation, taking into account food production, recreational opportunities and the protection of marine ecosystems.

Together, these parameters are intended to provide the means to measure the status and performance of fisheries relative to established goals. Available data in the U.S. Caribbean are not sufficient to support direct estimation of MSY and other key parameters. In such cases, the National Standard 1 (NS1) guidelines direct regional fishery management councils to adopt other measures of productive capacity, including long-term average catch, which can serve as reasonable proxies.

This section describes current reference points or proxies for species/ species groups comprising the snapper,

grouper, parrotfish and queen conch complexes, as well as alternative MSY proxies, overfishing thresholds, and ACL and OY definitions, considered by the Council to better comply with new mandates added to the MSA through the 2006 MSRA. None of the parameter estimates considered here represents empirical estimates derived from a comprehensive stock assessment; rather, all are calculated based on landings data averaged over alternative time series. The overfished threshold (MSST) of these species/species groups is currently defined based on the default proxy recommended by Restrepo *et al.* (1998) and is not being revisited here. That default proxy effectively defines a more conservative threshold for less productive species, such as snapper, grouper, and conch, which are not capable of recovering to  $B_{MSY}$  as quickly as other, more productive species.

The Council at its 133rd meeting reviewed the alternatives taken to scoping meetings (see Appendix 4 for Scoping Meeting information and Appendix 5 for Alternatives Considered and Rejected) and the comments received. Additional information regarding the need to redefine status determination criteria or management reference points (or their proxies) and to evaluate the data on recent catch were presented at the 133rd Council meeting and incorporated into this public hearing draft.

All the reference points considered here are closely interrelated, and the MSA places several key constraints on what can be considered a reasonable suite of alternatives. OY must be less than or equal to MSY. ACL must be less than or equal to the acceptable biological catch (ABC) level recommended by a Council’s Scientific

and Statistical Committee (SSC) or other established peer-review process. And the ABC recommendation must be less than or equal to the overfishing threshold.

4.2.1 Action 2(a) Snapper, Grouper and Parrotfish Complexes

Action 2(a) proposes to redefine management reference points or proxies for species/species groups within the snapper, grouper, and parrotfish complexes. The composition and classification of these species/species groups in NMFS’ report to Congress on the status of U.S. marine fisheries is described in Table 2.2.1. Snapper Unit 1, Grouper Units 1 and 4, and the Parrotfish Unit are classified as undergoing overfishing; however, the status of these species groups has not been assessed since the Council and NMFS implemented measures to address overfishing through the Comprehensive SFA Amendment (CFMC 2005). Grouper Units 1, 2 and 4 are classified as overfished and are entering the sixth year of rebuilding plans designed to rebuild those species/ species groups by 2029, 2034 and 2014, respectively.

Alternative 1. No action. Retain current management reference points or proxies for species/species groups within the snapper, grouper and/or parrotfish complexes.

*Discussion:* This alternative would retain the present MSY proxy, OY, and overfishing threshold definitions specified in the Comprehensive SFA Amendment for species/species groups within the snapper, grouper, and/or parrotfish complexes. These definitions are detailed in Table 4.2.1.

TABLE 4.2.1—CURRENT MSY PROXY, OY AND OVERFISHING THRESHOLD DEFINITIONS FOR SPECIES/SPECIES GROUPS WITHIN THE SNAPPER, GROUPER AND PARROTFISH COMPLEXES

Reference point	Status quo definition
Maximum Sustainable Yield .....	MSY proxy = $C / [(F_{curr} / F_{MSY}) \times (B_{curr} / B_{msy})]$ ; where C is calculated based on commercial landings for the years 1997–2001 for Puerto Rico and 1994–2002 for the USVI, and on recreational landings for the years 2000–2001.
Overfishing Threshold .....	MFMT = $F_{msy}$
Optimum Yield .....	OY = average yield associated with fishing on a continuing basis at $F_{oy}$ ; where $F_{oy} = 0.75F_{msy}$ .

The current MSY proxy is based on average catch (C) and on estimates of where stock biomass and fishing mortality rates are in relation to MSY levels during the period over which catches are averaged. The overfishing threshold (MFMT) is defined as a rate of fishing which exceeds that which would produce MSY. And OY is defined as the amount of fish produced by fishing at a rate equal to 75% of that which would produce MSY. The numerical values associated with these parameters are provided in Table 4.2.2 under the columns titled, “Alternative 1.”

The Comprehensive SFA Amendment in which these reference points were established pre-dated the MSRA

provisions requiring FMPs to specify ACLs; consequently, the Comprehensive SFA Amendment did not explicitly specify this parameter for managed species/species groups. However, the ABC estimates derived from the Council’s MSY control rule could be considered to represent the ACLs of snapper, grouper, and parrotfish species if no additional action were taken to revise management reference points in this amendment.

The average catch estimate used to calculate the Caribbean-wide MSY proxy for each species/species group was derived from commercial landings data recorded during 1997–2001 for Puerto Rico and during 1994–2002 for

the USVI, and recreational landings data recorded during 2000–2001. These time series were considered to represent the longest time periods of consistently reliable data at the time the Comprehensive SFA Amendment was approved. Commercial catch data were derived from trip ticket reports collected by the state governments. Recreational data for Puerto Rico were derived from MRFSS. Recreational data for the USVI were derived by assuming the same commercial-recreational relationship and species composition reported by MRFSS for Puerto Rico. Those data indicated recreational catches averaged about 44% of commercial catch levels during 2000–2001.

TABLE 4.2.2—EXTANT AND ALTERNATIVE U.S. CARIBBEAN REFERENCE POINTS OR PROXIES CALCULATED BASED ON THE ALTERNATIVE TIME SERIES DESCRIBED IN SECTION 4.2.1. ALSO INCLUDED ARE THE AVERAGE LANDINGS FOR THE TWO YEARS (2006–2007) FOLLOWING ENACTMENT OF THE COMPREHENSIVE SFA AMENDMENT

Unit	Maximum Sustainable Yield (MSY) Proxy				Overfishing Threshold			
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 1 (MFMT)	Alternative 2 (OFL)	Alternative 3 (OFL)	Alternative 4 (OFL)
Queen Conch .....	452,000	512,718	488,073	525,152	Undefined .....	512,718	488,073	525,152
Snapper .....	1,551,000	2,004,003	1,861,538	1,725,798	Undefined .....	2,004,003	1,861,538	1,725,798
Unit 1 .....	493,000	.....	.....	.....	.....	.....	.....	.....
Unit 2 .....	151,000	.....	.....	.....	.....	.....	.....	.....
Unit 3 .....	542,000	.....	.....	.....	.....	.....	.....	.....
Unit 4 .....	365,000	.....	.....	.....	.....	.....	.....	.....
Grouper .....	257,000–289,000	396,483	354,853	337,178	Undefined .....	396,483	354,853	337,178
Unit 1 .....	2,000–25,000	.....	.....	.....	.....	.....	.....	.....
Unit 2 .....	2,000–11,000	.....	.....	.....	.....	.....	.....	.....
Unit 3 .....	158,000	.....	.....	.....	.....	.....	.....	.....
Unit 4 .....	95,000	.....	.....	.....	.....	.....	.....	.....
Parrotfish .....	304,000	507,059	496,656	512,201	Undefined .....	507,059	496,656	512,201

Unit	Optimum Yield (OY)/Annual Catch Limit (ACL)									
	Alt. 1 (OY/ABC)	Alt. 2(c)	Alt. 2(d)	Alt. 2(e)	Alt. 2(f)	Alt. 2(g)	Alt. 2(h)	Alt. 3(c)	Alt. 3(d)	Alt. 3(e)
Queen Conch.	424,000/— ..	107,720 .....	91,562 .....	80,790 .....	53,860 .....	50,000 .....	0 .....	116,899 .....	99,364 .....	87,674
Snapper .....	1,455,000/1,428,000.	2,004,003 ...	1,703,403 ...	1,503,002 ...	1,002,002 ...	.....	N/A .....	1,861,538 ...	1,582,307 ...	1,396,154
Unit 1 .....	463,000/370,000.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unit 2 .....	142,000/151,000.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unit 3 .....	508,000/542,000.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unit 4 .....	342,000/365,000.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grouper .....	237,000/229,000.	396,483 .....	337,011 .....	297,362 .....	198,242 .....	.....	N/A .....	354,853 .....	301,625 .....	266,140
Unit 1 .....	1,880–23,440/—.	.....	.....	.....	.....	.....	0 .....	.....	.....	.....
Unit 2 .....	1,880–10,310/—.	.....	.....	.....	.....	.....	0 .....	.....	.....	.....

Unit	Optimum Yield (OY)/Annual Catch Limit (ACL)									
	Alt. 1 (OY/ABC)	Alt. 2(c)	Alt. 2(d)	Alt. 2(e)	Alt. 2(f)	Alt. 2(g)	Alt. 2(h)	Alt. 3(c)	Alt. 3(d)	Alt. 3(e)
Unit 3	148,000/158,000									
Unit 4	89,000/71,000									
Parrotfish	285,000/228,000	507,059	431,000	380,294	253,530	430,000	N/A	496,656	422,158	372,492
Unit	Alt 3(f)	Alt 3(g)	Alt 3(h)	Alt 4(c)	Alt 4(d)	Alt 4(e)	Alt 4(f)	Alt 4(g)	Alt 4(h)	06–07 Avg.
Queen Conch	58,450	50,000	0	138,587	117,799	103,940	69,294	50,000	0	401,705
Snapper	930,769	—	N/A	1,725,798	1,466,928	1,294,349	862,899		N/A	1,360,996
Unit 1										
Unit 2										
Unit 3										
Unit 4										
Grouper	177,427		N/A	337,178	286,601	252,884	168,589		N/A	214,118
Unit 1			0						0	
Unit 2			0						0	
Unit 3										
Unit 4										
Parrotfish	248,328	430,000	N/A	512,201	435,371	384,151	256,101	430,000	N/A	464,819

Because data are insufficient to estimate biomass and fishing mortality rates in the U.S. Caribbean, the remaining information needed to calculate MSY proxies was derived from the informed judgment of the SFA Working Group regarding whether each species/species group was at risk of overfishing and/or overfished during the time period when catches were averaged.<sup>1</sup> This approach followed guidance provided by Restrepo *et al.* (1998), which notes that “in cases of severe data limitations, qualitative approaches [to determining stock status and fishery status] may be necessary, including [the use of] expert opinion and consensus-building methods.” The determinations of the SFA Working Group were based on available scientific and anecdotal information (including anecdotal observations of fishermen as reported by fishery managers), life history information, and the status of individual species as evaluated in other regions. ABC estimates were developed using the natural mortality rate of each

species/species group as a proxy for  $F_{MSY}$ . The actual yield associated with the current OY definition was estimated to equal 93.75% of MSY.

Alternative 2. (PREFERRED) Redefine management reference points or proxies for the snapper, grouper and/or parrotfish complexes based on the longest time series of pre-Comprehensive SFA Amendment catch data that is considered to be consistently reliable across all islands.

*Discussion:* Alternative 2 would define aggregate management reference points or proxies for the snapper, grouper and/or parrotfish complexes based on what the Council considers to be the longest time series of catch data prior to the implementation of the Comprehensive SFA Amendment that is consistently reliable across all islands. Specific definitions are detailed in Table 4.2.3. The Council chose to omit several years of landings data collected in Puerto Rico prior to 1999 in favor of selecting a more consistent baseline across all islands, noting the inclusion

of those earlier landings data would not appreciably alter the various reference point estimates.

The MSY proxy specified by Alternative 2 would equate to average catch, calculated using commercial landings data from 1999–2005 for Puerto Rico and St. Croix and from 2000–2005 for St. Thomas/St. John, and recreational landings data from 2000–2005 for Puerto Rico only. Commercial data would be derived from trip ticket reports collected by the state governments. Recreational data would be derived from the MRFSS.

The overfishing threshold (OFL) would be defined as the amount of catch corresponding to the MSY proxy, and overfishing would be determined to occur if annual catches exceeded the overfishing threshold (Alternative 2(a)) or if annual catches exceeded the overfishing threshold and scientists (in consultation with managers) attributed the overage to increased catches versus improved data collection and monitoring (Alternative 2(b)).

TABLE 4.2.3—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR SNAPPER, GROUPE AND/OR PARROTFISH COMPLEXES UNDER ALTERNATIVE 2

Reference point	Alternative 2 (preferred)
Maximum Sustainable Yield	MSY proxy = average annual commercial catch from 1999–2005 for Puerto Rico and STX and from 2000–2005 for STT/STJ + average annual recreational catch from MRFSS during 2000–2005 for Puerto Rico.
Overfishing Threshold	
Alternative 2(a)	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL.

<sup>1</sup> The SFA Working Group was a Council-advisory group, which included staff from the Council, NMFS’ Southeast Regional Office and SEFSC, USVI and Puerto Rico fishery management

agencies, and several environmental non-governmental organizations. The discussion of biomass and fishing mortality rate estimates took place at the October 23–24, 2002 meeting of the

SFA Working Group in Carolina, Puerto Rico. Notice of the meeting location, date, and agenda was provided in the **Federal Register** (67 FR 63622).

TABLE 4.2.3—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR SNAPPER, GROUPER AND/OR PARROTFISH COMPLEXES UNDER ALTERNATIVE 2—Continued

Reference point	Alternative 2 (preferred)
Alternative 2(b) (PREFERRED) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL, unless NMFS' Southeast Fisheries Science Center (in consultation with the Caribbean Fishery Management Council and its Scientific and Statistical Committee) determines the overage occurred because data collection/monitoring improved, rather than because catches actually increased.
Optimum Yield/Annual Catch Limit	
Alternative 2(c) .....	OY = ACL = OFL.
Alternative 2(d) .....	OY = ACL = OFL × (0.85).
Alternative 2(e) (PREFERRED) .....	OY = ACL = OFL × (0.75) (PREFERRED for snappers, groupers and parrotfish).
Alternative 2(f) .....	OY = ACL = OFL × (0.50)
Alternative 2(g) .....	OY = ACL = ABC specified by Scientific and Statistical Committee.
Alternative 2(h) (PREFERRED) .....	OY = ACL = 0 (Grouper Units 1 and 2, midnight parrotfish, blue parrotfish, rainbow parrotfish) (PREFERRED for GU1 and GU2 and for midnight, blue and rainbow parrotfish).

The OY and ACL would be equal values, and the same socioeconomic and ecological tradeoffs would be considered in the determination of where to set both of these parameters. Most of the alternative ACL definitions considered here are more restrictive than the current OY definition and would prevent the fishery from achieving OY as currently defined.

ACL (= OY) Alternatives 2(c) through 2(f) would set those parameters equal to some proportion (100–50%) of the OFL to take into account uncertainty, ecological factors, and other concerns. Alternative 2(g) would set the ACL (= OY) equal to the ABC recommended by the Council's Scientific and Statistical Committee; however, of the complexes considered here, the SSC recommended an ABC only for parrotfish. Alternative 2(h) would set the ACL (= OY) equal to zero for Grouper Unit 1 (Nassau grouper) and/or Grouper Unit 2 (goliath grouper), indicating that take of these species should be prohibited to prevent overfishing. The Council chose to include three of the parrotfish (blue, midnight and rainbow) in Alternative 2(h) thereby creating the option to set OY and ACL equal to zero for these species as well.

The specific numerical values associated with the various Alternative 2 definitions are described in Table 4.2.2 under the columns titled, "Alternative 2."

The CFMC, at its 134th Regular Meeting held in St. Thomas, USVI during April 7–8 2010, chose the following alternatives as preferred alternatives to be taken to public hearings. These are not to be considered final actions by the CFMC. Instead, the Council will convene later in 2010, following the public hearings, to take final action on these alternatives.

In Action 2(a), Alternative 2 was chosen as the preferred alternative because it includes the longest pre-Comprehensive SFA Amendment data series for the commercial and recreational sectors. In 2005, implementation of the Comprehensive SFA Amendment to the reef fish and conch FMPs included a suite of management measures designed to curb or end overfishing, including for example seasonal and area closures. As a result, the management regime changed drastically in 2005. The Council therefore decided to use the pre-Comprehensive SFA Amendment time series for redefining management reference points because that time series does not include post-2005 years that are influenced by those potentially substantial changes in management and resultant reduction in catch. Moreover, Caribbean coral reefs and their associated community experienced a major bleaching event and an above-normal number of hurricanes and storms in 2005 (Wilkinson and Souter 2008), further complicating the interpretation of post-2005 harvest data.

The CFMC chose Alternative 2(b) as a preferred alternative in the public hearing draft document to ensure that AMs are not triggered indiscriminately without considering the effect of improved reporting and data collection efforts. The Council recognized the efforts that the local governments, fishers, and the SEFSC are undertaking to provide the necessary information for stock assessments in the region. In making the determination, the agency will assess the quality of the incoming data on an improved and timely schedule, and monitor along with the local governments the quality of the data. Additional information could be

collected to determine if the increase in catches is due to more accurate reporting, including increases in the number of complete catches being sampled.

The Council preferred Alternatives 2(e), a scalar of 0.75, for the snapper complex, the grouper complex, and the parrotfish unit. This precautionary approach was taken in consideration of the combined management and scientific uncertainty inherent in the data, but also considering the many changes that have taken place in the U.S. Caribbean since 2005. Alternative 2(h) was chosen as a preferred alternative for GU1 (Nassau grouper), GU2 (goliath grouper), and for blue, midnight, and rainbow parrotfish. For Nassau and goliath grouper, fishing and possession of these species already is prohibited in all state and territorial waters and in the EEZ.

This amendment includes, as an alternative, a prohibition on fishing for and possession of midnight, blue, and rainbow parrotfish, as recommended by the SSC. The Council also chose Action 4(a) Alternative 2 prohibiting fishing for and possession of these parrotfish as the preferred alternative. This alternative, for the three species of parrotfish, responds to the important role these larger parrotfish have on the ecological health of the coral reefs and the testimony at Council public meetings (including scoping meetings on ACLs) on the decrease in numbers of these species on U.S. Caribbean coral reefs.

Alternative 3. Redefine management reference points or proxies for the snapper, grouper and/or parrotfish complexes based on the longest time series of catch data that is considered to be consistently reliable across all islands.

TABLE 4.2.4—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR SNAPPER, GROUPER AND/OR PARROTFISH COMPLEXES UNDER ALTERNATIVE 3

Reference point	Alternative 3
Maximum Sustainable Yield .....	MSY proxy = average annual commercial catch from 1999–2007 for Puerto Rico and STX and from 2000–2007 for STT/STJ + average annual recreational catch from MRFSS during 2000–2007 for Puerto Rico.
Overfishing Threshold	
Alternative 3(a) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL.
Alternative 3(b) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL, unless NMFS' Southeast Fisheries Science Center (in consultation with the Caribbean Fishery Management Council and its Scientific and Statistical Committee) determines the overage occurred because data collection/monitoring improved, rather than because catches actually increased.
Optimum Yield/Annual Catch Limit	
Alternative 3(c) .....	OY = ACL = OFL.
Alternative 3(d) .....	OY = ACL = OFL × (0.85).
Alternative 3(e) .....	OY = ACL = OFL × (0.75).
Alternative 3(f) .....	OY = ACL = OFL × (0.50).
Alternative 3(g) .....	OY = ACL = ABC specified by Scientific and Statistical Committee.
Alternative 3(h) .....	OY = ACL = 0 (Grouper Units 1 and 2 and/or parrotfish).

*Discussion:* Alternative 3 would define aggregate management reference points or proxies for the snapper, grouper and/or parrotfish complexes based on what the Council considers to be the longest time series of catch data that is consistently reliable across all islands. Specific definitions are detailed in Table 4.2.4.

The Council chose to omit several years of landings data collected in Puerto Rico prior to 1999 in favor of selecting a more consistent baseline across all islands, noting the inclusion of those earlier landings data would not appreciably alter the various reference point estimates.

The MSY proxy defined by Alternative 3 would equate to average catch, calculated using commercial landings data from 1999–2007 for Puerto Rico and St. Croix and from 2000–2007 for St. Thomas/St. John, and

recreational landings data from 2000–2007 for Puerto Rico only. Commercial data would be derived from trip ticket reports collected by the state governments. Recreational data would be derived from the MRFSS. Alternative definitions for the overfishing threshold, OY, and ACL parameters are the same as those considered under Alternative 2. The specific numerical values associated with the various Alternative 3 definitions are described in Table 4.2.2 under the columns titled, “Alternative 3.”

Alternative 4. Redefine management reference points or proxies for the snapper, grouper and/or parrotfish complexes based on the most recent five years of available catch data.

*Discussion:* Alternative 4 would define aggregate management reference points or proxies for the snapper, grouper and/or parrotfish complexes

based on the most recent five years of available catch data as requested by the Council. Specific definitions are detailed in Table 4.2.5.

The MSY proxy defined by Alternative 4 would equate to average catch, calculated using commercial landings data from 2003–2007 for Puerto Rico and the USVI, and recreational landings data from 2003–2007 for Puerto Rico only. Commercial data would be derived from trip ticket reports collected by the state governments. Recreational data would be derived from the MRFSS. Alternative definitions for the overfishing threshold, OY and ACL parameter are the same as those considered under Alternatives 2 and 3. The specific numerical values associated with the various Alternative 4 definitions are described in Table 4.2.2 under the columns titled, “Alternative 4.”

TABLE 4.2.5—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR SNAPPER, GROUPER AND/OR PARROTFISH COMPLEXES UNDER ALTERNATIVE 4

Reference point	Alternative 4
Maximum Sustainable Yield .....	MSY proxy = average annual commercial catch from 2003–2007 for Puerto Rico and the USVI + average annual recreational catch from MRFSS during 2003–2007 for Puerto Rico.
Overfishing Threshold	
Alternative 4(a) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL.
Alternative 4(b) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL, unless NMFS' Southeast Fisheries Science Center (in consultation with the Caribbean Fishery Management Council and its Scientific and Statistical Committee) determines the overage occurred because data collection/monitoring improved, rather than because catches actually increased.

TABLE 4.2.5—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR SNAPPER, GROUPER AND/OR PARROTFISH COMPLEXES UNDER ALTERNATIVE 4—Continued

Reference point	Alternative 4
Optimum Yield/Annual Catch Limit	
Alternative 4(c) .....	OY = ACL = OFL.
Alternative 4(d) .....	OY = ACL = OFL × (0.85).
Alternative 4(e) .....	OY = ACL = OFL × (0.75).
Alternative 4(f) .....	OY = ACL = OFL × (0.50).
Alternative 4(g) .....	OY = ACL = ABC specified by Scientific and Statistical Committee.
Alternative 4(h) .....	OY = ACL = 0 (Grouper Units 1 and 2 and/or parrotfish).

4.2.2 Action 2(b): Queen Conch Complex

Action 2(b) proposes to redefine management reference points or proxies for the queen conch complex. Queen conch is currently classified as

overfished and subject to overfishing in NMFS' report to Congress on the status of U.S. marine fisheries. However, the status of this species has not been assessed since the Council and NMFS implemented measures to address overfishing through the Comprehensive

SFA Amendment (CFMC 2005). Queen conch is currently entering the sixth year of a rebuilding plan designed to rebuild the stock by 2019.

Alternative 1. No action. Retain current management reference points or proxies for the queen conch complex.

TABLE 4.2.6—CURRENT MSY PROXY, OY, AND OVERFISHING THRESHOLD DEFINITIONS FOR QUEEN CONCH

Reference point	Status quo definition
Maximum Sustainable Yield .....	$MSY\ proxy = C / [(F_{CURR} / F_{MSY}) \times (B_{CURR} / B_{MSY})]$ ; where C is calculated based on commercial landings for the years 1997–2001 for Puerto Rico and 1994–2002 for the USVI, and on recreational landings for the years 2000–2001.
Overfishing Threshold .....	$MFMT = F_{MSY}$ .
Optimum Yield .....	OY = average yield associated with fishing on a continuing basis at $F_{OY}$ ; where $F_{OY} = 0.75F_{MSY}$ .

*Discussion:* This alternative would retain the present MSY proxy, OY, and overfishing threshold definitions specified in the Comprehensive SFA Amendment for queen conch. These definitions are detailed in Table 4.2.6.

The current MSY proxy is based on C and on estimates of where stock biomass and fishing mortality rates are in relation to MSY levels during the period over which catches are averaged. The overfishing threshold (MFMT) is defined as a rate of fishing which exceeds that which would produce MSY, and OY is defined as the amount of queen conch produced by fishing at a rate equal to 75% of that which would produce MSY. The numerical values associated with these parameters are provided in Table 4.2.2 under the columns titled, "Alternative 1."

The Comprehensive SFA Amendment in which these reference points were established pre-dated the MSRA provisions requiring FMPs to specify ACLs; consequently, the Comprehensive SFA Amendment did not explicitly specify this parameter for managed

species/species groups. However, the ABC estimates derived from the Council's MSY control rule could be considered to represent the ACL of queen conch if no additional action were taken to revise management reference points in this amendment.

The average catch estimate used to calculate the MSY proxy was derived from commercial landings data recorded during 1997–2001 for Puerto Rico and during 1994–2002 for the USVI, and recreational landings data recorded during 2000–2001. These time series were considered to represent the longest time periods of relatively reliable data at the time the Comprehensive SFA Amendment was approved. Commercial catch data were derived from trip ticket reports collected by the state governments. Recreational catch data for Puerto Rico were derived from a two-month MRFSS survey specific for queen conch. Recreational catches for the USVI were assumed to equal 50% of USVI commercial landings based on information from Valle-Esquivel (pers. comm.).

Because data are insufficient to estimate biomass and fishing mortality rates in the U.S. Caribbean, the remaining information needed to calculate the MSY proxy was derived from the informed judgment of the SFA Working Group regarding whether queen conch was at risk of overfishing and/or overfished during the time period when catches were averaged. This is the same approach described in Section 4.2.1 for the snapper, grouper, and parrotfish complexes. ABC estimates were developed using the natural mortality rate of queen conch as a proxy for  $F_{MSY}$ . The actual yield associated with the current OY definition was estimated to equal 93.75% of MSY.

Alternative 2. (PREFERRED) Redefine management reference points or proxies for queen conch based on the longest time series of pre-Comprehensive SFA Amendment catch data that is considered to be consistently reliable across all islands.

TABLE 4.2.7—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR QUEEN CONCH UNDER ALTERNATIVE 2

Reference point	Alternative 2 (Preferred)
Maximum Sustainable Yield .....	MSY proxy = average annual commercial catch from 1999–2005 for Puerto Rico and STX and from 2000–2005 for STT/STJ.
Overfishing Threshold	
Alternative 2(a) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL.
Alternative 2(b) (PREFERRED) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL, unless NMFS' Southeast Fisheries Science Center (in consultation with the Caribbean Fishery Management Council and its Scientific and Statistical Committee) determines the overage occurred because data collection/monitoring improved, rather than because catches actually increased. (PREFERRED)
Optimum Yield/Annual Catch Limit	
Alternative 2(c) .....	OY = ACL = average annual landings from 1999–2005 for St. Croix.
Alternative 2(d) .....	OY = ACL = average annual landings from 1999–2005 for St. Croix × (0.85).
Alternative 2(e) .....	OY = ACL = average annual landings from 1999–2005 for St. Croix × (0.75).
Alternative 2(f) .....	OY = ACL = average annual landings from 1999–2005 for St. Croix × (0.50).
Alternative 2(g) (PREFERRED) .....	OY = ACL = ABC specified by Scientific and Statistical Committee (PREFERRED).
Alternative 2(h) .....	OY = ACL = 0.

*Discussion:* Alternative 2 would redefine management reference points or proxies for queen conch based on what the Council considers to be the longest time series of catch data prior to the implementation of the Comprehensive SFA Amendment that is considered reliable across all islands. Specific definitions are detailed in Table 4.2.7. The Council chose to omit several years of landings data collected in Puerto Rico prior to 1999 in favor of selecting a more consistent baseline across all islands, noting the inclusion of those earlier landings data would not appreciably alter the various reference point estimates.

The MSY proxy specified by Alternative 2 would equate to average catch, calculated using commercial landings data from 1999–2005 for Puerto Rico and St. Croix and from 2000–2005 for St. Thomas/St. John. These data would be derived from trip ticket reports collected by the state governments.

The OFL would be defined as the amount of catch corresponding to the MSY proxy, and overfishing would be determined to occur if annual catches exceeded the overfishing threshold

(Alternative 2(a)) or if annual catches exceeded the overfishing threshold and scientists (in consultation with managers) attributed the overage to increased catches versus improved data collection and monitoring (Alternative 2(b)).

The OY and ACL would be equal values, and the same socioeconomic and ecological tradeoffs would be considered in the determination of where to set both of these parameters. Most of the alternative ACL definitions considered here are more restrictive than the current OY definition and would prevent the fishery from achieving OY as currently defined.

ACL (= OY) Alternatives 2(c) through 2(f) would set those parameters equal to some proportion (100–50%) of the average annual landings from 1999–2005 for St. Croix to take into account uncertainty, ecological factors, and other concerns. Alternative 2(g) would set those parameters equal to the 50,000 pound ABC recommended by the Council's SSC for queen conch. Alternative 2(h) would set these parameters equal to zero, indicating that queen conch take should be prohibited to prevent overfishing. Note that the

EEZ is closed to queen conch harvest west of 64° 34' W, with only the Lang Bank EEZ area east of St. Croix open to queen conch harvest in federal waters.

The specific numerical values associated with the various Alternative 2 definitions are described in Table 4.2.2 under the columns titled, "Alternative 2".

Alternative 3. Redefine management reference points or proxies for queen conch based on the longest time series of catch data that is considered to be consistently reliable across all islands.

*Discussion:* Alternative 3 would define aggregate management reference points or proxies for queen conch based on what the Council considers to be the longest time series of catch data that is consistently reliable across all islands. Specific definitions are detailed in Table 4.2.8.

The Council chose to omit several years of landings data collected in Puerto Rico prior to 1999 in favor of selecting a more consistent baseline across all islands, noting the inclusion of those earlier landings data would not appreciably alter the various reference point estimates.

TABLE 4.2.8—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR QUEEN CONCH UNDER ALTERNATIVE 3

Reference point	Alternative 3
Maximum Sustainable Yield .....	MSY proxy = average annual commercial catch from 1999–2007 for Puerto Rico and STX and from 2000–2007 for STT/STJ.
Overfishing Threshold	
Alternative 3(a) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL.

TABLE 4.2.8—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR QUEEN CONCH UNDER ALTERNATIVE 3—Continued

Reference point	Alternative 3
Alternative 3(b) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL, unless NMFS' Southeast Fisheries Science Center (in consultation with the Caribbean Fishery Management Council and its Scientific and Statistical Committee) determines the overage occurred because data collection/monitoring improved, rather than because catches actually increased.
Optimum Yield/Annual Catch Limit	
Alternative 3(c) .....	OY = ACL = average annual landings from 1999–2007 for St. Croix.
Alternative 3(d) .....	OY = ACL = average annual landings from 1999–2007 for St. Croix × (0.85).
Alternative 3(e) .....	OY = ACL = average annual landings from 1999–2007 for St. Croix × (0.75).
Alternative 3(f) .....	OY = ACL = average annual landings from 1999–2007 for St. Croix × (0.50).
Alternative 3(g) .....	OY = ACL = ABC specified by Scientific and Statistical Committee.
Alternative 3(h) .....	OY = ACL = 0.

The MSY proxy defined by Alternative 3 would equate to average catch, calculated using commercial landings data only from 1999–2007 for Puerto Rico and St. Croix and from 2000–2007 for St. Thomas/St. John. These data would be derived from trip ticket reports collected by the state governments. Alternative definitions for

the overfishing threshold, OY, and ACL parameters are the same as those considered under Alternative 2. The specific numerical values associated with the various Alternative 3 definitions are described in Table 4.2.2 under the columns titled, “Alternative 3”.

Alternative 4. Redefine management reference points or proxies for queen

conch based on the most recent five years of available catch data.

*Discussion:* Alternative 4 would define management reference points or proxies for queen conch based on the most recent five years of available catch data, as requested by the Council. Specific definitions are detailed in Table 4.2.9.

TABLE 4.2.9.—MANAGEMENT REFERENCE POINTS OR PROXIES PROPOSED FOR QUEEN CONCH UNDER ALTERNATIVE 4

Reference point	Alternative 4
Maximum Sustainable Yield .....	MSY proxy = average annual commercial catch from 2003–2007 for Puerto Rico and the USVI.
Overfishing Threshold	
Alternative 4(a) .....	OFL = MSY proxy; overfishing occurs when annual catches exceed the OFL.
Alternative 4(b) .....	OFL = MSY; overfishing occurs when annual catches exceed the OFL, unless NMFS' Southeast Fisheries Science Center (in consultation with the Caribbean Fishery Management Council and its Scientific and Statistical Committee) determines the overage occurred because data collection/monitoring improved, rather than because catches actually increased.
Optimum Yield/Annual Catch Limit	
Alternative 4(c) .....	OY = ACL = average annual landings from 2003–2007 for St. Croix.
Alternative 4(d) .....	OY = ACL = average annual landings from 2003–2007 for St. Croix × (0.85).
Alternative 4(e) .....	OY = ACL = average annual landings from 2003–2007 for St. Croix × (0.75).
Alternative 4(f) .....	OY = ACL = average annual landings from 2003–2007 for St. Croix × (0.50).
Alternative 4(g) .....	OY = ACL = ABC specified by Scientific and Statistical Committee.
Alternative 4(h) .....	OY = ACL = 0.

The MSY proxy specified by Alternative 4 would equate to average catch, calculated using commercial landings data only from 2003–2007 for Puerto Rico and the USVI. These data would be derived from trip ticket reports collected by the state governments. Alternative definitions for the overfishing threshold, OY, and ACL parameters are the same as those

considered under Alternatives 2 and 3. The specific numerical values associated with the various Alternative 4 definitions are described in Table 4.2.2 under the columns titled, “Alternative 4”.

4.3 Action 3: Annual Catch Limit Allocation/Management

4.3.1 Action 3(a): Snapper and grouper unit allocation/management

Alternative 1. No action. Define reference points for sub-units within the snapper and grouper units.

Alternative 2. Define aggregate reference points for the snapper and grouper units:

- A. Puerto Rico only.
- B. USVI only.
- C. Both Puerto Rico and the USVI.

Alternative 3. Define aggregate reference points for the grouper unit:

- A. Puerto Rico only.
- B. USVI only.
- C. Both Puerto Rico and the USVI.

Alternative 4. (PREFERRED) Define aggregate reference points for snapper and grouper in the USVI and define aggregate reference points for grouper but not snapper in Puerto Rico.

*Discussion:* Commercial harvest data have been collected from Puerto Rico and USVI waters for many decades, but as explained in Section 3.3 the USVI landings data were generally reported by gear rather than species until the late 1990s. As a result of those data limitations, USVI commercial landings data only allow analysis to the family-group (snapper, grouper, parrotfish) level since calendar year (CY) 1998 for St. Croix (STX) and since CY 2000 for St. Thomas and St. John (STT/STJ). Moreover, at the September 2009 meeting of the Council a motion to include only data acquired since CY 1999 was presented and passed. Thus, the start date for any analyses included in this amendment is CY 1999 or later. The rationale for this was because family-level data were not available for STT/STJ until CY 2000, so that year represents the earliest start date for STT/STJ. The Council also requested that landings data for Puerto Rico adhere to this start year limitation despite the fact that Puerto Rico data have been reported to species for a longer period of time than family level data have been reported for USVI landings. For all three island groups, commercial landings data were available only through CY 2007 at the time of preparation of this document. Thus, the data record for STX and

Puerto Rico is 1999–2007 and for STT/STJ it is 2000–2007. Consequently, reference points for snapper and grouper will be based on similar time periods for all islands.

A tangible goal of fisheries management in U.S. Caribbean waters is to manage at the level of individual species. Considering the large number of species being harvested in U.S. Caribbean waters, and given the data limitations discussed above, adequate data with which to conduct stock assessments and to set reference points for individual species are generally not available for the U.S. Caribbean (SEDAR 2009). Thus, although it is a worthwhile goal to manage at the level of the individual species, in practice this is difficult for many U.S. Caribbean species due to data limitations.

4.3.2 Action 3(b): Commercial and recreational sector allocation/management (Puerto Rico only)

Alternative 1. No action. Do not specify sector-specific annual catch limits.

Alternative 2. (PREFERRED) Specify separate commercial and recreational annual catch limits based on the preferred management reference point time series.

*Discussion:* Action 3(b) applies only to Puerto Rico waters because recreational harvest data are not available for the USVI. In Puerto Rico, the MRFSS program has been underway since 2000. That program obtains estimates of recreational harvest from statistically based telephone surveys and face-to-face intercepts of recreational fishers, for finfish species including snapper, grouper, and parrotfish. Queen conch is not included in the program.

4.3.3 Action 3(c): Geographic allocation/management

Alternative 1. No Action. Maintain U.S. Caribbean-wide reference points.

Alternative 2. (PREFERRED) Divide and manage annual catch limits by island group (i.e., Puerto Rico, STT/STJ, STX) based on the preferred management reference point time series (Table 4.3.1 and Action 2).

A. (PREFERRED) Use a mid-point or equidistant method for dividing the EEZ among islands.

B. Use a straight line approach for dividing the EEZ among islands.

C. Use the St. Thomas Fishermen's Association line.

*Discussion:* Action 3(c) addresses the opportunity to partition the EEZ consistent with the allocation of fishing regulations among the islands (Puerto Rico and STX) or island groups (STT/STJ). Partitioning management among the described islands or island groups has been expressed as a desire of local fishers, the fishing community, and the local governments. Those entities emphasize differences among the islands in terms of culture, markets, gear preferences, and seafood preferences as the basis for such a management regime.

Table 4.3.1. Average annual landings in pounds of conch, parrotfish, snapper, and grouper from each of Puerto Rico, St. Thomas/St. John, and St. Croix for each of the year-sequence (1999–2005, 1999–2007, 2003–2007) alternatives discussed in Action 2 of this amendment. Snapper and grouper FMUs are based upon the proposed species composition as described in Table 4.1.1. Also included are averages for 2006–2007, the two available post-Comprehensive SFA Amendment years, for comparison with the year-sequence alternatives. Table A summarizes Puerto Rico commercial landings, Table B summarizes Puerto Rico recreational landings in pounds (numbers of fish reported are in parentheses), Table C summarizes St. Thomas/St. John commercial landings, Table D summarizes St. Croix commercial landings, and Table E provides the summary totals.

FMU/Year sequence	1999–2005	1999–2007	2003–2007	2006–2007
<b>(A) Puerto Rico average commercial landings</b>				
Conch .....	403,349	369,298	384,584	250,122
Parrotfish .....	127,980	111,614	101,084	54,332
Snapper:				
Unit 1 .....	334,923	294,118	240,463	151,300
Unit 2 .....	171,666	167,075	192,721	151,007
Unit 3 .....	406,794	357,281	321,952	183,987
Unit 4 .....	439,171	394,787	351,629	239,445
Unclassified .....	80,114	71,001	64,930	39,104
Total .....	1,432,668	1,284,262	1,171,695	764,843
Grouper:				
Unit 1 .....	17,469	14,066	7,423	2,152
Unit 2 .....	735	572	995	0
Unit 3 .....	112,875	95,626	79,201	35,254

FMU/Year sequence	1999–2005	1999–2007	2003–2007	2006–2007
Unit 4 .....	5,720	5,035	4,710	2,641
Unit 5 .....	9,477	9,356	10,138	8,929
Unclassified .....	62,563	54,138	44,474	24,649
Total .....	208,839	178,793	146,941	73,625

**(B) Puerto Rico average recreational landings**

	N/A	N/A	N/A	N/A
Conch .....	37,042 (22,128)	29,464 (17,853)	25,650 (13,726)	6,730 (5,027)
Parrotfish .....				
Snapper:				
Unit 1 .....	112,384 (97,879)	135,565 (112,851)	133,829 (120,137)	205,109 (157,768)
Unit 2 .....	40,953 (9,250)	32,846 (7,860)	16,477 (6,027)	8,528 (3,690)
Unit 3 .....	97,833 (91,793)	90,649 (92,272)	83,372 (80,233)	69,097 (93,711)
Unit 4 .....	33,540 (32,783)	29,307 (32,071)	29,587 (34,226)	16,607 (29,935)
Unclassified .....	8,130 (6,336)	6,098 (4,752)	0 (0)	0 (0)
Total .....	292,840 (238,041)	294,465 (249,806)	263,265 (240,623)	299,341 (285,104)
Grouper:				
Unit 1 .....	6,172 (574)	7,975 (915)	11,251 (1,289)	13,383 (1,937)
Unit 2 .....	6,501 (716)	4,875 (537)	0 (0)	0 (0)
Unit 3 .....	72,063 (108,149)	62,994 (91,529)	69,430 (98,691)	35,788 (41,671)
Unit 4 .....	4,581 (306)	4,945 (367)	6,162 (437)	6,035 (548)
Unit 5 .....	1,522 (349)	1,142 (262)	1,361 (330)	0 (0)
Unclassified .....	0	0	0	0
Total .....	90,839 (110,094)	81,931 (93,610)	88,204 (100,747)	55,206 (44,156)

**(C) St. Thomas/St. John average commercial landings**

Conch .....	1,649	1,876	1,981	2,557
Parrotfish .....	48,818	47,245	49,353	42,528
Snapper .....	157,382	159,594	156,792	166,231
Grouper .....	60,999	59,952	64,201	56,812

**(D) St. Croix average commercial landings**

Conch .....	107,720	116,899	138,587	149,026
Parrotfish .....	293,219	308,333	336,114	361,229
Snapper .....	121,113	123,217	134,046	130,581
Grouper .....	35,806	34,177	37,832	28,475

**(E) Summary U.S. Caribbean average commercial and recreational landings**

Conch .....	512,718	488,073	525,152	401,705
Parrotfish .....	507,059	496,656	512,201	464,819
Snapper .....	2,004,003	1,861,538	1,725,798	1,360,996
Grouper .....	396,483	354,853	337,178	214,118

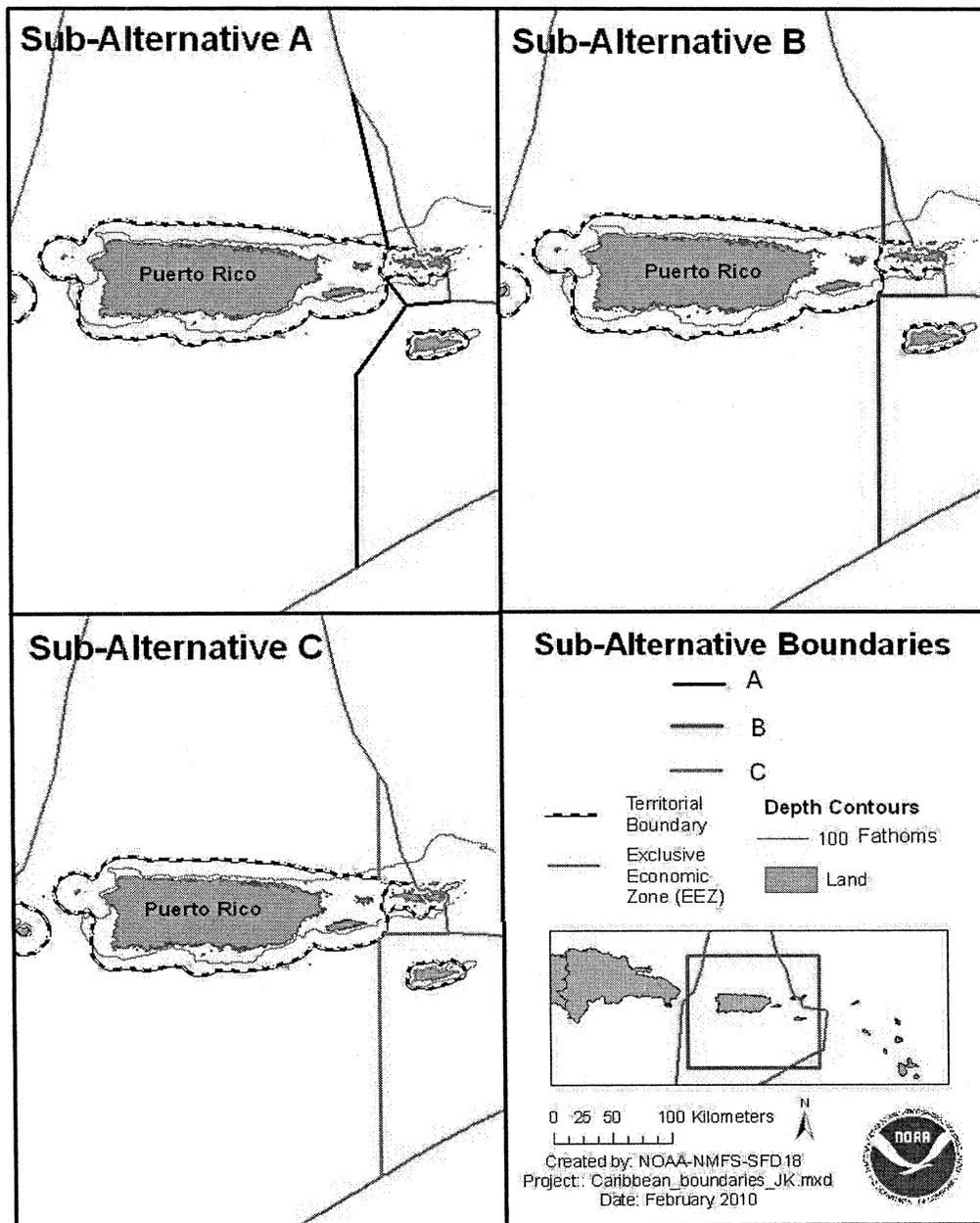


Figure 4.3.2. Alternative proposed boundaries for subdividing the U.S. Caribbean Exclusive Economic Zone by island group. Alternative 1 is the equidistant approach, Alternative 2 is the straight line approach, and Alternative 3 is the St. Thomas Fisherman’s Association approach.

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4.4 Action 4: Management Measures

4.4.1 Action 4(a): Species-Specific Parrotfish Prohibitions

Alternative 1. No action. Do not establish species-specific prohibitions on parrotfish harvest.

Alternative 2. (PREFERRED) Prohibit fishing for or possessing in the EEZ:

- A. Midnight parrotfish.
- B. Blue parrotfish.
- C. Rainbow parrotfish.

Discussion: Action 4(a) addresses concerns regarding the harvest of parrotfish, particularly the three largest species of parrotfish (midnight, blue,

rainbow) that occur in U.S. Caribbean waters. Regarding those three large parrotfish, concern relates to the potential overharvest of these species due to their combination of large body size, a high susceptibility to spear gear and fish traps (Mumby *et al.* 2006), resultant relatively low resilience, and lack of abundance compared with most

parrotfish occupying U.S. Caribbean waters (Table 4.4.1).

TABLE 4.4.1—BIOLOGICAL CHARACTERISTICS OF COMMON U.S. CARIBBEAN PARROTFISH

Common name	Genus/species	Max size (cm)	Depth range (m)	Population doubling time	Resilience	Abundance
Blue parrotfish	<i>Scarus coeruleus</i>	120	3–25	1.4–4.4 yrs	Medium	occasional
Midnight parrotfish	<i>Scarus coelestinus</i>	77	5–75	1.4–4.4 yrs	Medium	occasional
Rainbow parrotfish	<i>Scarus guacamaia</i>	120	3–25	1.4–4.4 yrs	Medium	occasional
Queen parrotfish	<i>Scarus vetula</i>	61	3–25	<15 months	High	common
Princess parrotfish	<i>Scarus taeniopterus</i>	35	2–25	<15 months	High	common
Striped parrotfish	<i>Scarus iseri</i>	35	3–25	<15 months	High	common
Redband parrotfish	<i>Sparisoma aurofrenatum</i>	28	2–20	1.4–4.4 years	Medium	common
Redfin parrotfish	<i>Sparisoma rubripinne</i>	48	1–15	<15 months	High	common
Redtail parrotfish	<i>Sparisoma chrysopterygum</i>	46	1–15	<15 months	High	common
Stoplight parrotfish	<i>Sparisoma viride</i>	64	3–50	1.4–4.4 years	Medium	common

Source: Humann 1994 and <http://www.fishbase.com>.

4.4.2 Action 4(b): Recreational Bag Limits

Alternative 1. No action. Do not establish bag limit restrictions on recreational reef fish harvest.

Alternative 2. Specify a 10-fish aggregate bag limit per person (would not apply to a fisherman who has a valid commercial fishing license issued by Puerto Rico or the USVI) for:

- A. Species in the Snapper FMU.
- B. Species in the Grouper FMU.
- C. Species in the Parrotfish FMU.

Alternative 3. Specify a 5-fish aggregate bag limit per person (would not apply to a fisherman who has a valid commercial fishing license issued by Puerto Rico or the USVI) for:

- A. Species in the Snapper FMU.
- B. Species in the Grouper FMU.
- C. Species in the Parrotfish FMU.

Alternative 4. Specify a 2-fish aggregate bag limit per person (would not apply to a fisherman who has a valid commercial fishing license issued by Puerto Rico or the USVI) for:

- A. Species in the Snapper FMU.
- B. Species in the Grouper FMU.
- C. Species in the Parrotfish FMU.

Alternative 5. Establish a 0-fish aggregate bag limit per person (would not apply to a fisherman who has a valid commercial fishing license issued by Puerto Rico or the USVI) for species in the Parrotfish FMU.

Alternative 6. Establish a vessel limit (would not apply to a fisherman who has a valid commercial fishing license issued by Puerto Rico or the USVI) equivalent to the combined bag limit of:

- A. Two fishers.
- B. Three fishers.
- C. Four fishers.

Alternative 7. (PREFERRED) Establish an aggregate bag limit for snapper, grouper and parrotfish FMUs of: 10 per fisher including not more than two parrotfish per fisher or six parrotfish per

boat, and 30 aggregate snapper, grouper, and parrotfish per boat on a fishing day.

*Discussion:* As noted in Action 3(b) above, there is concern on the part of recreational fishing interests in the U.S. Caribbean that a conglomerate annual catch limit for the recreational and commercial sectors could create an unfair and economically untenable situation for the recreational fishers, particularly charter boat interests. The concern of the recreational fisher is that, in the race for a single quota, the commercial sector would dominate and there would be substantial losses of socioeconomic benefits to the recreational sector because the combined fishery would close before recreational fishers could achieve their historic average annual landings. It was therefore suggested at the December 2009 meeting of the Council, and a motion passed, to establish recreational bag limits for the U.S. Caribbean EEZ. Action 4(b) addresses the establishment of recreational bag limits. The goal of implementing bag limits would be to, when coupled with sector-specific (*i.e.*, recreational and commercial) ACLs, ensure that the recreational ACL for each complex is not exceeded until as near as possible to the end of the calendar year.

4.5 Action 5: Accountability Measures

Accountability Measures (AMs) are defined as management controls to prevent ACLs, including sector-specific ACLs, from being exceeded, and to correct or mitigate overages of the ACL if they occur (74 FR 3180).

4.5.1 Action 5(a): Triggering Accountability Measures

Action 3 includes alternatives to establish and allocate ACLs. If an ACL is exceeded, AM alternatives are

provided to redress overages. Action 5 alternatives are presented in two parts, the first of which addresses the triggering of AMs and the second of which addresses the actual actions needed to redress overages.

Alternative 1. No Action. Do not trigger AMs.

*Discussion:* This alternative would maintain present status and no trigger to put into place corrective action would be set. Consequently, Alternative 1 would not achieve MSA compliance.

Alternative 2. Trigger AMs if the annual catch limit is exceeded based upon:

A. A single year of landings beginning with landings from 2010.

B. A single year of landings beginning with landings from 2010, then a 2-year running average of landings in 2011 (average of 2010+2011) and thereafter (*i.e.*, 2010, 2010–2011, 2011–2012, etc.).

C. A single year of landings beginning with landings from 2010, a 2-year average of landings in 2011 (average of 2010+2011), then a 3-year running average of landings in 2012 (average of 2010+2011+2012) and thereafter (*i.e.*, 2010, 2010–2011, 2010–2012, 2011–2013, etc.).

*Discussion:* Alternative 2A would trigger AMs based on a single year of landings beginning in 2010. By adopting this alternative, the decision as to whether the ACL has been exceeded would be based on one year of landings data. Currently, the process used to consolidate or summarize landings data (*i.e.*, available for use) takes approximately two years. The landings data is initially acquired from fishers through each local government’s fishery statistics program (often referred to as trip tickets in Puerto Rico and Commercial Catch Reports in the USVI), is proofed by the local government, and electronically transferred to the SEFSC.

The DPNER and the VIDPNR require commercial fishers to report landings or trip tickets monthly. Upon receipt, the SEFSC formats and stores landings data files and provides them to scientists and managers upon request for analysis or decision making. There may be as much as a two-year lag between the time catches are recorded and the data are released for management applications. For Alternative 2A, when landings data become available, they represent a single point of comparison to the established ACL. Consequently, the first one-year comparison to the originally established ACL should occur in 2012 or 2013. After that point in time, annual single-point comparisons can be made to existing ACLs.

In order to overcome the challenges of monitoring highly variable landings, Alternative 2B would trigger AMs based on a single year of landings beginning in 2010, and then a 2-year running average of landings in 2011 (average of 2010 + 2011) and thereafter (2010, 2010–2011, 2011–2012, etc.). Using the process described for Alternative 2A, the information might not be available for consideration until 2013 or 2014. By adopting this alternative, the decision as to whether the ACL has been exceeded would initially be based on landings from a single year but subsequent year comparisons would be based on two-year landing sets. Landings data can be highly variable; therefore, comparing average landings with the ACL can buffer peaks in landings, which may be a function of sampling or reporting rather than true estimation of actual harvest. While such a comparison is more robust than Alternatives 1 and 2A, a two-year average provides little information with regard to precision of the comparison.

Similar to Alternative 2B, Alternative 2C would trigger AMs based on a single year of landings beginning in 2010, then a 2-year average of landings in 2011 (average of 2010 + 2011), then a 3-year average of landings effective 2012 and thereafter (*i.e.*, 2010, 2010–2011, 2010–2012, 2011–2013, etc.). Using the process described for Alternative 2A, the information might not be available for consideration until 2013 or 2014. By adopting this alternative, the decision as to whether the ACL for each species/species group has been exceeded would initially be based on landings from a single year but in 2011 the comparison would be based on a two-year landing set (2010–2011), and subsequent comparisons would be based on 3-year landing sets (2010–2012, 2011–2013, etc.). Such a comparison is more robust than Alternatives 2A and 2B because it provides more information than a 1- or

2-year landings average with regard to precision of the comparison. Alternatives 2B and 2C prescribe a sound method for dealing with data uncertainty and provide a means by which any ACL overages may be accounted for in subsequent fishing years.

Alternative 3. (PREFERRED) Trigger AMs if the annual catch limit is exceeded as defined below and NMFS' SEFSC (in consultation with the Caribbean Fishery Management Council and its Scientific and Statistical Committee) determines the overage occurred because catches increased versus data collection/monitoring improved:

A. A single year of landings effective beginning 2010.

B. A single year of landings effective beginning 2010, then a 2-year running average of landings effective 2011 and thereafter (*i.e.*, 2010, 2010–2011, 2011–2012, etc.).

C. (PREFERRED) A single year of landings effective beginning 2010, a 2-year running average of landings effective 2011, then a 3-year running average of landings effective 2012 and thereafter (*i.e.*, 2010, 2010–2011, 2010–2012, 2011–2013, etc.).

*Discussion:* The explanation of Alternative 3 is similar to that for Alternative 2 above with the addition of a consultation between the SEFSC, the SSC, and Council prior to the decision to determine whether an overage occurred. A data collection improvement program is under development by the SEFSC and is focused to provide more precise and accurate fishery landings information for the U.S. Caribbean, and there is a real possibility that more accurate and comprehensive landings data will be collected for each island mass. For Alternatives 3A–C a determination will have to be made to examine whether an overrun of the ACL was due to increased catches by fishers or to improved data collection/monitoring efforts. The SEFSC and the SSC will provide an analysis of the information and consult with the Council before any determination is made. A single year of landings beginning in 2010 will be the basis for the initial consultation and subsequent determination regarding the cause of any ACL overage.

Alternative 3B is similar to Alternative 3A except that after the initial single-year comparison (2010 information with established ACLs), then a 2-year running average of landings will begin in 2011 and thereafter (*i.e.*, 2010, 2010–2011, 2011–2012, etc.).

Alternative 3C is similar to Alternative 3B except that after the initial single-year comparison (2010 information with established ACLs), and a 2-year running average of landings comparison will be made in 2011 (*i.e.*, 2010, 2010–2011), after which a 3-year running average of landings will begin in 2012 and thereafter (*i.e.*, 2010, 2010–2011, 2010–2012, 2011–2013, etc.). Using two or three year running averages of landings (Alternatives 3B and 3C) would provide a mechanism to deal with data uncertainty that may be due to reporting errors, underreporting, and highly variable landings.

#### 4.5.2 Action 5(b): Applying Accountability Measures

Alternative 1. No Action. Do not apply AMs.

Alternative 2. (PREFERRED) If AMs are triggered, then reduce the length of the fishing season for that species or species group the year following the trigger determination by the amount needed to prevent such an overage from occurring again. The needed changes will remain in effect until modified.

Alternative 3. If AMs are triggered, then reduce the length of the fishing season for that species or species group the year following the trigger determination by the amount needed to prevent such an overage from occurring again and to pay back the overage. The needed changes will remain in effect until modified.

*Discussion:* Alternative 1 would not apply AMs when the ACL is exceeded and, consequently, would not comply with MSA provisions. Therefore, this is not a viable option when considering AMs. Reducing the length of the fishing season by the amount needed to pay back the overage in addition to shortening the season length to prevent a future overage (Alternative 3) would likely have a greater biological benefit than only reducing the length of the fishing season as specified in Alternative 2. However, AMs that shorten the fishing season can increase the magnitude of regulatory discards and may not be as effective as AMs that lower the target level but still allow some catch.

#### 4.6 Action 6: Framework Measures

##### 4.6.1 Action 6(a): Establish Framework Measures for Reef Fish FMP

Alternative 1: No Action. Do not amend the framework measures for the Reef Fish FMP

Alternative 2: Amend the framework procedures for the Reef Fish FMP to provide a mechanism to expeditiously adjust the following reference points

and management measures through framework action:

- a. Quota Requirements.
- b. Seasonal Closures.
- c. Area Closures.
- d. Fishing Year.
- e. Trip/Bag Limit.
- f. Size Limits.
- g. Gear Restrictions or Prohibitions.
- h. Fishery Management Units (FMUs).
- i. Total Allowable Catch (TAC).
- j. Annual Catch Limits (ACLs).
- k. Accountability Measures (AMs).
- l. Annual Catch Targets (ACTs).
- m. Maximum Sustainable Yield (MSY).
- n. Optimum Yield (OY).
- o. Minimum Stock Size Threshold (MSST).
- p. Maximum Fishing Mortality Threshold (MFMT).
- q. Overfishing Limit (OFL).
- r. Acceptable Biological Catch (ABC) control rules.
- s. Actions To Minimize the Interaction of Fishing Gear With Endangered Species or Marine Mammals.

Alternative 3: Amend the framework procedures for the Reef Fish FMP to provide the Council with a mechanism to expeditiously adjust a subset of management measures outlined in Alternative 2.

#### 4.6.2 Action 6(b): Establish Framework Measures for Queen Conch FMP

Alternative 1: No Action. Do not amend the framework measures for the Queen Conch FMP.

Alternative 2: Amend the framework procedures for the Queen Conch FMP to provide a mechanism to expeditiously adjust the following reference points and management measures through framework action:

- a. Quota Requirements.
- b. Seasonal Closures.
- c. Area Closures.
- d. Fishing Year.
- e. Trip/Bag Limit.
- f. Size Limits.
- g. Gear Restrictions or Prohibitions.
- h. Total Allowable Catch (TAC).
- i. Annual Catch Limits (ACLs).
- j. Accountability Measures (AMs).
- k. Annual Catch Targets (ACTs).
- l. Maximum Sustainable Yield (MSY).
- m. Optimum Yield (OY).
- n. Minimum Stock Size Threshold (MSST).
- o. Maximum Fishing Mortality Threshold (MFMT).
- p. Overfishing Limit (OFL).
- q. Acceptable Biological Catch (ABC) control rules.
- r. Actions To Minimize the Interaction of Fishing Gear With

Endangered Species or Marine Mammals.

Alternative 3: Amend the framework procedures for the Queen Conch FMP to provide the Council with a mechanism to expeditiously adjust a subset of management measures outlined in Alternative 2.

*Discussion:* In order to modify regulations, the Council generally must follow the FMP amendment procedure which takes longer to implement than if the Council had the availability of a framework process. The current process for amending a FMP is not the most expedient possible for making timely pre-season, in season, or other adjustments (see the above list) to management measures. However, this amendment establishes a process to make changes in a more expeditious manner via a regulatory amendment. Regulatory amendments can be implemented in a shorter period of time than plan amendments because the level of public participation is not as extensive as for the full plan amendment process. In order to complete a regulatory amendment, a framework section must be established for each FMP to which changes will be made.

Action 6 lists the framework measures which may be adjusted under regulatory amendment. This discussion section describes a framework procedure and how each might be achieved. Such a procedure will provide the Council with a mechanism to make management changes in the queen conch or reef fish fisheries in a more timely fashion than provided through the FMP amendment process.

Establish an assessment group and adjustments:

The following discussion outlines the procedure by which the Council may make management changes through regulatory amendment. As previously discussed, the purpose of frameworks and regulatory amendments is to provide the most responsive and efficient modifications to management measures. If an additional review process was included, there could be substantial delays, thus resulting in a longer lag time between identification of a problem and implementation of a response.

1. When the Council determines that management measures require modification, the Council will appoint an assessment group (Group) that will assess the condition of species in the reef fish or queen conch management units (including periodic economic and sociological assessments as needed). The Group will present a report of its

assessment and recommendations to the Council.

2. The Council will consider the report and recommendations of the Group and hold public hearings at a time and place of the Council's choosing to discuss the Group's report. The Council may convene its Scientific and Statistical Committee to provide advice prior to taking final action. After receiving public input, the Council will make decisions on the need for change.

3. If changes to management regulations are needed, the Council will advise the Regional Administrator (RA) in writing of its recommendations accompanied by the Group's report (where appropriate), relevant background material, draft regulations, Regulatory Impact Review, and public comments.

4. The RA will review the Council's recommendations, supporting rationale, public comments, and other relevant information. If the RA concurs that the Council's recommendations are consistent with the goals and objectives of the fishery management plan, the national standards, and other applicable laws, the RA will recommend that the Secretary take appropriate regulatory action for the reef fish or queen conch fisheries on such date as may be agreed upon with the Council.

5. Should the RA reject the recommendations, the RA will provide written reasons to the Council for the rejection, and existing measures will remain in effect until the issue is resolved.

6. Appropriate adjustments that may be implemented by the Secretary include:

- a. Specification of Maximum Sustainable Yield (MSY) or MSY proxy and subsequent adjustment where this information is available;
- b. Specification of an Acceptable Biological Catch (ABC) control rule and subsequent adjustment where this information is available;
- c. Specification of TAC and subsequent adjustment where this information is available;
- d. Specification of Annual Catch Limits (ACLs) and subsequent adjustment;
- e. Specification of AMs and subsequent adjustment;
- f. Specification of Optimum Yield (OY) and subsequent adjustment where this information is available;
- g. Specification of Minimum Stock Size Threshold (MSST) and subsequent adjustment;
- h. Specification of Maximum Fishing Mortality Threshold (MFMT) or Overfishing Level (OFL) and subsequent adjustment;

i. Specification (or modification) of quotas (including zero quotas), trip limits, bag limits (including zero bag limits), minimum size limits, gear restrictions (ranging from modifying current regulations to a complete prohibition), season/area closures (including spawning closures), and fishing year;

j. Initial specification and subsequent adjustment of biomass levels and age structured analyses.

Authority is granted to the RA to close any fishery, i.e. revert any bag limit to zero and close any commercial fishery, once a quota has been established through the procedure described above and such quota has been filled.

If the NMFS decides not to publish the proposed rule of the recommended management measures, or to otherwise hold the measures in abeyance, then the RA must notify the Council of its intended action and the reasons for NMFS's concern, along with suggested changes to the proposed management measures that would alleviate the concerns. Such notice shall specify: (1) The applicable law with which the amendment is inconsistent; (2) the nature of such inconsistencies; and (3) recommendations concerning the action that could be taken by the Council to conform the amendment to the requirements of applicable law.

Dated: June 24, 2010.

**Tracey L. Thompson,**

*Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.*

[FR Doc. 2010-15778 Filed 6-28-10; 8:45 am]

**BILLING CODE 3510-22-P**

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

RIN 0648-XT64

#### Notice of Public Review and Comment Period on NOAA's Next Generation Strategic Plan (NGSP)

**AGENCY:** Office of Program Planning & Integration, National Oceanic and Atmospheric Administration.

**ACTION:** Notice; request for comments.

**SUMMARY:** NOAA's Next Generation Strategic Plan (Plan) sets the course for the agency's mission, a vision of the future, the societal outcomes that NOAA aims to help realize, and, consequently, the actions that the agency must take. The draft Plan lays the foundation for NOAA to play a leading Federal role in responding to the Nation's most urgent challenges, ranging from climate change, severe weather, and natural or

human-induced disasters to declining biodiversity and threatened or degraded ocean and coastal resources. NOAA's draft strategy emerged from extensive consultations across the Nation with staff and stakeholders—the extended community of partners and collaborators in the public, private, and academic sectors who have a stake in NOAA's mission. During more than 20 regional stakeholder forums, a national forum in Washington, DC, and through web-based engagement and idea generation, NOAA gathered input that helped assess the greatest challenges facing our Nation and the highest priority goals for NOAA. NOAA invites comments on the Plan on its: mission statement; vision of the future; long-term strategic goals and five-year objectives; enterprise components and five-year objectives; and strategic partnerships.

**DATES:** The public comment period is open from June 29, 2010, to August 10, 2010. Comments must be submitted by COB on August 10, 2010.

**ADDRESSES:** Submit comments via the following methods—

- NGSP Website ([www.noaa.gov/ngsp](http://www.noaa.gov/ngsp)).
- Mail: National Oceanic and Atmospheric Administration, Office of Program Planning and Integration, 1315 East West Highway, Room 15749, Silver Spring, Maryland 20910.
- Email comments to [strategic.planning@noaa.gov](mailto:strategic.planning@noaa.gov).

**FOR FURTHER INFORMATION CONTACT:**

Marla Trollan, NGSP Communications Director, at [marla.trollan@noaa.gov](mailto:marla.trollan@noaa.gov) or (302) 270-6288.

**SUPPLEMENTARY INFORMATION:** You may view the Plan in its entirety at: [www.noaa.gov/ngsp](http://www.noaa.gov/ngsp).

#### I. Summary of the Plan

Through its longstanding mission of science, service, and stewardship, NOAA generates tremendous value for the Nation — and the world — by advancing our understanding of and ability to anticipate changes in the Earth's environment, by improving society's ability to make scientifically-informed decisions, and by conserving and managing ocean and coastal resources. NOAA's mission of science, service, and stewardship is to understand and anticipate changes in climate, weather, oceans, and coasts, share knowledge and information with others, and conserve and manage marine resources.

NOAA's mission is central to many of today's greatest challenges. Climate change. Severe weather. Natural and human-induced disasters. Declining

biodiversity. Threatened or degraded ocean and coastal resources. These challenges convey a common message: Human health, prosperity, and well-being depend upon the health and resilience of natural ecosystems.

NOAA's vision of the future is one of healthy ecosystems, communities, and economies that are resilient in the face of change. Resilient ecosystems, communities, and economies can maintain and improve their health and vitality over time by anticipating, absorbing, and diffusing change—whether sudden or prolonged. This vision of resilience will guide NOAA and its partners in our collective effort to reduce the vulnerability of communities and ecological systems in the short term, while helping society avoid or adapt to long-term environmental, social, and economic changes. To this end, NOAA will focus on four long-term outcomes within its primary mission domains.

**NOAA's Long-Term Goals:**

- **Climate Adaptation and Mitigation:** An informed society anticipating and responding to climate and its impacts;
- **Weather-Ready Nation:** Society is prepared for and responds to weather-related events;
- **Healthy Oceans:** Vibrant marine fisheries, habitats, and biodiversity sustained within healthy and productive ecosystems; and
- **Resilient Coastal Communities and Economies:** Coastal and Great Lakes communities are environmentally and economically sustainable.

NOAA cannot achieve these goals on its own, but neither can society achieve them without NOAA. This Plan describes the long-term outcomes that NOAA will contribute to in each of these areas, along with the specific objectives that NOAA will pursue over the next five years. Over the next five years, NOAA will direct its collective mission capabilities toward objectives for society in each of its four interrelated and mutually supportive long-term goals:

- **Long-term goal: Climate Adaptation and Mitigation -** An informed society anticipating and responding to climate and its impacts.
- **Objective: Improved scientific understanding of the changing climate system and its impacts.**
- **Objective: Integrated assessments of current and future states of the climate system that identify potential impacts and inform science, services, and decisions.**
- **Objective: Mitigation and adaptation efforts supported by sustained, reliable, and timely climate services.**