https://www.regulations.gov under Docket No. FWS–R8–ES–2022–0165 in the species assessment form, or upon request from the person listed above under **FOR FURTHER INFORMATION CONTACT**.

Authors

The primary authors of this document are the staff members of the Species Assessment Team, Ecological Services Program.

Authority

The authority for this action is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Martha Williams,

Director, U.S. Fish and Wildlife Service.

[FR Doc. 2023–04680 Filed 3–8–23; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 217

[Docket No. 230302–0061]

RIN 0648–BL81

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to U.S. Navy Construction of the Pier 3 Replacement Project at Naval Station Norfolk

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

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS has received a request from the U.S. Navy (Navy) for authorization to take marine mammals incidental to the replacement of Pier 3 at Naval Station (NAVSTA) Norfolk in Norfolk, Virginia over the course of five years (2023–2028). Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is proposing regulations to govern that take, and requests comments on the proposed regulations. Agency responses will be included in the notice of the final decision.

DATES: Comments and information must be received no later than April 10, 2023.

ADDRESSES: A copy of the Navy's application and any supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-us-navy-replacement-pier-3-naval-station-norfolk-norfolk.* In case of problems accessing these documents, please call the contact listed below (see **FOR FURTHER INFORMATION CONTACT**).

Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to *www.regulations.gov* and enter NOAA–NMFS–2022–0110 in the Search box. Click on the ''Comment'' icon, complete the required fields, and enter or attach your comments.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public records and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word, Excel, or Adobe PDF file formats only.

FOR FURTHER INFORMATION CONTACT: Kim Corcoran, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Purpose and Need for Regulatory Action

This proposed rule would establish a framework under the authority of the MMPA (16 U.S.C. 1361 *et seq.*) to allow for the authorization of take of marine mammals incidental to the Navy's construction activities including pile driving and drilling activities at Naval Station (NAVSTA) Norfolk.

We received an application from the Navy requesting five-year regulations and authorization to take multiple species of marine mammals. Take would occur by Level B and Level A harassment, incidental to impact and vibratory pile driving and drilling. Please see Background below for definitions of harassment.

Legal Authority for the Proposed Action

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1371(a)(5)(A)) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region for up to five years if, after notice and public comment, the agency makes certain findings and issues regulations that set forth permissible methods of taking pursuant to that activity and other means of effecting the ''least practicable adverse impact'' on the affected species or stocks and their habitat (see the discussion below in the Proposed Mitigation section), as well as monitoring and reporting requirements. Section 101(a)(5)(A) of the MMPA and the implementing regulations at 50 CFR part 216, subpart I provide the legal basis for issuing this proposed rule containing 5-year regulations, and for any subsequent letters of authorization (LOAs). As directed by this legal authority, this proposed rule contains mitigation, monitoring, and reporting requirements.

Summary of Major Provisions Within the Proposed Rule

Following is a summary of the major provisions of this proposed rule regarding Navy construction activities. These measures include:

- Required monitoring of the construction areas to detect the presence of marine mammals before beginning construction activities;
- Shutdown of construction activities under certain circumstances to avoid injury of marine mammals;
- Soft start for impact pile driving to allow marine mammals the opportunity to leave the area prior to beginning impact pile driving at full power.

Background

The MMPA prohibits the ''take'' of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed IHA is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other ''means of effecting the least

practicable adverse impact'' on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as ''mitigation''); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216–6A, NMFS must review our proposed action (*i.e.,* the issuance of an IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216–6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has preliminarily determined that the issuance of the proposed IHA qualifies to be categorically excluded from further review under NEPA.

We will review all comments submitted in response to this document prior to concluding our NEPA process or making a final decision on the IHA request.

Summary of Request

On April 8, 2022, NMFS received a request from the Navy for authorization to take marine mammals incidental to construction activities related to the replacement of Pier 3 at Naval Station Norfolk in Norfolk, Virginia. Following NMFS' review of the application, the Navy provided responses to questions on June 3, 2022 and August 29, 2022. A revised version of the application was submitted on September 22, 2022. The application was deemed adequate and complete on September 26, 2022 and published for public review and comment on October 7, 2022 (87 FR 60998). We did not receive substantive comments on the NOR.

The Navy requests authorization to take a small number of five species of marine mammals by Level B harassment and, for harbor porpoise and harbor seal, Level A harassment. Neither the Navy nor NMFS expect serious injury or mortality to result from this activity. The proposed regulations would be valid for five years (2023–2028).

Description of Proposed Activity

Overview

The Navy is currently conducting, and proposes to continue, the replacement of Pier 3 at NAVSTA Norfolk, in Norfolk, VA. This proposed rule follows an Incidental Harassment Authorization (IHA) issued to the Navy on March 15, 2022, effective from April 1, 2022 through March 31, 2023 (87 FR 15945; March 21, 2022), which covered the first year of project activities, and covers the remaining activities for the pier replacement. During this period demolition and construction activities will occur at existing Pier 3, new Pier 3, CEP–176 wharf, CEP–102 relieving platform, and on a fender system of CEP–175 bulkhead (See Figure 1). The proposed project includes both vibratory pile driving and removal, impact pile driving, and pre-drilling (hereafter, referred to as ''drilling''). Sounds resulting from pile driving, drilling and removal may result in the incidental take of marine mammals by Level A and Level B harassment in the form of auditory injury or behavioral harassment.

Dates and Duration

The proposed regulations would be valid for a period of five years (2023–2028) The specified activities may occur at any time during the five-year period of validity of the proposed regulations. The Navy expects pile driving and drilling for the entire project to occur on approximately 513 non-consecutive days over a four year duration, with the greatest amount of work occurring during Year 4 (approximately 204 days). However, in the event of unforeseen delays, the project may occur over the full 5-year duration of this proposed rule. The Navy plans to conduct all work during daylight hours.

Specific Geographic Region

Pier 3 at NAVSTA Norfolk is located at the confluence of the Elizabeth River, James River, Nansemond River, LaFeyette River, Willoughby Bay, and Chesapeake Bay (Figure 2).

Anthropogenic sound is a significant contributor to the ambient acoustic environment surrounding NAVSTA Norfolk, as it is located in close proximity to shipping channels as well as several Port of Virginia facilities with frequent vessel traffic that altogether have an annual average of 1,788 vessel calls (Port of Virginia, 2021). Other sources of human-generated underwater sound not specific to naval installations include sounds from echosounders on commercial and recreational vessels, industrial ship noise, and noise from recreational boat engines. Additionally, on average, maintenance dredging of the navigation channel occurs every 2 years (USACE and Port of Virginia, 2018).

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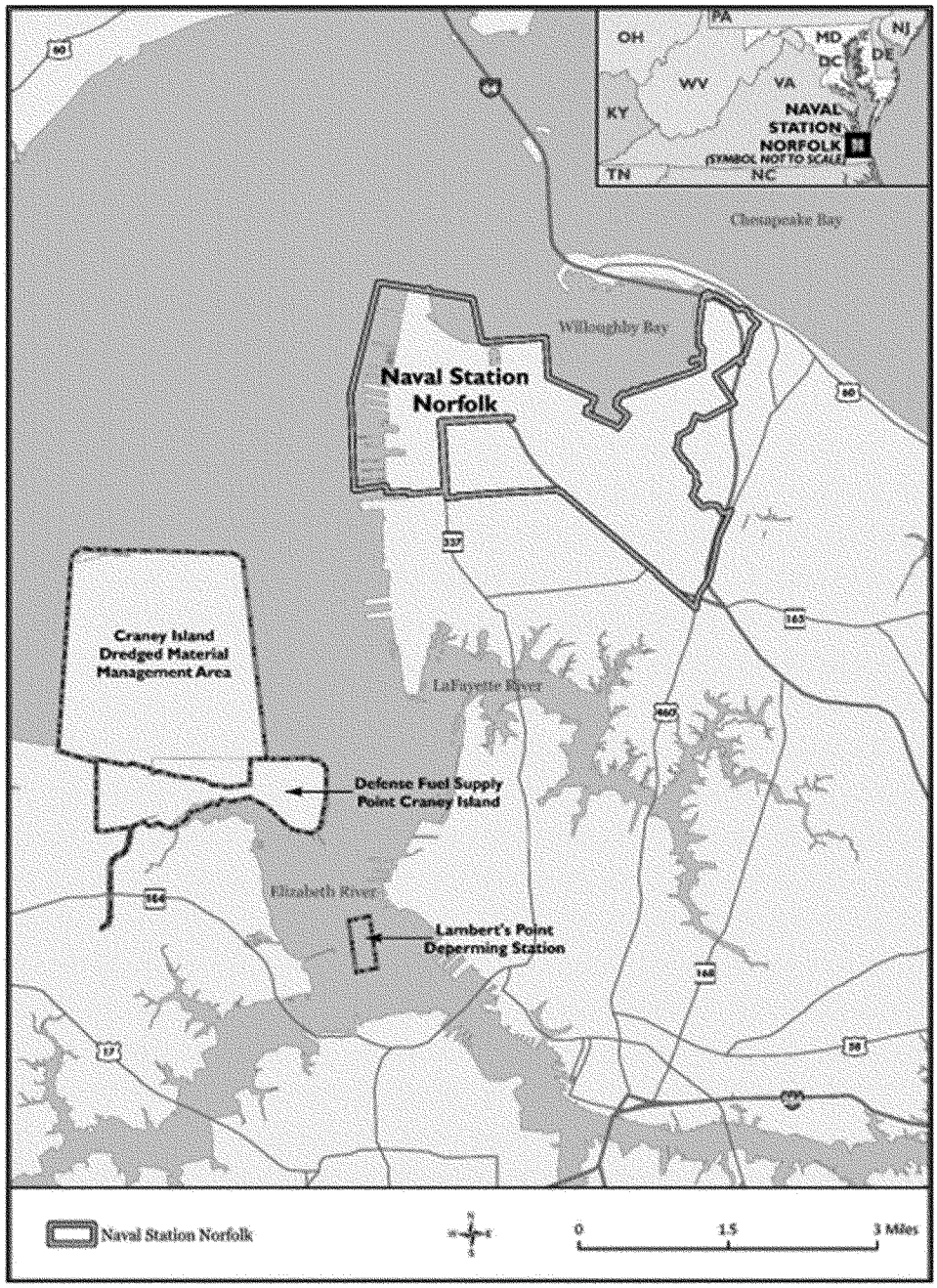

Figure 1: Site Location Map for NAVSTA Norfolk in Norfolk, Virginia

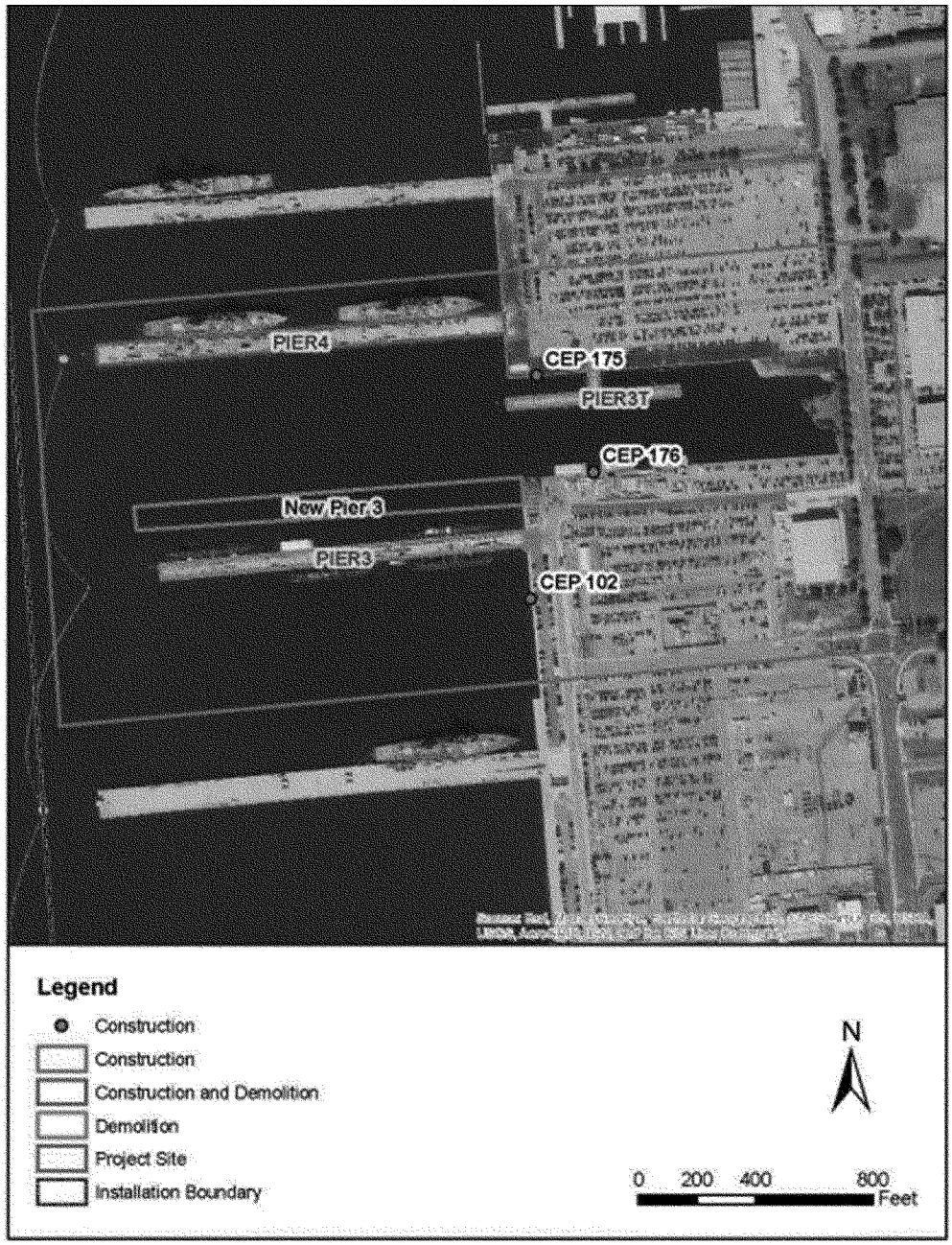

Figure 2: Project Site Map at NAVSTA Norfolk in Norfolk, Virginia

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Detailed Description of Specific Activity

The proposed project involves the replacement of Pier 3 at NAVSTA waterfront. The existing Pier 3 would be completely demolished and a new Pier 3 would be constructed immediately north of the existing location (Figure 2). The project scope for the replacement of Pier 3 under this proposed rule would also include construction of new CEP–176 wharf, construction of new CEP–102 relieving platform, and construction of a portion of fender system at CEP–175. The project includes 6 phases, the first of which has begun under the previously issued IHA (87 FR 15945; March 21, 2022). A preliminary work schedule and activity details for the work under this proposed rule are provided in Table 1. In-water construction activities, including pile driving, pile removal, and drilling are described in detail below:

Pile Removal—Piles are anticipated to be removed with a vibratory hammer, however, direct pull or clamshell removal may be used depending on site conditions. All three pile removal methods are described below. Take is not expected to occur for clamshell and direct pull removal, therefore they will not be described past what is provided below nor included in our analysis:

• Vibratory Extraction—This method uses a barge-mounted crane with a vibratory driver to remove all pile types. The vibratory driver is a large mechanical device (5 to 16 tons) suspended from a crane by a cable and positioned on top of a pile. The pile is then loosened from the sediments by activating the driver and slowly lifting up on the driver with the aid of the crane. Once the pile is released from the sediments, the crane continues to raise the driver and pull the pile from the sediment. The driver is typically shut off once the pile is loosened from the sediments. The pile is then pulled from the water and placed on a barge. Vibratory extraction usually takes between less than 1 minute (for timber piles) to 30 minutes per pile depending on the pile size, type, and substrate conditions;

• Clamshell—In cases where use of a vibratory driver is not possible (*e.g.,* when the pile may break apart from clamp force and vibration), a clamshell apparatus may be lowered from the crane in order to remove pile stubs. The use and size of the clamshell bucket would be minimized to reduce the potential for generating turbidity during removal; and

• Direct Pull—Piles may be removed by wrapping the piles with a cable or chain and pulling them directly from the sediment with a crane. In some cases, depending on access and location, piles may be cut at or below the mudline.

Pile Installation—Pile installation/removal would occur using land-based or barge-mounted cranes, as appropriate. Concrete piles would be installed using an impact hammer. Steel piles and polymeric piles can be installed using an impact hammer or vibratory hammer. Hammers can be steam, air, or diesel drop, single-acting, double-acting, differential-acting, or hydraulic type. Additionally, pre-drilling may occur for installation of concrete piles and at locations where there may be a higher likelihood of obstructions or where soil layers are harder to penetrate. Drilling is not permitted for installation of steel piles on this project or for concrete piles at Pier 3 because hard soil layers are not expected at these locations.

Table 1 provides the estimated construction schedule and production rates for the proposed construction activities considered for this proposed rulemaking beginning with Year 2. As indicated above, Year 1 of the Pier 3 replacement project was authorized under the 2022 IHA, effective from April 1, 2022–March 31, 2023. Therefore, Year 2 of the project aligns with year 1 of the proposed rule. Some project elements will use only one method of pile installation (*e.g.,* impact hammer or vibratory hammer or impact hammer and drilling), but all methods have been analyzed. The method of installation will be determined by the construction crew once demolition and installation has begun.

TABLE 1—PRELIMINARY CONSTRUCTION SCHEDULE FOR IN-WATER ACTIVITIES

Year***	Activity	Total number of piles	Activity component	Method	Daily rate (piles/day)	Total days	Total days per year
Year 2	CEP–176 Bulkhead	103	42 inch Steel Pipe Bearing Piles.	Install: Impact or Vibratory	4	26	185
Year 2	CEP–176 Bulkhead	221	28 inch sheet piles	Install: Impact or Vibratory	14	16	
Year 2	CEP–176 Bulkhead	9	13 inch polymeric fender piles	Install: Impact or Vibratory*	5	2	
Year 2	CEP–102 Platform phase 2	11	24 inch square precast concrete bearing piles.	Install: Impact*	2	6	
Year 2	Pier 3	280	24 inch square precast concrete.	Install: Impact	4	70	
Year 2	CEP–102 Platform phase 2	6	18 inch square precast concrete fender piles.	Install: Impact	4	2	
Year 2	Pier 3	250	24 inch square precast concrete bearing piles.	Install: Impact	4	63	
Year 3	Pier 3	409	24 inch square precast concrete fender files.	Install: Impact*	6	69	92
Year 3	Pier 3	18	18 inch steel pipe fender piles	Install: Impact	6	3	
Year 3	CEP–102 Platform South Portion.	26	42 inch steel pipe bearing piles	Install: Impact or Vibratory	2	13	
Year 3	CEP–102 Platform South Portion.	53	28 inch steel sheet piles	Install: Impact or Vibratory	14	4	
Year 3	CEP–102 Platform South Portion.	26	18 inch square precast concrete fender piles**.	Extract: Vibratory	9	3	
Year 4	CEP–102 Platform South Portion.	40	24 inch square precast concrete bearing piles.	Install: Impact*	2	20	204
Year 4	Existing Pier 3	624	14 inch timber fender piles**	Extract: Vibratory	25	25	
Year 4	CEP–102 Platform South Portion.	25	18 inch square precast concrete fender piles.	Install: Impact*	4	7	
Year 4	CEP–102 Platform Center Portion.	50	42 inch steel pipe bearing piles	Install: Impact or Vibratory	2	25	
Year 4	Existing Pier 3	72	24 inch square precast concrete fender piles**.	Extract: Vibratory	12	6	
Year 4	CEP–102 Platform Center Portion.	102	28 inch steel sheet piles	Install: Impact or Vibratory	14	8	
Year 4	CEP–102 Platform Center Portion.	36	18 inch square precast concrete fender piles**.	Extract: Vibratory	9	4	
Year 4	Existing Pier 3	873	16 inch and 18 inch square precast concrete bearing piles**.	Extract: Vibratory	10	88	
Year 4	CEP–102 Platform Center Portion.	41	24 inch square precast concrete bearing piles.	Install: Impact*	2	21	
Year 5	Existing Pier 3	30	16 and 18 inch square precast bearing piles**.	Extract: Vibratory	10	3	32
Year 5	CEP–102 Platform Center Portion.	32	24 inch square precast bearing piles.	Install: Impact*	2	16	
Year 5	CEP–102 Platform Center Portion.	50	18 inch square precast concrete fender piles.	Install: Impact*	4	13	

TABLE 1—PRELIMINARY CONSTRUCTION SCHEDULE FOR IN-WATER ACTIVITIES—Continued

Year***	Activity	Total number of piles	Activity component	Method	Daily rate (piles/day)	Total days	Total days per year
Total Piles Installed		1,726					Total: 513
Total Piles Removed		1,661					

Note: Estimated construction schedule. Delays may occur due to equipment failure or weather.
* Pre-drilling is permitted to assist with pile installation.
** Denotes Piles Removed.
*** Year 2 refers to the second year of the Pier 3 replacement project, however it is considered as Year 1 under the 2023 Rule proposed for authorization.

Concurrent Activities—In order to maintain project schedules, it is likely that multiple pieces of equipment would operate at the same time within the project area. Table 2 provides a summary of the possible equipment combinations by structure and construction year where a maximum of four in-water activities may be occurring simultaneously. As mentioned above, the method of installation, and whether concurrent pile driving scenarios will be implemented, will be determined by the construction crew once the project has begun. Therefore, the total take estimate reflects the worst case scenario for the proposed project.

TABLE 2—SUMMARY OF POSSIBLE CONCURRENT PILE DRIVING SCENARIOS

Year	Structure	Pile types	Total equipment quantity	Equipment (quantity)
Year 3	Pier 3	Driving of precast bearing piles	2	Rotary Drill (2).
			2	Impact Hammer (1), Rotary Drill (1).
			2	Impact Hammer (2).
	CEP–102	Driving 42-inch steel pipe and 28-inch steel sheet.	2	Vibratory Hammer (2).
			2	Impact Hammer (2).
			2	Vibratory Hammer (1), Impact Hammer (1).
Year 4	Existing Pier 3 and CEP–102.	Extraction of 14-inch timber piles from Pier 3 and Driving of 42-inch steel pipe, sheet piles, and precast concrete piles.	4	Vibratory Hammer (3), Rotary Drill (1).
			4	Vibratory Hammer (2), Impact Hammer (2), Rotary Drill (1).
			4	Vibratory (1), Impact Hammer (3).
Year 4–Year 5	Existing Pier 3 and CEP–102.	Extraction of 16- to 18-inch concrete piles from Pier 3 and Driving of 24-inch precast concrete bearing piles.	2	Vibratory Hammer (1), Rotary Drill (1).
			2	Vibratory Hammer (1), Impact Hammer (1).

Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see Proposed Mitigation and Proposed Monitoring and Reporting).

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions, incorporated here by reference, instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS' website (*https://www.fisheries.noaa.gov/find-species*).

Table 3 lists all species or stocks for which take is expected and proposed to be authorized for this activity, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no serious injury or mortality is expected to occur, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All stocks managed under the MMPA in this region are assessed in NMFS' U.S. draft 2022 SARs. All values presented in Table 2 are the most recent available at the time of publication and are available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.*

TABLE 3—SPECIES LIKELY IMPACTED BY THE SPECIFIED ACTIVITIES

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]
Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)						
Family Balaenopteridae (rorquals):						
Humpback whale	*Megaptera novaeangliae*	Gulf of Maine	-,-, Y	1,396 (0, 1,380, 2016)	22	12.15
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae:						
Bottlenose Dolphin	*Tursiops truncatus*	Western North Atlantic (WNA) Coastal, Northern Migratory.	-,-, Y	6,639 (0.41, 4,759, 2016)	48	12.2–21.5
		WNA Coastal, Southern Migratory.	-, -, Y	3,751 (0.6, 2,353, 2016)	24	0–18.3
		Northern North Carolina Estuarine.	-, -, Y	823 (0.06, 782, 2017)	7.8	7.2–30
Family Phocoenidae (porpoises):						
Harbor Porpoise	*Phocoena phocoena*	Gulf of Maine/Bay of Fundy	-, -, N	95,543 (0.31, 74,034, 2016)	851	164
Order Carnivora—Superfamily Pinnipedia						
Family Phocidae (earless seals):						
Harbor seal	*Phoca vitulina*	Western North Atlantic	-, -, N	61,336 (0.08, 57,637, 2018)	1,729	339
Gray seal [4]	*Halichoerus grypus*	Western North Atlantic	-, -, N	27,300 (0.22, 22,785, 2016)	1,458	4453

[1] Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

[2] NMFS marine mammal stock assessment reports online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports.* CV is coefficient of variation; Nmin is the minimum estimate of stock abundance.

[3] These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

[4] This stock abundance estimate is only for the U.S. portion of this stock. The actual stock abundance, including the Canadian portion of the population, is estimated to be approximately 424,300 animals. The PBR value listed here is only for the U.S. portion of the stock, while M/SI reflects both the Canadian and U.S. portions.

As indicated above, all five species (with seven managed stocks) in Table 3 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. While North Atlantic right whales (*Eubalaena glacialis*), minke whales (*Balaenoptera acutorostrata acutorostata*), and fin whales (*Balaenoptera physalus*) have been documented in the area, the temporal and/or spatial occurrence of these whales is far outside the proposed area for this project and take is not expected to occur. Therefore, they are not discussed further beyond the explanation provided below.

Based on sighting data and passive acoustic studies, the North Atlantic right whale could occur off the coast of Virginia year-round (Department of Navy (DoN) 2009; Salisbury *et al.,* 2016). They have also been reported seasonally off Virginia during migrations in the spring, fall, and winter (Cotter 2019). Right whales are known to frequent the coastal waters of the mouth of the Chesapeake Bay (Knowlton *et al.,* 2002) and the area is a seasonal management area (November 1–April 30) mandating reduced ship speeds out to approximately 20 nautical miles (37 kilometers [km]); however, the project area is further inside the Bay and away from this area.

North Atlantic right whales have stranded in Virginia, one each in 2001, 2002, 2004, 2005; three during winter (February and March) and one in the summer (September) (Costidis *et al.,* 2017, 2019). In January 2018, a dead, entangled North Atlantic right whale was observed floating over 60 miles (96.6 km) offshore of Virginia Beach (Costidis *et al.,* 2019). All North Atlantic right whale strandings in Virginia waters have occurred on ocean-facing beaches along Virginia Beach and the barrier islands seaward of the lower Delmarva Peninsula (Costidis *et al.,* 2017). Right whales are not expected to occur in the project area, and NMFS is not proposing to authorize take of this species.

Fin whales have been sighted off Virginia (Cotter 2019), and in the Chesapeake Bay (Aschettino *et al.,* 2018); however, they are not likely to occur in the project area. Sightings have been documented around the Chesapeake Bay Bridge Tunnel (CBBT) during winter months (Aschettino *et al.,* 2018).

Eleven fin whale strandings have occurred off Virginia from 1988 to 2016, mostly during the winter months of February and March, followed by a few in the spring and summer months (Costidis *et al.,* 2017). Six of the strandings occurred in the Chesapeake Bay (three on the eastern shore; three on the western shore) with the remaining five occurring on the Atlantic coast (Costidis *et al.,*2017). Documented strandings near the project area have occurred: February 2012, a dead fin whale washed ashore on Oceanview Beach in Norfolk (Swingle *et al.,* 2013); December 2017, a live fin whale stranded on a shoal in Newport News and died at the site (Swingle *et al.,* 2018); February 2014, a dead fin whale stranded on a sand bar in Pocomoke Sound near Great Fox Island, Accomack (Swingle *et al.,* 2015); and, March 2007, a dead fin whale near Craney Island, in the Elizabeth River, in Norfolk (Barco 2013). Only stranded fin whales have been documented in the project area; no free swimming fin whales have been observed. Fin whales are not expected to occur in the project area, and NMFS is not proposing to authorize take of this species.

Minke whales have been sighted off Virginia (CeTAP 1981, 1982; Hyrenbach *et al.,* 2012; Barco 2013; Mallette *et al.,* 2016a, b; McLellan 2017; Engelhaupt *et al.,* 2017, 2018; Cotter 2019), near the CBBT (Aschettino *et al.,* 2018), but sightings in the project area are from strandings (Jensen and Silber 2004; Barco 2013; DoN 2009). In August 1994, a ship strike incident involved a minke whale in Hampton Roads (Jensen and Silber 2004; Barco 2013). It was reported that the animal was struck offshore and was carried inshore on the bow of a ship (DoN 2009). Twelve strandings of minke whales have occurred in Virginia waters from 1988 to 2016 (Costidis *et al.,* 2017). There have been six minke whale stranding from 2017 through 2020 in Virginia waters. Minke whales are not expected to occur in the project area, and NMFS is not proposing to authorize take of this species.

Humpback Whale

Humpback whales are found worldwide in all oceans. In winter, humpback whales from waters off New England, Canada, Greenland, Iceland, and Norway, migrate to mate and calve primarily in the West Indies, where spatial and genetic mixing among these groups occurs. NMFS defines a humpback whale stock on the basis of feeding location, *i.e.,* Gulf of Maine. However, our reference to humpback whales in this document refers to any individual of the species that are found in the species geographic region. These individuals may be from the same breeding population (*e.g.,* West Indies breeding population of humpback whales) but visit different feeding areas.

Based on photo-identification studies, only 39 percent of individual humpback whales observed along the mid- and south Atlantic U.S. coast are from the Gulf of Maine stock (Barco *et al.,* 2002). Therefore, the SAR abundance estimate is an underrepresentation of the relevant population, *i.e.,* the West Indies breeding population.

Prior to 2016, humpback whales were listed under the ESA as an endangered species worldwide. Following a 2015 global status review (Bettridge *et al.,* 2015), NMFS established 14 Distinct Population Segments (DPSs) with different listing statuses (81 FR 62259; September 8, 2016) pursuant to the ESA. Humpback whales in the project area are expected to be from the West Indies DPS, which consists of the whales whose breeding range includes the Atlantic margin of the Antilles from Cuba to northern Venezuela, and whose feeding range primarily includes the Gulf of Maine, eastern Canada, and western Greenland. This DPS is not ESA listed. Bettridge *et al.,* (2003) estimated the size of the West Indies DPS at 12,312 (95% CI 8,688–15,954) whales in 2004–05, which is consistent with previous population estimates of approximately 10,000–11,000 whales (Stevick *et al.,* 2003; Smith *et al.,* 1999) and the increasing trend for the West Indies DPS (Bettridge *et al.,* 2015).

Although humpback whales are migratory between feeding areas and calving areas, individual variability in the timing of migrations may result in the presence of individuals in high-latitude areas throughout the year (Straley, 1990). Records of humpback whales off the U.S. mid-Atlantic coast (New Jersey to North Carolina) from January through March suggest these waters may represent a supplemental winter feeding ground used by juvenile and mature humpback whales of U.S. and Canadian North Atlantic stocks (LaBrecque *et al.,* 2015).

Humpback whales are most likely to occur near the mouth of the Chesapeake Bay and coastal waters of Virginia Beach between January and March; however, they could be found in the area year-round, based on shipboard sighting and stranding data (Barco and Swingle, 2014; Aschettino *et al.,* 2015; 2016; 2017; 2018). Photo-identification data support the repeated use of the mid-Atlantic region by individual humpback whales. Results of the vessel surveys show site fidelity in the survey area for some individuals and a high level of occurrence within shipping channels—an important high-use area by both the Navy and commercial traffic (Aschettino *et al.,* 2015; 2016; 2017; 2018). Nearshore surveys conducted in early 2015 reported 61 individual humpback whale sightings, and 135 individual humpback whale sightings in late 2015 through May 2016 (Aschettino *et al.,* 2016). Subsequent surveys confirmed the occurrence of humpback whales in the nearshore survey area: 248 individuals were detected in 2016–2017 surveys (Aschettino *et al.,* 2017), 32 individuals were detected in 2017–2018 surveys (Aschettino *et al.,* 2018), and 80 individuals were detected in 2019 surveys (Aschettino *et al.,* 2019). Sightings in the Hampton Roads area in the vicinity of NAVSTA Norfolk were reported in nearshore surveys and through tracking of satellite-tagged whales in 2016, 2017 and 2019. The numbers of whales detected, most of which were juveniles, reflect the varying level of survey effort and changes in survey objectives from year to year, and do not indicate abundance trends over time. Most recently, the Hampton Roads Bridge-Tunnel Expansion Project (HRBT), which spanned from September 2020 through July 10, 2021 did not observe any humpback whales near the project site between Norfolk and Hampton, VA over 197 days of observations (Hampton Roads Connector Partners (HRCP), *Unpublished*).

Bottlenose Dolphin

Along the U.S. East Coast and northern Gulf of Mexico, the bottlenose dolphin stock structure is well studied. There are currently 53 management stocks identified by NMFS in the western North Atlantic and Gulf of Mexico, including oceanic, coastal, and estuarine stocks (Hayes *et al.,* 2017; Waring *et al.,* 2015, 2016).

A recent study proposes that bottlenose dolphins inhabiting nearshore coastal and estuarine waters between New York and Florida are likely a separate species from their offshore counterparts (Costa *et al.,* 2022). The offshore form is larger in total length and skull length, and has wider nasal bones than the coastal form. Both inhabit waters in the western North Atlantic Ocean and Gulf of Mexico (Curry and Smith, 1997; Hersh and Duffield, 1990; Mead and Potter, 1995) along the U.S. Atlantic coast. The coastal species of bottlenose dolphin is continuously distributed along the Atlantic coast south of Long Island, New York, around the Florida peninsula, and along the Gulf of Mexico coast. This type typically occurs in waters less than 25 meters deep (Waring *et al.,* 2015). The range of the offshore bottlenose dolphin includes waters beyond the continental slope (Kenney, 1990), and offshore bottlenose dolphins may move between the Gulf of Mexico and the Atlantic (Wells *et al.,* 1999).

Two coastal stocks are likely to be present in the project area: the Western North Atlantic Northern Migratory Coastal stock and the Western North Atlantic Southern Migratory Coastal stock. Additionally, the Northern North Carolina Estuarine System stock may occur in the project area.

Bottlenose dolphins are the most abundant marine mammal along the Virginia coast and within the Chesapeake Bay, typically traveling in groups of 2 to 15 individuals, but occasionally in groups of over 100 individuals (Engelhaupt *et al.,* 2014; 2015; 2016). Bottlenose dolphins of the Western North Atlantic Northern Migratory Coastal stock winter along the coast of North Carolina and migrate as far north as Long Island, New York, in the summer. They are rarely found north of North Carolina in the winter (NMFS, 2018). The Western North Atlantic Southern Migratory Coastal

stock occurs in waters of southern North Carolina from October to December, moving south during winter months and north to North Carolina during spring months. During July and August, the Western North Atlantic Southern Migratory Coastal stock is presumed to occupy coastal waters north of Cape Lookout, North Carolina, to the eastern shore of Virginia (NMFS, 2018). It is possible that these animals also occur inside the Chesapeake Bay and in nearshore coastal waters. The North Carolina Estuarine System stock dolphins may also occur in the Chesapeake Bay during July and August (NMFS, 2018a).

Vessel surveys conducted along coastal and offshore transects from NAVSTA Norfolk to Virginia Beach in most months from August 2012 to August 2015 reported bottlenose dolphins throughout the survey area, including the vicinity of NAVSTA Norfolk (Engelhaupt *et al.,* 2014; 2015; 2016). The final results from this project confirmed earlier findings that bottlenose dolphins are common in the study area, with highest densities in the coastal waters in summer and fall months. However, bottlenose dolphins do not completely leave this area during colder months, with approximately 200–300 individuals still present in winter and spring months, which is commonly referred to as the Chesapeake Bay resident dolphin population (Engelhaupt *et al.,* 2016).

Harbor Porpoise

Harbor porpoises inhabit cool temperate-to-subpolar waters, often where prey aggregations are concentrated (Watts and Gaskin, 1985). Thus, they are frequently found in shallow waters, most often near shore, but they sometimes move into deeper offshore waters. Harbor porpoises are rarely found in waters warmer than 63 degrees Fahrenheit (17 degrees Celsius) (Read 1999) and closely follow the movements of their primary prey, Atlantic herring (Gaskin 1992).

In the western North Atlantic, harbor porpoise range from Cumberland Sound on the east coast of Baffin Island, southeast along the eastern coast of Labrador to Newfoundland and the Gulf of St. Lawrence, then southwest to about 34 degrees North on the coast of North Carolina (Waring *et al.,* 2016). During winter (January to March), intermediate densities of harbor porpoises can be found in waters off New Jersey to North Carolina, and lower densities are found in waters off New York to New Brunswick, Canada (Waring *et al.,* 2016). Harbor porpoises sighted off the mid-Atlantic during winter include porpoises from other western North Atlantic populations (Rosel *et al.,* 1999). There does not appear to be a temporally coordinated migration or a specific migratory route to and from the Bay of Fundy region (Waring *et al.,* 2016). During fall (October to December) and spring (April to June), harbor porpoises are widely dispersed from New Jersey to Maine, with lower densities farther north and south (LaBrecque *et al.,* 2015).

Based on stranding reports, passive acoustic recorders, and shipboard surveys, harbor porpoise occur in coastal waters primarily in winter and spring months, but there is little information on their presence in the Chesapeake Bay. They do not appear to be abundant in the NAVSTA Norfolk area in most years, but this is confounded by wide variations in stranding occurrences over the past decade. In the recent HRBT project, zero harbor porpoises were observed near the project area (HRCP, *Unpublished*).

Harbor Seal

The Western North Atlantic stock of harbor seals occurs in the project area. Harbor seal distribution along the U.S. Atlantic coast has shifted in recent years, with an increased number of seals reported from southern New England to the mid-Atlantic region (DiGiovanni *et al.,* 2011; Hayes *et al.,* 2021). Regular sightings of seals in Virginia have become a common occurrence in winter and early spring (Costidis *et al.,* 2019). Winter haulout sites for harbor seals have been documented in the Chesapeake Bay at the CBBT, on the Virginia Eastern Shore, and near Oregon Inlet, North Carolina (Waring *et al.,* 2016; Rees *et al.,* 2016; Jones *et al.,* 2018).

Harbor seals regularly haul out on rocks around the portal islands of the CBBT and on mud flats on the nearby southern tip of the Eastern Shore from December through April (Rees *et al.,* 2016; Jones *et al.,* 2018). Seals captured in 2018 on the Eastern Shore and tagged with satellite-tracked tags that lasted from 2 to 5 months spent at least 60 days in Virginia waters before departing the area. All tagged seals returned regularly to the capture site while in Virginia waters, but individuals utilized offshore and Chesapeake Bay waters to different extents (Ampela *et al.,* 2019). The area that was utilized most heavily was near the Eastern Shore capture site, but some seals ranged into the Chesapeake Bay. To supplement this information, the HRBT project reported seeing zero seals in or around the project area (HRCP, *Unpublished*).

Gray Seal

The Western North Atlantic stock of gray seal occurs in the project area. The western North Atlantic stock is centered in Canadian waters, including the Gulf of St. Lawrence and the Atlantic coasts of Nova Scotia, Newfoundland, and Labrador, Canada, and the northeast U.S. continental shelf (Hayes *et al.,* 2021). Gray seals range south into the northeastern United States, with strandings and sightings as far south as North Carolina (Hammill *et al.,* 1998; Waring *et al.,* 2004). Gray seal distribution along the U.S. Atlantic coast has shifted in recent years, with an increased number of seals reported in southern New England (DiGiovanni *et al.,* 2011; Kenney R.D., 2019; Waring *et al.,* 2016). Recent sightings included a gray seal in the lower Chesapeake Bay during the winter of 2014 to 2015 (Rees *et al.,* 2016). Along the coast of the United States, gray seals are known to pup at three or more colonies in Massachusetts and Maine.

Unusual Mortality Events

An unusual mortality even (UME) is defined under section 410(6) of the MMPA as a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response. Currently, there are active UMEs for northeast pinnipeds (harbor and gray seals) and humpback whales along the east coast.

Northeast Pinniped UME

Since June 2022, elevated numbers of sick and dead harbor seal and gray seal have been documented along the southern and central coast of Maine from Biddeford to Boothbay (including Cumberland, Lincoln, Knox, Sagadahoc and York Counties). This event has been declared a UME. Additional information is available at: *https://www.fisheries.noaa.gov/2022-pinniped-unusual-mortality-event-along-maine-coast.*

Atlantic Humpback Whale UME

Since January 2016, elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through Florida. This event was declared an UME in 2017 however. A portion of the whales have shown evidence of pre-mortem vessel strike; however, this finding is not consistent across all whales examined, and additional research is needed. Additional information is available at *https://www.fisheries.noaa.gov/national/marine-life-distress/2016-2021-humpback-whale-unusual-mortality-event-along-atlantic-coast.*

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.,* 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, etc.). Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.,* low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 4.

TABLE 4—MARINE MAMMAL HEARING GROUPS (NMFS, 2018)

Hearing group	Generalized hearing range *
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz.
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz.
High-frequency (HF) cetaceans (true porpoises, *Kogia,* river dolphins, Cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*).	275 Hz to 160 kHz.
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz.
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz.

* Represents the generalized hearing range for the entire group as a composite (*i.e.,* all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al.* 2007) and PW pinniped (approximation).

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.,* 2006; Kastelein *et al.,* 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information.

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

This section provides a discussion of the ways in which components of the specified activity may impact marine mammals and their habitat. The Estimated Take section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The Negligible Impact Analysis and Determination section considers the content of this section, the Estimated Take section, and the Proposed Mitigation section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and whether those impacts are reasonably expected to, or reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

Description of Sound Sources

The marine soundscape is comprised of both ambient and anthropogenic sounds. Ambient sound is defined as the all-encompassing sound in a given place and is usually a composite of sound from many sources both near and far. The sound level of an area is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.,* waves, wind, precipitation, earthquakes, ice, atmospheric sound), biological (*e.g.,* sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (*e.g.,* vessels, dredging, aircraft, construction).

The sum of the various natural and anthropogenic sound sources at any given location and time—which comprise ''ambient'' or ''background'' sound—depends not only on the source levels (as determined by current weather conditions and levels of biological and shipping activity) but also on the ability of sound to propagate through the environment. In turn, sound propagation is dependent on the spatially and temporally varying properties of the water column and sea floor, and is frequency-dependent. As a result of the dependence on a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10–20 dB from day to day (Richardson *et al.,* 1995). The result is that, depending on the source type and its intensity, sound from the specified activity may be a negligible addition to the local environment or could form a distinctive signal that may affect marine mammals.

In-water construction activities associated with the project would include vibratory pile removal, impact and vibratory pile driving, and drilling. The sounds produced by these activities fall into one of two general sound types: Impulsive and non-impulsive. Impulsive sounds (*e.g.,* explosions, gunshots, sonic booms, impact pile driving) are typically transient, brief (less than 1 second), broadband, and consist of high peak sound pressure with rapid rise time and rapid decay (ANSI 1986; NIOSH 1998; ANSI 2005; NMFS 2018). Non-impulsive sounds (*e.g.,* aircraft, machinery operations such as drilling or dredging, vibratory pile driving, and active sonar systems) can be broadband, narrowband or tonal, brief or prolonged (continuous or intermittent), and typically do not have the high peak sound pressure with raid rise/decay time that impulsive sounds do (ANSI 1995; NIOSH 1998; NMFS 2018). The distinction between these two sound types is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.,* Ward 1997 in Southall *et al.,* 2007).

Impact hammers operate by repeatedly dropping a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is

characterized by rapid rise times and high peak levels, a potentially injurious combination (Hastings and Popper 2005). Vibratory hammers install piles by vibrating them and allowing the weight of the hammer to push them into the sediment. The vibrations produced also cause liquefaction of the substrate surrounding the pile, enabling the pile to be extracted or driven into the ground more easily. Vibratory hammers produce significantly less sound than impact hammers. Peak sound pressure levels (SPLs) may be 180 dB or greater, but are generally 10 to 20 dB lower than SPLs generated during impact pile driving of the same-sized pile (Oestman *et al.,* 2009). Rise time is slower, reducing the probability and severity of injury, and sound energy is distributed over a greater amount of time (Nedwell and Edwards 2002; Carlson *et al.,* 2005). As mentioned previously, drilling is considered a continuous source, similar to vibratory pile driving. The drilling may be used before driving piles in order to facilitate pile driving and hence is referred to as ''pre-drilling''. For the proposed project, the drilling apparatus utilized would vary depending on the different applications during in-water construction activities. Drilling would be used as necessary to remove sand with shell fragments or any obstructions in order to accelerate pile driving.

The likely or possible impacts of the Navy's proposed activity on marine mammals could involve both non-acoustic and acoustic stressors. Potential non-acoustic stressors could result from the physical presence of the equipment and personnel; however, any impacts to marine mammals are expected to be primarily acoustic in nature. Acoustic stressors include effects of heavy equipment operation during pile driving, removal and drilling.

Acoustic Impacts

The introduction of anthropogenic noise into the aquatic environment from pile driving or drilling is the primary means by which marine mammals may be harassed from the Navy's specified activity. In general, animals exposed to natural or anthropogenic sound may experience physical and psychological effects, ranging in magnitude from none to severe (Southall *et al.,* 2007). In general, exposure to pile driving or drilling noise has the potential to result in auditory threshold shifts and behavioral reactions (*e.g.,* avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior). Exposure to anthropogenic noise can also lead to non-observable physiological responses such an increase in stress hormones. Additional noise in a marine mammal's habitat can mask acoustic cues used by marine mammals to carry out daily functions such as communication and predator and prey detection. The effects of pile driving or drilling noise on marine mammals are dependent on several factors, including, but not limited to, sound type (*e.g.,* impulsive vs. non-impulsive), the species, age and sex class (*e.g.,* adult male vs. mom with calf), duration of exposure, the distance between the pile and there animal, received levels, behavior at time of exposure, and previous history with exposure (Wartzok *et al.,* 2004; Southall *et al.,* 2007). Here we discuss physical auditory effects (threshold shifts) followed by behavioral effects and potential impacts on habitat.

NMFS defines a noise-induced threshold shift (TS) as a change, usually an increase, in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). The amount of threshold shift is customarily expressed in decibels (dB). A TS can be permanent or temporary. As described in NMFS (2018), there are numerous factors to consider when examining the consequence of TS, including, but not limited to, the signal temporal pattern (*e.g.,* impulsive or non-impulsive), likelihood an individual would be exposed for a long enough duration or to a high enough level to induce a TS, the magnitude of the TS, time to recovery (seconds to minutes or hours to days), the frequency range of the exposure (*i.e.,* spectral content), the hearing and vocalization frequency range of the exposed species relative to the signal's frequency spectrum (*i.e.,* how an animal uses sound within the frequency band of the signal; *e.g.,* Kastelein *et al.,* 2014), and the overlap between the animal and the source (*e.g.,* spatial, temporal, and spectral).

Permanent Threshold Shift (PTS)—NMFS defines PTS as a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Available data from humans and other terrestrial mammals indicate that a 40 dB threshold shift approximates PTS onset (see Ward *et al.,* 1958, 1959; Ward 1960; Kryter *et al.,* 1966; Miller 1974; Ahroon *et al.,* 1996; Henderson *et al.,* 2008). PTS levels for marine mammals are estimates, as with the exception of a single study unintentionally inducing PTS in a harbor seal (Kastak *et al.,* 2008), there are no empirical data measuring PTS in marine mammals largely due to the fact that, for various ethical reasons, experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS 2018).

Temporary Threshold Shift (TTS)—TTS is a temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Based on data from cetacean TTS measurements (see Southall *et al.,* 2007), a TTS of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability (Schlundt *et al.,* 2000; Finneran *et al.,* 2000, 2002). As described in Finneran (2015), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level (SEL_{cum}) in an accelerating fashion: At low exposures with lower $SEL_{cum,}$ the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher SEL_{cum}, the growth curves become steeper and approach linear relationships with the noise SEL.

Depending on the degree (elevation of threshold in dB), duration (*i.e.,* recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in auditory masking, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during a time when communication is critical for successful mother/calf interactions could have more serious impacts. We note that reduced hearing sensitivity as a simple function of aging has been observed in marine mammals, as well as humans and other taxa (Southall *et al.,* 2007), so we can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

Currently, TTS data only exist for four species of cetaceans (bottlenose dolphin, beluga whale (*Delphinapterus leucas*), harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*) and five species of pinnipeds exposed to a limited number of sound sources (*i.e.,* mostly tones and

octave-band noise) in laboratory settings (Finneran 2015). TTS was not observed in trained spotted (*Phoca largha*) and ringed (*Pusa hispida*) seals exposed to impulsive noise at levels matching previous predictions of TTS onset (Reichmuth *et al.,* 2016). In general, harbor seals and harbor porpoises have a lower TTS onset than other measured pinniped or cetacean species (Finneran 2015). Additionally, the existing marine mammal TTS data come from a limited number of individuals within these species. No data are available on noise-induced hearing loss for mysticetes. For summaries of data on TTS in marine mammals or for further discussion of TTS onset thresholds, please see Southall *et al.,* (2007), Finneran and Jenkins (2012), Finneran (2015), and Table 5 in NMFS (2018). Installing piles for this project requires a combination of drilling, impact pile driving and vibratory pile driving. For this project, these activities would not occur at the same time and there would be pauses in activities producing the sound during each day. Given these pauses and that many marine mammals are likely moving through the ensonified area and not remaining for extended periods of time, the potential for TS declines.

Behavioral Harassment—Exposure to noise from pile driving and removal also has the potential to behaviorally disturb marine mammals. Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.,* Lusseau and Bejder 2007; Weilgart 2007; NRC 2005).

Disturbance may result in changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where sound sources are located. Pinnipeds may increase their haul out time, possibly to avoid in-water disturbance (Thorson and Reyff 2006). Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.,* species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.,* Richardson *et al.,* 1995; Wartzok *et al.,* 2003; Southall *et al.,* 2007; Weilgart 2007; Archer *et al.,* 2010). Behavioral reactions can vary not only among individuals but also within an individual, depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al.,* 2012), and can vary depending on characteristics associated with the sound source (*e.g.,* whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. Please see Appendices B and C of Southall *et al.* (2007) and Gomez *et al.* (2016) for reviews of studies involving marine mammals behavioral responses to sound.

Habituation can occur when an animal's response to a stimulus wanes with repeated exposure, usually in the absence of unpleasant associated events (Wartzok *et al.,* 2003). Animals are most likely to habituate to sounds that are predictable and unvarying. It is important to note that habituation is appropriately considered as a ''progressive reduction in response to stimuli that are perceived as neither aversive nor beneficial,'' rather than as, more generally, moderation in response to human disturbance (Bejder *et al.,* 2009). The opposite process is sensitization, when an unpleasant experience leads to subsequent responses, often in the form of avoidance, at a lower level of exposure.

As noted above, behavioral state may affect the type of response. For example, animals that are resting may show greater behavioral change in response to disturbing sound levels than animals that are highly motivated to remain in an area for feeding (Richardson *et al.,* 1995; National Research Council (NRC), 2003; Wartzok *et al.,* 2003). Controlled experiments with captive marine mammals have showed pronounced behavioral reactions, including avoidance of loud sound sources (Ridgway *et al.,* 1997; Finneran *et al.,* 2003). Observed responses of wild marine mammals to loud pulsed sound sources (typically seismic airguns or acoustic harassment devices) have been varied but often consist of avoidance behavior or other behavioral changes suggesting discomfort (Morton and Symonds, 2002; see also Richardson *et al.,* 1995; Nowacek *et al.,* 2007).

Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.,* Lusseau and Bejder, 2007; Weilgart, 2007; NRC, 2005). However, there are broad categories of potential response, which we describe in greater detail here, that include alteration of dive behavior, alteration of foraging behavior, effects to breathing, interference with or alteration of vocalization, avoidance, and flight.

Changes in dive behavior can vary widely and may consist of increased or decreased dive times and surface intervals as well as changes in the rates of ascent and descent during a dive (*e.g.,* Frankel and Clark, 2000; Costa *et al.,* 2003; Ng and Leung, 2003; Nowacek *et al.,* 2004; Goldbogen *et al.,* 2013a,b). Variations in dive behavior may reflect interruptions in biologically significant activities (*e.g.,* foraging) or they may be of little biological significance. The impact of an alteration to dive behavior resulting from an acoustic exposure depends on what the animal is doing at the time of the exposure and the type and magnitude of the response.

Disruption of feeding behavior can be difficult to correlate with anthropogenic sound exposure, so it is usually inferred by observed displacement from known foraging areas, the appearance of secondary indicators (*e.g.,* bubble nets or sediment plumes), or changes in dive behavior. As for other types of behavioral response, the frequency, duration, and temporal pattern of signal presentation, as well as differences in species sensitivity, are likely contributing factors to differences in response in any given circumstance (*e.g.,* Croll *et al.,* 2001; Nowacek *et al.,* 2004; Madsen *et al.,* 2006; Yazvenko *et al.,* 2007). A determination of whether foraging disruptions incur fitness consequences would require information on or estimates of the energetic requirements of the affected individuals and the relationship between prey availability, foraging effort

and success, and the life history stage of the animal.

Variations in respiration naturally vary with different behaviors and alterations to breathing rate as a function of acoustic exposure can be expected to co-occur with other behavioral reactions, such as a flight response or an alteration in diving. However, respiration rates in and of themselves may be representative of annoyance or an acute stress response. Various studies have shown that respiration rates may either be unaffected or could increase, depending on the species and signal characteristics, again highlighting the importance in understanding species differences in the tolerance of underwater noise when determining the potential for impacts resulting from anthropogenic sound exposure (*e.g.,* Kastelein *et al.,* 2001, 2005, 2006; Gailey *et al.,* 2007).

Marine mammals vocalize for different purposes and across multiple modes, such as whistling, echolocation click production, calling, and singing. Changes in vocalization behavior in response to anthropogenic noise can occur for any of these modes and may result from a need to compete with an increase in background noise or may reflect increased vigilance or a startle response. For example, in the presence of potentially masking signals, humpback whales and killer whales have been observed to increase the length of their songs (Miller *et al.,* 2000; Fristrup *et al.,* 2003; Foote *et al.,* 2004), while right whales have been observed to shift the frequency content of their calls upward while reducing the rate of calling in areas of increased anthropogenic noise (Parks *et al.,* 2007). In some cases, animals may cease sound production during production of aversive signals (Bowles *et al.,* 1994).

Avoidance is the displacement of an individual from an area or migration path as a result of the presence of a sound or other stressors, and is one of the most obvious manifestations of disturbance in marine mammals (Richardson *et al.,* 1995). For example, gray whales are known to change direction—deflecting from customary migratory paths—in order to avoid noise from seismic surveys (Malme *et al.,* 1984). Avoidance may be short-term, with animals returning to the area once the noise has ceased (*e.g.,* Bowles *et al.,* 1994; Goold, 1996; Stone *et al.,* 2000; Morton and Symonds, 2002; Gailey *et al.,* 2007). Longer-term displacement is possible, however, which may lead to changes in abundance or distribution patterns of the affected species in the affected region if habituation to the presence of the sound does not occur (*e.g.,* Blackwell *et al.,* 2004; Bejder *et al.,* 2006; Teilmann *et al.,* 2006).

A flight response is a dramatic change in normal movement to a directed and rapid movement away from the perceived location of a sound source. The flight response differs from other avoidance responses in the intensity of the response (*e.g.,* directed movement, rate of travel). Relatively little information on flight responses of marine mammals to anthropogenic signals exist, although observations of flight responses to the presence of predators have occurred (Connor and Heithaus, 1996, Bowers *et al.,* 2018). The result of a flight response could range from brief, temporary exertion and displacement from the area where the signal provokes flight to, in extreme cases, marine mammal strandings (Evans and England, 2001). However, it should be noted that response to a perceived predator does not necessarily invoke flight (Ford and Reeves, 2008), and whether individuals are solitary or in groups may influence the response.

Behavioral disturbance can also impact marine mammals in more subtle ways. Increased vigilance may result in costs related to diversion of focus and attention (*i.e.,* when a response consists of increased vigilance, it may come at the cost of decreased attention to other critical behaviors such as foraging or resting). These effects have generally not been demonstrated for marine mammals, but studies involving fish and terrestrial animals have shown that increased vigilance may substantially reduce feeding rates (*e.g.,* Beauchamp and Livoreil, 1997). In addition, chronic disturbance can cause population declines through reduction of fitness (*e.g.,* decline in body condition) and subsequent reduction in reproductive success, survival, or both (*e.g.,* Harrington and Veitch, 1992). However, Ridgway *et al.* (2006) reported that increased vigilance in bottlenose dolphins exposed to sound over a 5 day period did not cause any sleep deprivation or stress effects.

Many animals perform vital functions, such as feeding, resting, traveling, and socializing, on a diel cycle (24-hour cycle). Disruption of such functions resulting from reactions to stressors such as sound exposure are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall *et al.,* 2007). Consequently, a behavioral response lasting less than one day and not recurring on subsequent days is not considered particularly severe unless it could directly affect reproduction or survival (Southall *et al.,* 2007). Note that there is a difference between multi-day substantive behavioral reactions and multi-day anthropogenic activities. For example, just because an activity lasts for multiple days does not necessarily mean that individual animals are either exposed to activity-related stressors for multiple days or, further, exposed in a manner resulting in sustained multi-day substantive behavioral responses.

Stress responses—An animal's perception of a threat may be sufficient to trigger stress responses consisting of some combination of behavioral responses, autonomic nervous system responses, neuroendocrine responses, or immune responses (*e.g.,* Seyle, 1950; Moberg, 2000). In many cases, an animal's first and sometimes most economical (in terms of energetic costs) response is behavioral avoidance of the potential stressor. Autonomic nervous system responses to stress typically involve changes in heart rate, blood pressure, and gastrointestinal activity. These responses have a relatively short duration and may or may not have a significant long-term effect on an animal's fitness.

Neuroendocrine stress responses often involve the hypothalamus-pituitary-adrenal system. Virtually all neuroendocrine functions that are affected by stress—including immune competence, reproduction, metabolism, and behavior—are regulated by pituitary hormones. Stress-induced changes in the secretion of pituitary hormones have been implicated in failed reproduction, altered metabolism, reduced immune competence, and behavioral disturbance (*e.g.,* Moberg, 1987; Blecha, 2000). Increases in the circulation of glucocorticoids are also equated with stress (Romano *et al.,* 2004).

The primary distinction between stress (which is adaptive and does not normally place an animal at risk) and ''distress'' is the cost of the response. During a stress response, an animal uses glycogen stores that can be quickly replenished once the stress is alleviated. In such circumstances, the cost of the stress response would not pose serious fitness consequences. However, when an animal does not have sufficient energy reserves to satisfy the energetic costs of a stress response, energy resources must be diverted from other functions. This state of distress will last until the animal replenishes its energetic reserves sufficient to restore normal function.

Relationships between these physiological mechanisms, animal behavior, and the costs of stress responses are well-studied through controlled experiments and for both laboratory and free-ranging animals (*e.g.,* Holberton *et al.,* 1996; Hood *et al.,*

1998; Jessop *et al.,* 2003; Krausman *et al.,* 2004; Lankford *et al.,* 2005). Stress responses due to exposure to anthropogenic sounds or other stressors and their effects on marine mammals have also been reviewed (Fair and Becker, 2000; Romano *et al.,* 2002b) and, more rarely, studied in wild populations (*e.g.,* Romano *et al.,* 2002a). For example, Rolland *et al.* (2012) found that noise reduction from reduced ship traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales. These and other studies lead to a reasonable expectation that some marine mammals will experience physiological stress responses upon exposure to acoustic stressors and that it is possible that some of these would be classified as ''distress.'' In addition, any animal experiencing TTS would likely also experience stress responses (NRC, 2003), however distress is an unlikely result of this project based on observations of marine mammals during previous, similar construction projects.

Acoustic Masking—Sound can disrupt behavior through masking, or interfering with, and animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.,* those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation) (Richardson *et al.,* 1995). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.,* snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.,* pile driving, shipping, sonar, seismic exploration) in origin. The ability of a noise source to mask biologically important sounds depends on the characteristics of both the noise source and the signal of interest (*e.g.,* signal-to-noise ratio, temporal variability, direction), in relation to each other and to an animal's hearing abilities (*e.g.,* sensitivity, frequency range, critical rations, frequency discrimination, directional discrimination, age or TTS hearing loss), and existing ambient noise and propagation conditions. Masking of natural sounds can result when human activities produce high levels of background sound at frequencies important to marine mammals. Conversely, if the background level of underwater sound is high (*e.g.,* on a day with strong wind and high waves), an anthropogenic sound source would not be detectable as far away as would be possible under quieter conditions and would itself be masked.

Airborne Acoustic Effects—Although pinnipeds are known to haul-out regularly on man-made objects, such as the nearby Chesapeake Bay Bridge Tunnel, we believe that incidents of take resulting solely from airborne sound are unlikely due to the sheltered proximity between the proposed project area and these haulout sites (over 16 miles (26 km)). There is a possibility that an animal could surface in-water, but with head out, within the area in which airborne sound exceeds relevant thresholds and thereby be exposed to levels of airborne sound that we associate with harassment, but any such occurrence would likely be accounted for in our estimate of incidental take from underwater sound. Therefore, authorization of incidental take resulting from airborne sound for pinnipeds is not warranted, and airborne sound is not discussed further here. Cetaceans are not expected to be exposed to airborne sounds that would result in harassment as defined under the MMPA.

Marine Mammal Habitat Effects

The Navy's construction activities could have localized, temporary impacts on marine mammal habitat by increasing in-water sound pressure levels and slightly decreasing water quality. However, since the focus of the proposed action is pile driving and drilling, no net habitat loss is expected as the new Pier 3 will be immediately north of the existing Pier 3 and, once complete, the current Pier 3 will be demolished. Construction activities are of short duration and would likely have temporary impacts on marine mammal habitat through increases in underwater sounds. Increased noise levels may affect the acoustic habitat (see masking discussion above) and adversely affect marine mammal prey in the vicinity of the project area (see discussion below). During pile driving activities, elevated levels of underwater noise would ensonify the project area where both fishes and marine mammals may occur and could affect foraging success. Additionally, marine mammals may avoid the area during construction, however displacement due to noise is expected to be temporary and is not expected to result in long-term effects to the individuals or populations.

Temporary and localized reduction in water quality will occur because of in-water construction activities as well. Most of this effect will occur during the installation and removal of piles when bottom sediments are disturbed. The installation of piles will disturb bottom sediments and may cause a temporary increase in suspended sediment in the project area. In general, turbidity associated with pile installation is localized to about 25-ft (7.6 meter) radius around the pile (Everitt *et al.,* 1980). Cetaceans are not expected to be close enough to the pile driving areas to experience effects of turbidity, and any pinnipeds could avoid localized areas of turbidity. Therefore, we expect the impact from increased turbidity levels to be discountable to marine mammals and do not discuss it further.

In-Water Construction Effects on Potential Foraging Habitat—The proposed activities would not result in permanent impacts to habitats used directly by marine mammals except for the actual footprint of the new Pier 3. The total seafloor area affected by pile installation and removal is a very small area compared to the vast foraging area available to marine mammals in the project area and lower Chesapeake Bay. Pile extraction and installation may have impacts on benthic invertebrate species primarily associated with disturbance of sediments that may cover or displace some invertebrates. The impacts will be temporary and highly localized, and no habitat will be permanently displaced by construction. Therefore, it is expected that impacts on foraging opportunities for marine mammals due to the demolition and reconstruction of Pier 3 would be minimal.

It is possible that avoidance by potential prey (*i.e.,* fish) in the immediate area may occur due to temporary loss of this foraging habitat. The duration of fish avoidance of this area after pile driving stops is unknown, but we anticipate a rapid return to normal recruitment, distribution and behavior. Any behavioral avoidance by fish of the disturbed area would still leave large areas of fish and marine mammal foraging habitat in the nearby vicinity in the project area and lower Chesapeake Bay.

Effects on Potential Prey—Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.,* fish). Marine mammal prey varies by species, season, and location. Here, we describe studies regarding the effects of noise on known marine mammal prey.

Fish utilize the soundscape and components of sound in their environment to perform important functions such as foraging, predator avoidance, mating, and spawning (*e.g.,* Zelick *et al.,* 1999; Fay, 2009). Depending on their hearing anatomy and peripheral sensory structures, which vary among species, fishes hear

sounds using pressure and particle motion sensitivity capabilities and detect the motion of surrounding water (Fay *et al.,* 2008). The potential effects of noise on fishes depends on the overlapping frequency range, distance from the sound source, water depth of exposure, and species-specific hearing sensitivity, anatomy, and physiology. Key impacts to fishes may include behavioral responses, hearing damage, barotrauma (pressure-related injuries), and mortality.

Fish react to sounds which are especially strong and/or intermittent low-frequency sounds, and behavioral responses such as flight or avoidance are the most likely effects. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. The reaction of fish to noise depends on the physiological state of the fish, past exposures, motivation (*e.g.,* feeding, spawning, migration), and other environmental factors. Hastings and Popper (2005) identified several studies that suggest fish may relocate to avoid certain areas of sound energy. Additional studies have documented effects of pile driving on fish, although several are based on studies in support of large, multiyear bridge construction projects (*e.g.,* Scholik and Yan, 2001, 2002; Popper and Hastings, 2009). Several studies have demonstrated that impulse sounds might affect the distribution and behavior of some fishes, potentially impacting foraging opportunities or increasing energetic costs (*e.g.,* Fewtrell and McCauley, 2012; Pearson *et al.,* 1992; Skalski *et al.,* 1992; Santulli *et al.,* 1999; Paxton *et al.,* 2017). However, some studies have shown no or slight reaction to impulse sounds (*e.g.,* Pena *et al.,* 2013; Wardle *et al.,* 2001; Jorgenson and Gyselman, 2009; Cott *et al.,* 2012).

SPLs of sufficient strength have been known to cause injury to fish and fish mortality. However, in most fish species, hair cells in the ear continuously regenerate and loss of auditory function likely is restored when damaged cells are replaced with new cells. Halvorsen *et al.* (2012a) showed that a TTS of 4–6 dB was recoverable within 24 hours for one species. Impacts would be most severe when the individual fish is close to the source and when the duration of exposure is long. Injury caused by barotrauma can range from slight to severe and can cause death, and is most likely for fish with swim bladders. Barotrauma injuries have been documented during controlled exposure to impact pile driving (Halvorsen *et al.,* 2012b; Casper *et al.,* 2013).

The most likely impact to fish from pile driving activities at the project areas would be temporary behavioral avoidance of the area. The duration of fish avoidance of an area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated.

The area impacted by the project is relatively small compared to the available habitat in the remainder of the project area and the lower Chesapeake Bay, and there are no areas of particular importance that would be impacted by this project. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity. As described in the preceding, the potential for the Navy's construction to affect the availability of prey to marine mammals or to meaningfully impact the quality of physical or acoustic habitat is considered to be insignificant.

Estimated Take

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS' consideration of ''small numbers,'' and the negligible impact determinations.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines ''harassment'' as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would primarily be by Level B harassment, as noise generated from in-water pile driving (vibratory and impact) and drilling has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for high- and low-frequency species and phocids because predicted auditory injury zones are larger than for mid-frequency species. However, auditory injury is unlikely to occur for low- and mid- frequency species as proposed shutdown zones encompass the entirely of the auditory injury zones for all proposed activities (see Proposed Mitigation section). The proposed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

As described previously, no serious injury or mortality is anticipated or proposed to be authorized for this activity. Below we describe how the proposed take numbers are estimated.

For acoustic impacts, generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these factors can contribute to a basic calculation to provide an initial prediction of potential takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.,* previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the proposed take estimates.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.,* frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.,* bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.,* Southall *et al.,* 2007, 2021, Ellison *et al.,* 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater

anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1 μPa)) for continuous (*e.g.,* vibratory pile-driving, drilling) and above RMS SPL 160 dB re 1 μPa for non-explosive impulsive (*e.g.,* impact pile driving) or intermittent (*e.g.,* scientific sonar) sources.

The Navy's construction includes the use of continuous (vibratory pile driving/removal, drilling) and impulsive (impact pile driving) sources, and therefore the 120 and 160 dB re 1 μPa (rms) are applicable.

Level A Harassment—NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). As previously noted, the Navy's proposed activity includes the use of non-impulsive (vibratory pile driving/removal, drilling) and impulsive (impact pile driving) sources.

These thresholds are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at: *www.fisheries.noaa.gov/national/marine-mammal-p-rotection/marine-mammal-acoustic-technical-guidance.*

TABLE 5—THRESHOLDS IDENTIFYING THE ONSET OF PERMANENT THRESHOLD SHIFT

Hearing group	PTS onset acoustic thresholds * (received level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	*Cell 1:* $L_{pk,flat}$: 219 dB; $L_{E,LF,24h}$: 183 dB	*Cell 2:* $L_{E,LF,24h}$: 199 dB.
Mid-Frequency (MF) Cetaceans	*Cell 3:* $L_{pk,flat}$: 230 dB; $L_{E,MF,24h}$: 185 dB	*Cell 4:* $L_{E,MF,24h}$: 198 dB.
High-Frequency (HF) Cetaceans	*Cell 5:* $L_{pk,flat}$: 202 dB; $L_{E,HF,24h}$: 155 dB	*Cell 6:* $L_{E,HF,24h}$: 173 dB.
Phocid Pinnipeds (PW) (Underwater)	*Cell 7:* $L_{pk,flat}$: 218 dB; $L_{E,PW,24h}$: 185 dB	*Cell 8:* $L_{E,PW,24h}$: 201 dB.
Otariid Pinnipeds (OW) (Underwater)	*Cell 9:* $L_{pk,flat}$: 232 dB; $L_{E,OW,24h}$: 203 dB	*Cell 10:* $L_{E,OW,24h}$: 219 dB.

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (L_E) has a reference value of 1μPa^{2}s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript "flat" is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.,* varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that are used in estimating the area ensonified above the acoustic thresholds, including source levels and transmission loss coefficient.

In order to calculate the distances to the Level A harassment and the Level B harassment sound thresholds for the methods and piles being used in this project, NMFS used acoustic monitoring data from other locations to develop proxy source levels for various pile types (Table 6). Generally we choose source levels from similar pile types and locations (*e.g.,* geology, bathymetry) similar to the project. At this time, NMFS is not aware of reliable source levels available for polymeric piles using vibratory pile installation, therefore source levels for timber pile driving were used as a proxy. Vibratory pile driving of polymeric piles expected to occur under the 2022 IHA has yet to occur and therefore has not been measured. Similarly, the following proxies were used as source levels for piles where no data was available: Source levels from the 48-inch steel pile from Naval Base Kitsap at Bangor, Washington (Caltrans 2020) was used as a proxy for 42 inch steel pipe piles (impact); the 30-inch steel pipe pile was used as a proxy for the 28 inch steel sheet pile (impact and vibratory); source levels for timber piles were used as a proxy for concrete as they are expected to have similar sound levels as they are similarly sized, non-metallic, and will be removed using the same methods.

Very little information is available regarding source levels for in-water drilling activities associated with nearshore pile installation. Measurements made during a pile drilling project in 1–5 m (3–16 ft) depth at Santa Rosa Island, CA, by Dazey *et al.* (2012) appear to provide the best available proxy source levels for proposed activities. Dazey *et al.* (2012) reported average rms source levels ranging from 151 to 157 db re 1 μPa during 62 days that spanned all related drilling activities during a single season.

TABLE 6—PROJECT SOUND SOURCE LEVELS AND PROXY SOURCE LEVELS USED FOR ACOUSTIC MODELING

Pile type	Pile size (inch)	Method	Peak SPL (re 1 μPa (rms))	RMS SPL (re 1 μPa (rms))	SEL (re 1 μPa (rms))	Source
Steel Pipe Pile	42	Impact	213	190	177	Caltrans 2020.
		Vibratory	N/A	168	N/A	Sitka 2017.
Steel Sheet	28	Impact [1]	211	196	181	NAVFAC SW 2020.
		Vibratory [2]	N/A	167	167	Navy 2015.
Concrete Pile	24	Impact	189	176	163	Illingworth and Rodkin 2017.
		Vibratory Removal [3]	185	162	157	Caltrans 2020.
Concrete Pile	18	Impact [3]	185	166	154	Caltrans 2020.
		Vibratory Removal [4]	185	162	157	Caltrans 2020.
Polymeric Pile	13	Impact	177	153		Denes *et al.,* 2016.
		Vibratory [5]	185	162	157	Caltrans 2020.

TABLE 6—PROJECT SOUND SOURCE LEVELS AND PROXY SOURCE LEVELS USED FOR ACOUSTIC MODELING—Continued

Pile type	Pile size (inch)	Method	Peak SPL (re 1 μPa (rms))	RMS SPL (re 1 μPa (rms))	SEL (re 1 μPa (rms))	Source
Timber Pile	14	Vibratory Install/Removal	185	162	157	Caltrans 2020.
N/A [6]	"Multiple pile sizes" [6]	Drilling	N/A	154	N/A	Dazey *et al.,* 2012.

[1] A source level value for impact pile driving of 28-inch steel sheet piles could not be found so a value for a 30-inch steel pipe pile has been used as a proxy (NAVFAC SW, 2020 [p.A–4]).
[2] A source level value for vibratory pile driving of 28-inch steel sheet piles could not be found so a value for a 30-inch steel pipe pile has been used as a proxy (Navy, 2015 [p. 14]).
[3] Data on vibratory extraction of concrete piles is not available, however source levels are expected to be similar to the levels produced by timber piles as they are similar in size, material and removal method.
[4] Proxy data for 18-inch octagonal piles.
[5] Vibratory proxy for polymeric/plastic piles is unavailable; we assume SPL to be consistent with timber.
[6] See Table 2 for pile types/size that may use drilling, as needed.

TABLE 7—SOURCE LEVEL MATRIX FOR CONCURRENT ACTIVITIES

Pile diameter		42-inch steel pipe	28-inch steel pipe	14-inch timber	14-inch polymeric	24-inch concrete	18-inch concrete	14-inch timber	Multiple
	SSL	168	167	162	162	162	162	162	154
42-inch Steel Pipe	168	171	171	169	169	169	169	169	168
28-inch Steel Pipe	167	171	170	168	168	168	168	168	167
14-inch Timber	162	169	168	165	165	165	165	165	163
14-inch Polymeric	162	169	168	165	165	165	165	165	163
24-inch Concrete	162	169	168	165	165	165	165	165	163
18-inch Concrete	162	169	168	165	165	165	165	165	163
14-inch Timber	162	169	168	165	165	165	165	165	163
Multiple	154	168	167	163	163	163	163	163	157

The ensonified area associated with Level A harassment is more technically challenging to predict due to the need to account for a duration component. Therefore, NMFS developed an optional User Spreadsheet tool to accompany the Technical Guidance that can be used to relatively simply predict an isopleth distance for use in conjunction with marine mammal density or occurrence to help predict potential takes. We note that because of some of the assumptions included in the methods underlying this optional tool, we anticipate that the resulting isopleth estimates are typically going to be overestimates of some degree, which may result in an overestimate of potential take by Level A harassment. However, this optional tool offers the best way to estimate isopleth distances when more sophisticated modeling methods are not available or practical. For stationary sources, such as pile driving, removal, and drilling, the optional User Spreadsheet tool predicts the distance at which, if a marine mammal remained at that distance for the duration of the activity, it would be expected to incur PTS. Inputs used in the optional User Spreadsheet tool are reported in Table 1 and Table 2, and source levels used in the User Spreadsheet are reported in Table 6. The resulting isopleths are reported in Table 7 (impact pile driving), Table 8 (vibratory pile driving/removal, and drilling), and Table 9 (concurrent pile driving scenarios) below.

TABLE 8—LEVEL A AND LEVEL B HARASSMENT ISOPLETHS FOR IMPACT PILE DRIVING

Year	Pile driving site	Source	Level A harassment isopleths (m)				Level B (behavioral) (m)
			LF	MF	HF	Phocids	
Year 2	CEP–176	42-inch Steel Pipe	1,482	53	1,766	793	1,000
		28-inch Steel Sheets	1,783	63	2,123	954	2,512
	CEP–175	13-inch Polymeric Piles	17	1	20	9	3
	CEP–102	24-inch Square Precast Concrete	117	4	139	63	117
		18-inch Square Precast Concrete	7	0	9	4	25
	Pier 3 (bearing piles)	24-inch Square Precast Concrete	254	9	302	136	117
Year 3	Pier 3 (Fender Piles)	24-inch Square Precast Concrete	37	1	44	20	117
		18-inch Steel Pipe	661	24	788	354	25
	CEP–102	42-inch Steel Pipe	1,002	36	1,193	536	1,000
		28-inch Steel Sheet	1,783	63	2,123	954	2,512
Year 4	CEP–102	24-inch Square Precast Concrete	117	4	139	63	117
		18-inch Square Precast Concrete	7	0	9	4	25
		42-inch Steel Pipe	1,002	36	1,193	536	1,000
		28-inch Steel Sheet	1,783	63	2,123	954	2,512
Year 5	CEP–102	24-inch Square Precast Concrete	117	4	139	63	117
		18-inch Square Precast Concrete	7	0	9	4	25

TABLE 9—LEVEL A AND LEVEL B HARASSMENT ISOPLETHS FOR VIBRATORY PILE DRIVING, REMOVAL AND DRILLING

Year	Pile driving site	Source	Level A harassment isopleths (m) [1]				Level B behavioral (m)
			LF	MF	HF	Phocids	
Year 2	CEP–176	42-inch Steel Pipe (Vibratory)	127	11	188	77	15,849
		28-inch Steel Sheet (Vibratory)	100	9	147	61	13,594
	CEP–175	13-inch Polymeric Piles (Vibratory)	15	1	22	9	6,310
	CEP–102	24-inch Square Precast Concrete (Drilling)	1	0	1	0	1,848

TABLE 9—LEVEL A AND LEVEL B HARASSMENT ISOPLETHS FOR VIBRATORY PILE DRIVING, REMOVAL AND DRILLING—Continued

Year	Pile driving site	Source	Level A harassment isopleths (m) [1]				Level B behavioral (m)
			LF	MF	HF	Phocids	
		18-inch Square Precast Concrete (Drilling)	1	0	1	0	1,848
Year 3	Pier 3 (Fender Piles)	24-inch Square Precast Concrete (Drilling)	1	0	1	1	1,848
	CEP–102	42-inch Steel Pipe (Vibratory Install)	80	7	118	49	15,849
		28-inch Steel Sheet Piles (Vibratory)	100	9	147	61	13,594
		18-inch Square Precast Concrete (Vibratory Extraction).	35	3	51	21	6,310
Year 4	CEP–102	24-inch Square Precast Concrete (Drilling)	1	0	1	0	1,848
		14-inch Timber (Vibratory Extraction)	68	6	101	41	6,310
		18-inch Square Precast Concrete (Drilling)	1	0	1	0	1,848
		42-inch Steel Pipe (Vibratory)	80	7	118	49	15,849
		28-inch Steel Sheet (Vibratory)	100	9	147	61	13,594
		18-inch Square Precast Concrete (Vibratory Extraction).	35	3	51	21	6,310
	Existing Pier 3	24-inch Square Precast Concrete (Vibratory Extraction).	42	4	62	25	6,310
		16-inch and 18-inch Square Precast Concrete (Vibratory Extraction).	37	3	55	23	6,310
Year 5	CEP–102	24-inch Square Precast Concrete (Drilling)	1	0	1	0	1,848
		18-inch Square Precast Concrete (Drilling)	1	0	1	0	1,848
	Existing Pier 3	16-inch and 18-inch Square Precast Concrete (Vibratory Extraction).	37	3	55	23	6,310

TABLE 10—LEVEL A AND LEVEL B HARASSMENT ISOPLETHS FOR CONCURRENT PILE DRIVING AND DRILLING SCENARIOS

Year	Pile driving site	Source	Level A harassment isopleths (m)				Level B behavioral (m)
			LF	MF	HF	Phocids	
2	CEP–176 Bulkhead	Install of 42-inch steel pipe and 28-inch steel sheets	549	49	811	334	25,119
2	CEP–176 Bulkhead	Install of two 42-inch steel pipe piles	320	28	472	194	25,119
2	CEP–176 and CEP–102	Install of 42-inch steel pipe and 24-inch Square precast concrete.	166	15	246	101	15,849
2	CEP–176 and CEP–175	Install of 42-inch steel pipe piles and 13-inch polymeric piles.	254	23	376	155	18,478
3	Pier 3	Install of 24-inch Square precast concrete fender piles using two drills.	2	0.1	2	1	2,929
3	CEP–102 Bulkhead	Install of 42-inch steel pipe and 28-inch steel sheets	507	45	750	308	25,119
4	Existing Pier 3 CEP–102 Platform.	Extraction of 14-inch timber piles, install of 42-inch steel pipe and 28-inch steel sheets, and rotary drilling of 24-inch Square precast concrete.	981	87	1,450	596	25,119
5	Existing Pier 3 CEP–102 Platform.	Concurrent extraction of 16- and 18-inch Square precast concrete and rotary drilling of 24-inch Square precast concrete.	77	7	114	47	7,356

The maximum distance to the Level A harassment threshold during construction would be during the impact driving of 28 inch steel sheets at CEP–176 and CEP–102 (1783 m for humpback whale; 63 m for bottlenose dolphin; 2123 m for harbor porpoises; and 954 m for pinnipeds). The largest calculated Level B harassment isopleth extends out to 25,119 m, which would result from concurrent pile driving of the scenarios presented in Table 10. While 25,119 m may not be an attainable observable distance in all directions, the Level B harassment zone will be monitored to the maximum extent possible.

Marine Mammal Occurrence and Take Estimation

In this section we provide information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. We describe how the information provided above is brought together to produce a quantitative take estimate for each species.

Humpback Whales

Humpback whales occur in the mouth of the Chesapeake Bay and nearshore waters of Virginia during winter and spring months. Several satellite tagged humpback whales were detected west of the Chesapeake Bay Bridge Tunnel, including two individuals with locations near NAVSTA Norfolk and Joint Expeditionary Base Little Creek (Aschettino *et al.,* 2017). Group size was not reported in these surveys, however most whales detected were juveniles. Although two individuals were detected in the vicinity of the proposed project activities, there is no evidence that they linger for multiple days. Because no density estimates are available for the species in this area, the Navy estimated one potential sighting of a group of average size (2 individuals) every 60 days of pile driving. Therefore, given the number of project days expected in each year (Table 1), NMFS is proposing to authorize a total of 19 takes by Level B harassment of humpback whale over the five-year authorization, with no more than seven takes by Level B harassment in a given year.

The largest Level A harassment zone for low-frequency cetaceans extends approximately 1783 m from the source during impact pile driving of the 28-inch steel sheet piles (Table 8). The Navy plans to shut down if a humpback whale is sighted within any of the Level A harassment zones for all activities, as indicated in Table 11. Therefore, the Navy did not request, and NMFS is not proposing to authorize, take by Level A harassment of humpback whales.

Bottlenose Dolphin

The expected number of bottlenose dolphins in the project area was estimated using inshore seasonal

densities provided in Engelhaupt *et al.* (2016) from vessel line-transect surveys near NAVSTA Norfolk and adjacent areas near Virginia Beach, Virginia, from August 2012 through August 2015 (Engelhaupt *et al.,* 2016). This density includes sightings inshore of the Chesapeake Bay from NAVSTA Norfolk west to the Thimble Shoals Bridge, and is the most representative density for the project area. To calculate potential Level B harassment takes of bottlenose dolphin, NMFS conservatively multiplied the density of 1.38 dolphin/km^2 (from Englehaupt *et al.,* 2016) by the largest Level B harassment isopleth for each project location (Table 8, 9 and 10), and then by the number of days associated with that activity (Table 1). For example, to calculate Level B harassment takes associated with work at the existing Pier 3 in year 2, NMFS multiplied the density (1.38 dolphins/km^2) by the largest Level B harassment zone for impact pile driving on the 24-inch concrete bearing piles at the new Pier 3 (0.043 km^2) by the proportional number of pile driving days for that activity (70 days) for a total of 4 Level B harassment takes at Pier 3, for that activity in year 1. Takes by Level B harassment were calculated for both individual pile driving activities and concurrent pile driving activities, as authorized takes are conservatively based on the scenario that produces more takes by Level B harassment (Table 11). Therefore, NMFS proposes to authorize 28,480 [1] takes by Level B harassment of bottlenose dolphin across all five years, with no more than 13,190 takes in a given year.

Harbor Porpoise

Harbor porpoises are known to occur in the coastal waters near Virginia Beach (Hayes *et al.,* 2019). Density data for this species within the project vicinity do not exist or were not calculated because sample sizes were too small to produce reliable estimates of density. Harbor porpoise sighting data collected by the U.S. Navy near NAVSTA Norfolk and Virginia Beach from 2012 to 2015 (Engelhaupt *et al.* 2014; 2015; 2016) did not produce enough sightings to calculate densities. One group of two harbor porpoises was seen during spring 2015 (Engelhaupt *et al.* 2016). Elsewhere in their range, harbor porpoises typically occur in groups of two to three individuals (Carretta *et al.* 2001; Smultea *et al.* 2017).

Because there are no density estimates for the species in the proposed project area, the Navy conservatively estimated one harbor porpoise sighting (of two individuals) once every 60 days of pile driving or drilling. Therefore, the assumption of two individuals per 60 days was used for calculation of take numbers. Total pile driving days for Year 2 would be 185 days, Year 3 would be 92 days, Year 4 would be 204 days, and Year 5 would have 32 days. Takes by Level B harassment were calculated for both individual pile driving activities and concurrent pile driving activities, as authorized takes are conservatively based on the scenario that produced the larger exposure estimate (Table 11). Using the above methodology, NMFS calculated an exposure estimate of 19 incidents of take for harbor porpoises.

The largest Level A harassment zone for high-frequency cetaceans is 2,123 m during impact pile driving of the 28-inch steel sheet piles. The Navy has proposed to shut down at 500 m for harbor porpoises during the aforementioned activity, in addition to shorter distances where appropriate for other proposed activities as noted in Table13 as a reasonable area to observe for harbor porpoises and implement shutdown procedures while avoiding an impracticable number of shutdowns. Consequently, the Navy has requested authorization of take by Level A harassment for harbor porpoise during the course of the project. Take by Level A harassment may not actually occur due to the duration of time harbor porpoise would be required to remain within the Level A harassment zone to accumulate enough energy to experience PTS. However, as a precaution NMFS proposes to authorize a total of 4 takes by Level A harassment as requested by the Navy (Table 11) with no more than 2 takes by Level A harassment occurring in a given year, and 15 total takes by Level B harassment with no more than 5 takes by Level B harassment occurring in a given year, equaling the aforementioned total of 19 takes over 5 years.

Harbor Seal

The expected number of harbor seals in the project area was estimated using systematic land- and vessel-based survey data for in-water and hauled out seals collected by the U.S. Navy at the CBBT rock armor and portal islands from 2014 through 2019 (Jones *et al.,* 2020). The average daily seal count from the field season ranged from 8 to 23 seals, with an average of 13.6 harbor seals across all the field seasons.

The Navy expects, and NMFS concurs, that harbor seals are likely to be present from November to April. Consistent with previous nearby projects (87 FR 15945; March 31, 2022, 86 FR 24340; May 6, 2021, 86 FR 17458; April 2, 2021), NMFS calculated take by Level B harassment by multiplying 13.6 seals by the number of pile driving days expected to occur from November through April (seal season): 74 days in Year 2, 23 days in Year 3, 133 days in Year 4. And 32 days in Year 5. Potential takes by Level A harassment were calculated based on the number of production days within seal season on which the Level A harassment isopleth exceeds the shutdown zone of 200 m (42 days in Year 2; 3 days in Year 3; and 0 days in Year 4 and 5), assuming that approximately 10 percent of harbor seal exposures would be at or above the Level A harassment threshold. Potential takes by Level B harassment were calculated by subtracting the Level A harassment takes estimated per year from the total calculated takes. Consistent with previous species, take estimates are based on the scenario (individual or concurrent) that produced the higher take estimate (Table 11). Therefore, the Navy is requesting and NMFS is proposing to authorize a total of 4,182 takes by Level B harassment and 61 takes by Level A harassment (Table 12).

Gray Seal

Very little information is available about the occurrence of gray seals in the Chesapeake Bay and coastal waters. Although the population of the United States may be increasing, there are only a few records available at the known haulout sites in Virginia used by gray seals, strandings are rare, and they have not been reported in shipboard surveys. Assuming that they may utilize the Chesapeake Bay waters, the Navy conservatively estimates one gray seal may be exposed to elevated noise levels for every 60 days of vibratory pile driving during the six month period when they are most likely to be present. Similar to harbor seals, the maximum number of pile driving days where gray seals may be exposed during seal season per year were used for calculations. The scenario (concurrent or individual activities) that produced the larger exposure estimate is proposed for authorization (Table 11). Therefore, the Navy has requested and NMFS is proposing to authorize 5 takes by Level B harassment. Given the low likelihood of encountering gray seals during the project and low number of days in

[1] **Note:** This total number of takes by Level B harassment proposed for authorization differs from that in the Navy's request for Rulemaking. The number presented here conservatively uses exposure estimates for concurrent pile driving scenarios in Year 5, which were higher than those produced for individual pile driving activities.

which Level A harassment isopleths may exceed proposed shutdown zones, no take by Level A harassment is proposed for authorization.

TABLE 11—CALCULATED TAKES BY LEVEL A AND LEVEL B HARASSMENT FOR CONCURRENT AND INDIVIDUAL PILE DRIVING, REMOVAL AND DRILLING SCENARIOS [1]

Year	Species	Individual activities		Concurrent activities	
		Level A	Level B	Level A	Level B
2	Humpback whale	*0*	*6*	0	2
	BND—Northern Migratory	0	2691	*0*	*5609*
	BND—Southern Migratory.				
	BND—NC Estuarine.				
	Harbor porpoise	*2*	*4*	0	1
	Harbor seal	*57*	*949*	25	832
	Gray seal	*0*	*1*	0	1
3	Humpback whale	*0*	*3*	0	1
	BND—Northern Migratory	*0*	*3061*	0	1440
	BND—Southern Migratory.				
	BND—NC Estuarine.				
	Harbor porpoise	*0*	*3*	0	1
	Harbor seal	4	309	*7*	*537*
	Gray seal	0	0	*0*	*1*
4	Humpback whale	*0*	*7*	0	1
	BND—Northern Migratory	*0*	*13190*	0	3023
	BND—Southern Migratory.				
	BND—NC Estuarine.				
	Harbor porpoise	*2*	*5*	0	1
	Harbor seal	0	*1809*	*26*	232
	Gray seal	*0*	*2*	0	0
5	Humpback whale	0	2	*0*	*3*
	BND—Northern Migratory	0	383	*0*	*6620*
	BND—Southern Migratory.				
	BND—NC Estuarine.				
	Harbor porpoise	0	1	*0*	*3*
	Harbor seal	0	435	*0*	*1115*
	Gray seal	*0*	*2*	0	1

[1] Potential takes by Level A and Level B harassment are conservatively based on the scenario (individual vs. concurrent pile driving, removal, or drilling) that produced the highest exposure estimate. Therefore, the number of takes by Level A and Level B harassment proposed for authorization is *italicized* and used to determine percent of stock.

TABLE 12—PROPOSED AUTHORIZED TAKES BY LEVEL A AND LEVEL B HARASSMENT BY SPECIES AND STOCK IN COMPARISON TO STOCK ABUNDANCE

Year	Species	Abundance	Proposed take		Total	Percent of stock
			Level A	Level B		
2	Humpback whale [a]	1396	0	6	6	0.43
	BND—Northern Migratory [b c]	6639	0	5609	2705	40.74
	BND—Southern Migratory [b c]	3751			2705	72.10
	BND—NC Estuarine [b c]	823			200	24.30
	Harbor porpoise	95543	2	4	6	0.01
	Harbor seal	61336	57	949	1006	1.64
	Gray seal	27300	0	1	1	0.00
3	Humpback whale [a]	1396	0	3	3	0.21
	BND—Northern Migratory [b c]	6639	0	3061	1431	21.55
	BND—Southern Migratory [b c]	3751			1431	38.15
	BND—NC Estuarine [b c]	823			200	24.30
	Harbor porpoise	95543	0	3	3	0.00
	Harbor seal	61336	7	537	544	0.89
	Gray seal	27300	0	1	1	0.00
4	Humpback whale [a]	1396	0	7	7	0.50
	BND—Northern Migratory [b c]	6639	0	13190	6495	97.83
	BND—Southern Migratory [b c]	3751			6495	173.15
	BND—NC Estuarine [b c]	823			200	24.30
	Harbor porpoise	95543	2	5	7	0.01
	Harbor seal	61336	26	1783	1809	2.95
	Gray seal	27300	0	2	2	0.01
5	Humpback whale [a]	1396	0	3	3	0.21
	BND—Northern Migratory [b c]	6639	0	6620	3210	48.35
	BND—Southern Migratory [b c]	3751			3210	85.58
	BND—NC Estuarine [b c]	823			200	24.30
	Harbor porpoise	95543	0	3	3	0.00

TABLE 12—PROPOSED AUTHORIZED TAKES BY LEVEL A AND LEVEL B HARASSMENT BY SPECIES AND STOCK IN COMPARISON TO STOCK ABUNDANCE—Continued

Year	Species	Abundance	Proposed take		Total	Percent of stock
			Level A	Level B		
	Harbor seal	61336	0	1115	1115	1.82
	Gray seal	27300	0	2	2	0.01

[a] West Indies DPS. Please see the Description of Marine Mammals in the Area of Specified Activities section for further discussion.
[b] Take estimates are weighted based on calculated percentages of population for each distinct stock, assuming animals present would follow the same probability of presence in the project area. Please see Small Numbers section for additional information.
[c] Assumes multiple repeated takes of the same individuals from a small portion of each stock as well as repeated takes of Chesapeake Bay resident population (size unknown). Please see Small Numbers section for additional information.

Proposed Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, NMFS considers two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, and impact on operations.

In addition to the measures described later in this section, the Navy will employ the following mitigation measures:

- The Navy will conduct briefings between construction supervisors and crews, the marine mammal monitoring team, and Navy staff prior to the start of all pile driving activity and when new personnel join the work, to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures;
- If a marine mammal comes within 10 meters of construction activities, including in-water heavy machinery work not being analyzed in this proposed rule, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions;
- Pile driving activity must be halted upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or is within the harassment zone.

The following mitigation measures apply to the Navy's in-water construction activities.

Establishment of Shutdown Zones—The Navy will establish shutdown zones for all pile driving and removal and drilling activities. The purpose of a shutdown zone is generally to define an area within which shutdown of the activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones will vary based on the activity type and marine mammal hearing group (Table 13).

Protected Species Observers (PSOs)—The placement of PSOs during all pile driving and removal and drilling activities (described in the Proposed Monitoring and Reporting section) will ensure that the entire shutdown zone is visible. Should environmental conditions deteriorate such that the entire shutdown zone would not be visible (*e.g.,* fog, heavy rain), pile driving and removal and drilling must be delayed until the PSO is confident marine mammals within the shutdown zone could be detected.

Monitoring for Level A and B Harassment—The Navy will monitor the Level B harassment zones (areas where SPLs are equal to or exceed the 160 dB rms threshold for impact pile driving, and the 120 dB rms threshold during drilling and vibratory pile driving and removal) and Level A harassment zones to the extent practicable, and all of the shutdown zones, during all pile driving, removal or drilling days. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones enable observers to be aware of and communicate the presence of marine mammals in the project area outside the shutdown zone and thus prepare for a potential cessation of activity should the animal enter the shutdown zone.

Pre-Activity Monitoring—Prior to the start of daily in-water construction activity, or whenever a break in pile driving/removal of 30 minutes or longer occurs, PSOs will observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone will be considered cleared when a marine mammal has not been observed within the zone for that 30-minute period. If a marine mammal is observed within the shutdown zones listed in Table 13, pile driving and drilling activity must be delayed or halted. If pile driving and/or drilling is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zones or 15 minutes have passed without re-detection of the animal. When a marine mammal for which Level B harassment take is authorized is present in the Level B harassment zone, activities may begin. If work ceases for more than 30 minutes, the pre-activity monitoring of the shutdown zones will commence. A determination that the shutdown zone is clear must be made during a period of

good visibility (*i.e.,* the entire shutdown zone and surrounding waters must be visible to the naked eye).

Soft Start—Soft-start procedures are used to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. For impact pile driving, contractors will be required to provide an initial set of three strikes from the hammer at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. Soft start will be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

TABLE 13—PROPOSED SHUTDOWN ZONES [1]

LOA year	Pile type, size, and driving method	Shutdown distance (m) for humpback whales	Shutdown distance (m) for harbor porpoise	Shutdown distance (m) for all other species	Level B (behavioral) harassment distance (m) all marine mammals
Year 2	Impact Install 42-inch steel pipe piles	1,490	500	200	1,000
	Vibratory Install 42-inch steel pipe piles	140	200	70	2,500
	Impact Install 28-inch steel sheet piles	1,790	500	200	2,500
	Vibratory Install 28-inch steel sheet piles	110	150	80	2,500
	Impact Install 13-inch polymeric piles	20	30	30	30
	Vibratory Install 13-inch polymeric piles	20	30	30	2,500
	Impact Install 24-inch precast concrete bearing piles	260	500	200	117
	Impact Install 18-inch precast concrete fender piles	10	10	10	30
	Pre-drilling	10	10	10	2,500
Year 3	Impact Install 24-inch precast concrete fender piles	40	50	30	120
	Impact Install 18-inch steel piles	700	500	200	30
	Impact Install 42-inch steel pipe piles	1,010	500	200	1,000
	Vibratory Install 42-inch steel pipe piles	90	120	50	2,500
	Impact Install 28-inch steel sheet piles	1,790	500	200	2,500
	Vibratory Install 28-inch steel sheet piles	110	150	70	2,500
	Vibratory Extract 18-inch precast concrete fender piles	40	60	30	2,500
	Pre-drilling	10	10	10	2,500
Year 4	Impact Install 24-inch precast concrete bearing piles	120	150	70	120
	Vibratory Extract 14-inch timber piles	70	110	50	2,500
	Impact Install 18-inch precast concrete fender piles	10	10	10	30
	Impact Install 42-inch steel pipe piles	1,010	500	200	1,000
	Vibratory Install 42-inch steel pipe piles	90	120	50	2,500
	Vibratory Extract 24-inch concrete fender piles	50	70	30	2,500
	Impact Install 28-inch steel sheet piles	1,790	500	200	2,500
	Vibratory Install 28-inch steel sheet piles	120	150	70	2,500
	Vibratory Extract 18-inch precast concrete fender piles	40	60	30	2,500
	Vibratory Extract 16- to 18-inch precast concrete bearing piles.	40	60	30	2,500
	Pre-drilling	10	10	10	2,500
Year 5	Vibratory Extract 16- to 18-inch precast concrete bearing piles.	40	60	30	2,500
	Impact Install 24-inch precast concrete bearing piles	120	150	70	120
	Impact Install 18-inch precast concrete fender piles	10	10	10	30
	Pre-drilling	10	10	10	2,500

[1] Calculated Level A harassment isopleths for concurrent pile driving were smaller than those calculated for individual impact pile driving, vibratory pile driving and removal, and drilling. Therefore, proposed shutdown zones conservatively reflect individual activity.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.,* presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.,* source characterization, propagation, ambient noise); (2) affected species (*e.g.,* life history, dive patterns); (3) co-occurrence of marine mammal species with the activity; or (4) biological or behavioral

context of exposure (*e.g.,* age, calving or feeding areas);

• Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;

• How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;

• Effects on marine mammal habitat (*e.g.,* marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and,

• Mitigation and monitoring effectiveness.

The Navy will submit a Marine Mammal Monitoring Plan to NMFS for approval in advance of the start of construction.

Visual Monitoring

• Marine mammal monitoring during pile driving and removal must be conducted by qualified, NMFS approved PSOs, in accordance with the following: PSOs must be independent of the activity contractor (for example, employed by a subcontractor) and have no other assigned tasks during monitoring periods;

• At least one PSO must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;

• Other PSOs may substitute other relevant experience, education (degree in biological science or related field), or training for prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;

• PSOs must be approved by NMFS prior to beginning any activity subject to this proposed rulemaking; and

• Where a team of three or more PSOs is required, a lead observer or monitoring coordinator must be designated. The lead observer must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.

PSOs must have the following additional qualifications:

• Ability to conduct field observations and collect data according to assigned protocols;

• Experience or training in the field identification of marine mammals, including the identification of behaviors;

• Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;

• Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and

• Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

The Navy must establish the following monitoring locations and visual monitoring of the entire shutdown zones must occur for all pile driving and drilling activities. For all pile driving activities, a minimum of one PSO must be assigned to the active pile driving or drilling location to monitor the shutdown zones and as much of the Level A and Level B harassment zones as possible. If the active project location includes demolition activities, then the next adjacent pier may be used as an appropriate monitoring location ensuring that the aforementioned criteria is met. Monitoring must be conducted by a minimum of three PSOs for any activity with an associated harassment isopleth over 1000 m. All other activities would require a minimum of two PSOs. For activities in Table 8, 9 and 10, with Level B harassment zones larger than 3000 m, at least one PSO must be stationed on either Pier 14 or the North Jetty to monitor the part of the zone exceeding the edge of the Norfolk Naval Station (see Figure 3). The third PSO for activities whose harassment isopleths exceed 1000 m would be located on Pier 1. PSOs will be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures (See Figure 3 for representative monitoring locations). If changes are necessary to ensure full coverage of the proposed shutdown zones, the Navy shall contact NMFS to alter observer locations (*e.g.,* vessel blocking view from pier locations). Additionally, the shutdown/monitoring zones may be modified with NMFS' approval following NMFS' acceptance of an acoustic monitoring report.

Monitoring will be conducted 30 minutes before, during, and 30 minutes after all in water construction activities. In addition, observers shall record all incidents of marine mammal occurrence, regardless of distance from activity, and shall document any behavioral reactions in concert with distance from drilling or piles being driven or removed. Pile driving activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

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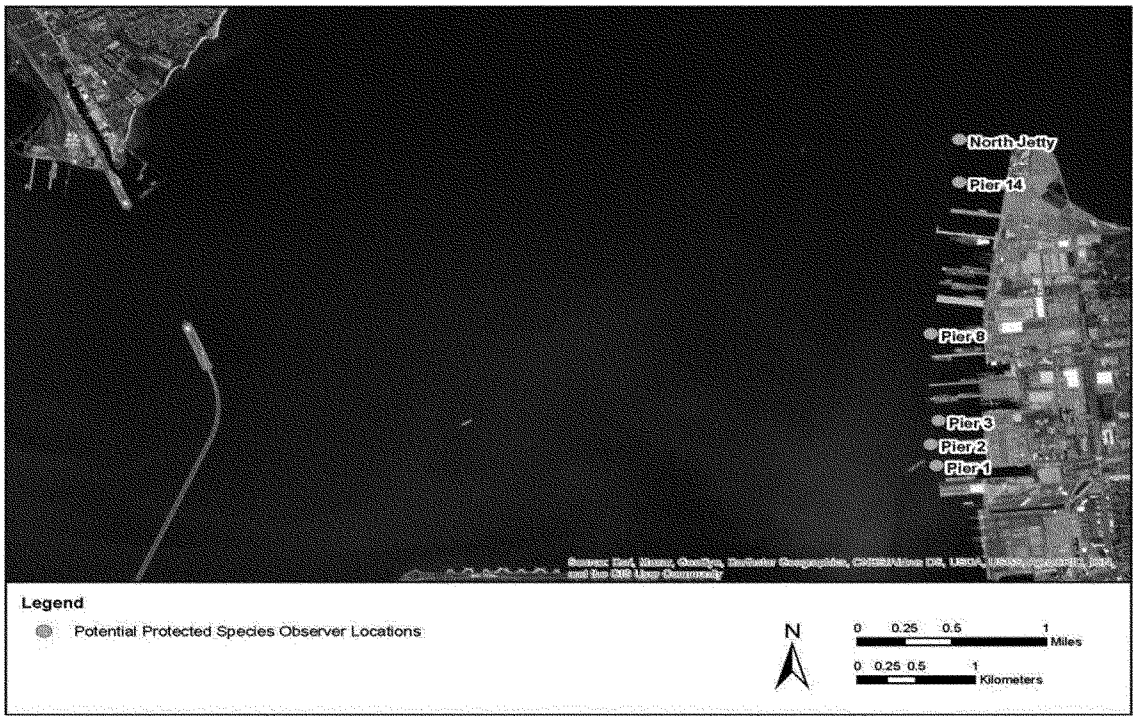

Figure 3. Proposed Protected Species Observer Locations at Naval Station Norfolk at Norfolk, Virginia

Acoustic Monitoring

The Navy plans to implement *in situ* acoustic monitoring efforts to measure SPLs from in-water construction activities for pile types and methods that have not been previously collected at NAVSTA Norfolk (Table 14). The Navy will collect and evaluate acoustic sound recording levels during pile driving activities. Hydrophones would be placed at locations 33 ft from the noise source and, where the potential for Level A (PTS onset) harassment exists, at a second representative monitoring location that is a distance of 20 times the depth of water at the pile location. For the pile driving events acoustically measured, 100 percent of the data will be analyzed. Please see the Navy's Marine Mammal Monitoring Plan and application for additional detail.

Table 14—Hydroacoustic Monitoring Summary

Pile Type[1]	*Count*[2]	*Method of Install/Removal*[2]	*Number Monitored*[2]
18-inch/24-inch concrete	614	Pre-Drilling	5
13-inch Polymeric	9	Vibratory	5
13-inch Polymeric	9	Impact	5
14-inch timber	624	Vibratory Extract	10
16-inch or 18-inch concrete	903	Vibratory Extract	10
18-inch steel pipe	18	Impact	5
18-inch concrete	93	Impact	10
18-inch concrete	62	Vibratory Extract	10
24-inch concrete	1,063	Impact	10
24-inch concrete	72	Vibratory Extract	10
42-inch steel pipe	179	Vibratory	10
42-inch steel pipe	179	Impact	10
28-inch steel sheet	376	Vibratory	10
28-inch steel sheet	376	Impact	10

[1] Data has previously been collected on the impact driving of 24-inch concrete piles and timber piles at NAVSTA Norfolk; therefore, no additional data collection is proposed for these pile types.

[2] Some piles may be either vibratory or pile driving, or a combination of both. Pre-drilling may not be utilized if site conditions do not require it. The hydroacoustic report at the end of construction will clarify which

installation method was utilized and monitored for each pile type.

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Environmental data shall be collected, including but not limited to, the following: Wind speed and direction, air temperature, humidity, surface water temperature, water depth, wave height, weather conditions, other factors that could contribute to influencing underwater sound levels (*e.g.,* aircrafts, boats, etc.).

Reporting

The Navy is required to submit an annual report on all activities and marine mammal monitoring results to NMFS within 90 days following the end of each construction year. Additionally, a draft comprehensive 5-year summary report must be submitted to NMFS within 90 days of the end of the project. The annual reports will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets. Specifically, the report must include:

- Dates and times (begin and end) of all marine mammal monitoring
- Construction activities occurring during each daily observation period, including: (a) how many and what type of piles were driven or removed and the method (*i.e.,* impact or vibratory); and (b) the total duration of time for each pile (vibratory driving) or hole (drilling) and number of strikes for each pile (impact driving);
- PSO locations during marine mammal monitoring; and
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance.

Upon observation of a marine mammal the following information must be reported:

- Name of PSO who sighted the animal(s) and PSO location and activity at the time of sighting;
- Time of sighting;
- Identification of the animal(s) (*e.g.,* genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
- Distance and location of each observed marine mammal relative to the pile being driven or hole being drilled for each sighting;
- Estimated number of animals (min/max/best estimate);
- Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.);
- Description of any marine mammal behavioral observations (*e.g.,* no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);
- Number of marine mammals detected within the harassment zones, by species; and
- Detailed information about implementation of any mitigation (*e.g.,* shutdowns and delays), a description of specified actions that ensured, and resulting changes in behavior of the animal(s), if any.

The acoustic monitoring report must contain the informational elements described in the Marine Mammal Monitoring Plan and, at minimum, must include:

- Hydrophone equipment and methods: Recording device, sampling rate, distance (m) from the pile where recordings were made; depth of water and recording device(s);
- Type and size of pile being driven, substrate type, method of driving during recordings (*e.g.,* hammer model and energy), and total pile driving duration;
- Whether a sound attenuation device is used and, if so, a detailed description of the device used and the duration of its use per pile;
- For impact pile driving and/or drilling (per pile): Number of strikes and strike rate; depth of substrate to penetrate; pulse duration and mean, median, and maximum sound levels (dB re: 1 μPa): Root mean square sound pressure level (SPL_{rms}); cumulative sound exposure level (SEL_{cum}), peak sound pressure level (SPL_{peak}), and single-strike sound exposure level (SEL_{s-s}); and
- For vibratory driving/removal and/or drilling (per pile): Duration of driving per pile; mean, median, and maximum sound levels (dB re: 1 μPa): Root mean square sound pressure level (SPL_{rms}), cumulative sound exposure level (SEL_{cum}) (and timeframe over which the sound is averaged).

If no comments are received from NMFS within 30 days, the draft reports will constitute the final reports. If comments are received, a final report addressing NMFS' comments must be submitted within 30 days after receipt of comments. All PSO datasheets and/or raw sighting data must be submitted with the draft marine mammal report.

Reporting of Injured or Dead Marine Mammals

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the Navy shall report the incident to NMFS Office of Protected Resources (OPR) (*PR.ITP.MonitoringReports@noaa.gov*), NMFS (301–427–8401) and to the Greater Atlantic Region New England/Mid-Atlantic Stranding Coordinator (866–755–6622) as soon as feasible. The report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

If the death or injury was clearly caused by the specified activity, the Navy must immediately cease the specified activities until NMFS OPR is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of this proposed rule. The Navy shall not resume their activities until notified by NMFS that they can continue.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.,* population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be ''taken'' through harassment, NMFS considers other factors, such as the likely nature of any impacts or responses (*e.g.,* intensity, duration), the context of any impacts or responses (*e.g.,* critical reproductive time or location, foraging impacts affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing

regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the baseline (*e.g.,* as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, this introductory discussion of our analysis applies to all the species listed in Table 3, given that many of the anticipated effects of this project on different marine mammal stocks are expected to be relatively similar in nature. Where there are meaningful differences between species or stocks, or groups of species, in anticipated individual responses to activities, impact of expected take on the population due to differences in population status, or impacts on habitat, they are described independently in the analysis below.

Construction activities associated with the project, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level A and Level B harassment from underwater sounds generated by pile driving activities, pile removal, and drilling. Potential takes could occur if marine mammals are present in zones ensonified above the thresholds for Level A and Level B harassment, identified above, while activities are underway.

The Level A harassment zones identified in Tables 6 and 7 are based upon an animal exposed to pile driving or drilling multiple piles per day. Considering the short duration to impact drive each pile and breaks between pile installations (to reset equipment and move pile into place), an animal would have to remain within the area estimated to be ensonified above the Level A harassment threshold for multiple hours. This is highly unlikely given marine mammal movement throughout the area, especially for small, fast moving species such as small cetaceans and pinnipeds. Additionally, no Level A harassment is anticipated for humpback whales due to the required mitigation measures, which we expect the Navy will be able to effectively implement given the majority of the Level A harassment zones are small (under 300 m except for a few activities where additional PSOs will be utilized to cover the entirety of the Level A harassment zone), and high visibility of humpback whales. If an animal was exposed to sufficient accumulated sound energy to incur PTS, the resulting PTS would likely be small (*e.g.,* PTS onset) at lower frequencies where pile driving energy is concentrated, and unlikely to result in impacts to individual fitness, reproduction, or survival.

The nature of activities included in the Navy's pile driving project precludes the likelihood of serious injury or mortality. For all species and stocks, take will occur within a limited, confined area (immediately surrounding NAVSTA Norfolk in the Chesapeake Bay area) of the stock's range. Level A and Level B harassment will be reduced to the level of least practicable adverse impact through use of mitigation measures described herein. Furthermore, the amount of take authorized is extremely small when compared to stock abundance for all species aside from bottlenose dolphins, however take authorized for bottlenose dolphins is still expected to be small relative to the stock abundance as described in the Small Numbers section.

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.,* Thorson and Reyff 2006). Individual animals, even if taken multiple times, will most likely move away from the sound source and be temporarily displaced from the areas of pile driving or drilling, although even this reaction has been observed primarily only in association with impact pile driving. The pile driving and drilling activities analyzed here are similar to, or less impactful than, numerous other construction activities conducted along both Atlantic and Pacific coasts, which have taken place with no known long-term adverse consequences from behavioral harassment. Furthermore, many projects similar to this one are also believed to result in multiple takes of individual animals without any documented long-term adverse effects. Level B harassment will be minimized through use of mitigation measures described herein and, if sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the area while the activity is occurring, particularly as the project is located on a busy waterfront with high amounts of vessel traffic.

UMEs have been declared for Northeast pinnipeds (including harbor seal and gray seal) and Atlantic humpback whale. However, we do not expect authorized takes to exacerbate or compound upon these ongoing UMEs. As noted previously, no injury, serious injury, or mortality is expected or authorized, and Level B harassment takes of humpback whale, harbor seal and gray seal will be reduced to the level of least practicable adverse impact through the incorporation of the mitigation measures. For the WNA stock of gray seal, the estimated stock abundance is 27,300 (424,300 including estimates in Canadian waters). Given that only 1–2 takes by Level B harassment are authorized for this stock annually, we do not expect this authorization to exacerbate or compound upon the ongoing UME.

For the WNA stock of harbor seals, the estimated abundance is 61,336 individuals. The estimated M/SI (339) is well below the PBR (1,729). As such, the Level B harassment takes of harbor seal are not expected to exacerbate or compound upon the ongoing UMEs.

With regard to humpback whales, the UME does not yet provide cause for concern regarding population-level impacts. Despite the UME, the relevant population of humpback whales (the West Indies breeding population, or distinct population segment (DPS)) remains healthy.

Prior to 2016, humpback whales were listed under the ESA as an endangered species worldwide. Following a 2015 global status review (Bettridge *et al.,* 2015), NMFS established 14 DPSs with different listing statuses (*81 FR 62259;* September 8, 2016) pursuant to the ESA. The West Indies DPS, which consists of the whales whose breeding range includes the Atlantic margin of the Antilles from Cuba to northern Venezuela, and whose feeding range primarily includes the Gulf of Maine, eastern Canada, and western Greenland, was delisted. The status review identified harmful algal blooms, vessel collisions, and fishing gear entanglements as relevant threats for this DPS, but noted that all other threats are considered likely to have no or minor impact on population size or the growth rate of this DPS (Bettridge *et al.,* 2015). As described in Bettridge *et al.* (2015), the West Indies DPS has a substantial population size (*i.e.,* 12,312 (95 percent CI 8,688–15,954) whales in 2004–2005 (Bettridge *et al.,* 2003)), and appears to be experiencing consistent growth. NMFS is proposing to authorize no more than eight takes by Level B harassment annually of humpback whale.

The project is also not expected to have significant adverse effects on affected marine mammals' habitats. The project activities will not modify existing marine mammal habitat for a significant amount of time. The

activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected (with no known particular importance to marine mammals), the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

In summary and as described above, the following factors primarily support our preliminary determination that the impacts resulting from this activity are not expected to adversely affect any of the species or stocks through effects on annual rates of recruitment or survival:

- No mortality is anticipated or authorized;
- Authorized Level A harassment would be very small amounts and of low degree;
- The intensity of anticipated takes by Level B harassment is relatively low for all stocks;
- The number of anticipated takes is very low for humpback whale, harbor porpoise, and gray seal;
- The specified activity and associated ensonified areas are very small relative to the overall habitat ranges of all species and do not include habitat areas of special significance;
- The lack of anticipated significant or long-term negative effects to marine habitat;
- The presumed efficacy of the mitigation measures in reducing the effects of the specified activity;
- Monitoring reports from similar work in the Chesapeake Bay have documented little to no effect on individuals of the same species impacted by similar activities.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted previously, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one-third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The maximum annual take of take NMFS proposes to authorize for the five marine mammal stocks is below one-third of the estimated stock abundance for all species except for the WNA southern coastal migratory stock and the WNA northern coastal migratory stock of bottlenose dolphins (see Table 12).

There are three bottlenose dolphin stocks that could occur in the project area. Therefore, largest estimated annual take by Level B harassment of 13,190 bottlenose dolphin would likely be split among the western WNA northern coastal migratory stock, the WNA southern coastal migratory stock, and the northern North Carolina Estuarine stock (NNCES). Based on the stocks' respective occurrence in the area, NMFS estimates that there would be no more than 200 takes from the NNCES stock, representing 24 percent of that population, with the remaining takes split evenly between the northern and southern coastal migratory stocks. Based on the consideration of various factors as described below, we have preliminarily determined that the number of individuals taken will comprise of less than one-third of the best available population abundance estimate of either coastal migratory stock. Detailed descriptions of the stocks' ranges have been provided in the Description of Marine Mammals in the Area of Specified Activities section.

Both the northern migratory coastal and southern migratory coastal stocks have expensive ranges and they are the only dolphin stocks thought to make broad scale, seasonal migrations in coastal waters of the western North Atlantic. Given the large ranges associated with these two stocks, it is unlikely that large segments of either stock would approach the project area and enter into the Chesapeake Bay. The majority of both stocks are likely to be found widely dispersed across their respective habitat ranges and unlikely to be concentrated in or near the Chesapeake Bay.

Furthermore, the Chesapeake Bay and nearby offshore waters represent the boundaries of the ranges of each of the two coastal stocks during migration. The northern migratory coastal stock is found during warm water months from coastal Virginia, including the Chesapeake Bay and Long Island, New York. The stock migrates south in late summer and fall. During cold water months, dolphins may be found in coastal waters from Cape Lookout, North Carolina, to the North Carolina/Virginia border. During January–March, the southern Migratory coastal stock appears to move as far south as northern Florida. From April–June, the stock moves back north to North Carolina. During the warm water months of July–August, the stock is presumed to occupy the coastal waters north of Cape Lookout, North Carolina, to Assateague, Virginia, including the Chesapeake Bay. There is likely some overlap between the northern southern migratory stocks during spring and fall migrations, but the extent of overlap is unknown.

The Chesapeake Bay and waters offshore of the mouth are located on the periphery of the migratory ranges of both coastal stocks (although during different seasons). Additionally, each of the migratory coastal stocks are likely to be located in the vicinity of the Bay for relatively short timeframes. Given the limited number of animals from each migratory coastal stock likely to be found at the seasonal migratory boundaries of their respective ranges, in combination with the short time periods (~2 months) animals might remain at these boundaries, it is reasonable to assume that takes are likely to occur only within some small portion of either of the migratory coastal stocks.

Many of the dolphin observations in the Bay are likely repeated sightings of the same individuals. The Potomac-Chesapeake Dolphin Project has observed over 1,200 unique animals since observations began in 2015. Re-sightings of the same individual can be highly variable. Some dolphins are observed once per year, while others are highly regular with greater than 10 sightings per year (Mann, Personal Communication). Similarly, using available photo-identification data, Engelhaupt *et al.* (2016) determined that specified individuals were often observed in close proximity to their original sighting locations and were observed multiple times in the same season or same year. Ninety-one percent of re-sighted individuals (100 of 110) in the study area were recorded less than 30 kilometers from the initial sighting location. Multiple sightings of the same individual would considerably reduce the number of individual animals that are taken by harassment. Furthermore, the existence of a resident dolphin

population in the Bay would increase the percentage of dolphin takes that are actually re-sightings of the same individuals.

In summary and as described above, the following factors primarily support our determination regarding the incidental take of small numbers of the affected stocks of a species or stock:

- The take of marine mammal stocks proposed for authorization comprises less than 3 percent of any stock abundance (with the exception of the three bottlenose dolphin stocks);
- Potential bottlenose dolphin takes in the project area are likely to be allocated among three distinct stocks;
- Bottlenose dolphin stocks in the project area have extensive ranges and it would be unlikely to find a high percentage of the individuals of any one stock concentrated in a relatively small area such as the project area or the Chesapeake Bay;
- The Chesapeake Bay represents the migratory boundary for each of the specified dolphin stocks and it would be unlikely to find a high percentage of any stock concentrated at such boundaries; and
- Many of the takes would likely be repeats of the same animals and likely from a resident population of the Chesapeake Bay.

Based on the analysis contained herein of the activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stock.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Adaptive Management

The regulations governing the take of marine mammals incidental to Navy construction activities would contain an adaptive management component. The reporting requirements associated with this proposed rule are designed to provide NMFS with monitoring data from completed projects to allow consideration of whether any changes are appropriate. The use of adaptive management allows NMFS to consider new information from different sources to determine (with input from the Navy regarding practicability) on an annual or biennial basis if mitigation or monitoring measures should be modified (including additions or deletions). Mitigation measures could be modified if new data suggests that such modifications would have a reasonable likelihood of reducing adverse effects to marine mammals and if the measures are practicable.

The following are some of the possible sources of applicable data to be considered through the adaptive management process: (1) Results from monitoring reports, as required by MMPA authorizations; (2) results from general marine mammal and sound research; and (3) any information which reveals that marine mammals may have been taken in a manner, extent, or number not authorized by these regulations or subsequent LOAs.

Endangered Species Act

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species.

No incidental take of ESA-listed species is proposed for authorization or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Request for Information

NMFS requests that interested persons submit comments, information, and suggestions concerning the Navy's request and the proposed regulations (see **ADDRESSES**). All comments will be reviewed and evaluated as we prepare a final rule and make final determinations on whether to issue the requested authorization. This proposed rule and supporting documents provide all environmental information relating to our proposed action for public review.

Classification

Pursuant to the procedures established to implement Executive Order 12866, the Office of Management and Budget has determined that this proposed rule is not significant.

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA), the Chief Counsel for Regulation of the Department of Commerce has certified to the Chief Counsel for Advocacy of the Small Business Administration that this proposed rule, if adopted, would not have significant economic impact on a substantial number of small entities. The U.S. Navy is the sole entity that would be subject to the requirements in these proposed regulations, and the Navy is not a small governmental jurisdiction, small organization, or small business, as defined by the RFA. Because of this certification, a regulatory flexibility analysis in not required and none has been prepared.

This proposed rule does not contain a collection-of-information requirement subject to the provisions of the Paperwork Reduction Act (PRA) because the applicant is a Federal agency.

List of Subjects in 50 CFR Part 217

Acoustics, Administrative practice and procedure, Construction, Endangered and threatened species, Marine mammals, Mitigation and Monitoring requirements, Reporting requirements, Wildlife.

Dated: March 2, 2023.

Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For reasons set forth in the preamble, NOAA proposes to amend 50 CFR part 217 as follows:

PART 217—REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

■ 1. The authority citation for part 217 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.,* unless otherwise noted.

■ 2. Revise subpart L to read as follows:

Subpart L—Taking and Importing Marine Mammals Incidental to Navy Construction of the Pier 3 Replacement Project at Naval Station Norfolk at Norfolk, Virginia

Sec.

217.110 Specified activity and geographical region.
217.111 Effective dates.
217.112 Permissible methods of taking.
217.113 Prohibitions.
217.114 Mitigation requirements.
217.115 Requirements for monitoring and reporting.
217.116 Letters of Authorization.
217.117 Renewals and modifications of Letters of Authorization.
217.118 [Reserved]
217.119 [Reserved]

§ 217.110 Specified activity and geographical region.

(a) Regulations in this subpart apply only to the U.S. Navy (Navy) and those persons it authorizes or funds to conduct activities on its behalf for the taking of marine mammals that occurs in the areas outlined in paragraph (b) of this section and that occurs incidental to construction activities related to the replacement of Pier 3 at Naval Station Norfolk at Norfolk, Virginia.

(b) The taking of marine mammals by the Navy may be authorized in a Letter of Authorization (LOA) only if it occurs at Naval Station Norfolk, Norfolk, Virginia.

§ 217.111 Effective dates.

Regulations in this subpart are effective for a period of five years from the date of issuance.

§ 217.112 Permissible methods of taking.

Under an LOA issued pursuant to §§ 216.106 of this chapter and 217.116, the Holder of the LOA (hereinafter ''Navy'') may incidentally, but not intentionally, take marine mammals within the area described in § 217.110(b) by harassment associated with construction activities related to replacement of Pier 3, provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the applicable LOA.

§ 217.113 Prohibitions.

(a) Except for the takings contemplated in § 217.112 and authorized by a LOA issued under §§ 216.106 of this chapter and 217.116, it is unlawful for any person to do any of the following in connection with the activities described in § 217.110:

(1) Violate, or fail to comply with, the terms, conditions, and requirements of this subpart or a LOA issued under §§ 216.106 of this chapter and 217.116;

(2) Take any marine mammal not specified in such LOA;

(3) Take any marine mammal specified in such LOA in any manner other than as specified;

(4) Take a marine mammal specified in such LOA after NMFS determines such taking results in more than a negligible impact on the species or stocks of such marine mammal; or

(5) Take a marine mammal specified in such LOA after NMFS determined such taking results in an unmitigable adverse impact on the species or stock of such marine mammal for taking for subsistence uses.

(b) [Reserved].

§ 217.114 Mitigation requirements.

(a) When conducting the activities identified in § 217.110(a), the mitigation measures contained in this subpart and any LOA issued under §§ 216.106 of this chapter and 217.116 must be implemented by the Navy. These mitigation measures include:

(1) A copy of any issued LOA must be in the possession of the Navy, supervisory construction personnel, lead protected species observers (PSOs), and any other relevant designees of the Navy operating under the authority of the LOA at all times that activities subject to the LOA are being conducted;

(2) The Navy must ensure that construction supervisors and crews, the monitoring team, and relevant Navy staff are trained prior to the start of activities subject to any issued LOA, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work;

(3) The Navy, construction supervisors and crews, and relevant Navy staff must avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 m of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions, as necessary to avoid direct physical interaction;

(4) The Navy must employ PSOs and establish monitoring locations as described in the NMFS-approved Marine Mammal Monitoring Plan. The Navy must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions;

(5) For all pile driving and drilling activity, the Navy shall implement shutdown zones with radial distances as identified in a LOA issued under § 217.116. If a marine mammal is observed entering or within the shutdown zone, such operations must be delayed or halted.

(6) Monitoring must take place from 30 minutes prior to initiation of pile driving or drilling activity (*i.e.,* pre-start clearance monitoring) through 30 minutes post-completion of pile driving or drilling activity.

(7) Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones are clear of marine mammals. Pile driving and drilling may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals

(8) If pile driving and/or drilling is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal.

(9) Pile driving activity must be halted upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or within the harassment zone.

(10) The Navy must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

(b) [Reserved]

§ 217.115 Requirements for monitoring and reporting.

(a) The Navy shall submit a Marine Mammal Monitoring Plan to NMFS for approval in advance of construction. Marine mammal monitoring must be conducted in accordance with the conditions in this section and the NMFS-approved Marine Mammal Monitoring Plan.

(b) Monitoring must be conducted by qualified, NMFS-approved PSOs, in accordance with the following conditions:

(1) PSOs must be independent of the activity contractor (for example, employed by a subcontractor) and have no other assigned tasks during monitoring periods;

(2) At least one PSO must have prior experience performing the duties of an observer during construction activity pursuant to a NMFS-issued incidental take authorization;

(3) Other observers may substitute other relevant experience, education (degree in biological science or related field), or training for prior experience performing the duties of an observer during construction activity pursuant to a NMFS-issued incidental take authorization;

(4) One observer must be designated as lead observer or monitoring coordinator. The lead observer must have prior experience performing the

duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;

(5) Observers must be approved by NMFS prior to beginning any activity subject to any issued LOA;

(6) For all pile driving activities, a minimum of two observers shall be stationed at the best vantage points practicable to monitor for marine mammals and implement shutdown/delay procedures;

(7) For all pile driving activities, a minimum of two observers shall be stationed at the active pile driving site, docks, or piers to monitor the harassment and shutdown zones, and as described in the Marine Mammal Monitoring Plan. For shutdown zones exceeding 1000 meters, a minimum of three observers shall be stationed appropriately, as described in the Marine Mammal Monitoring Plan, to monitor the entire shutdown zone.

(8) The Navy shall monitor the harassment zones to the extent practicable and the entire shutdown zones. The Navy shall monitor at least a portion of the Level B harassment zone on all pile driving days.

(9) The Navy shall conduct hydroacoustic data collection in accordance with a Marine Mammal Monitoring Plan that must be approved by NMFS in advance of construction.

(10) The shutdown/monitoring zones may be modified with NMFS' approval following NMFS' acceptance of an acoustic monitoring report.

(11) The Navy must submit a draft monitoring report to NMFS within 90 calendar days of the completion of each construction year. A draft comprehensive 5-year summary report must also be submitted to NMFS within 90 days of the end of the project. The reports must detail the monitoring protocol and summarize the data recorded during monitoring. Final annual reports and the final comprehensive report must be prepared and submitted within 30 days following resolution of any NMFS comments on the draft report. If no comments are received from NMFS within 30 days of receipt of the draft report, the report must be considered final. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments. The reports must at minimum contain the informational elements described below (as well as any additional information described in the Marine Mammal Monitoring Plan), including:

(i) Dates and times (begin and end) of all marine mammal monitoring;

(ii) Construction activities occurring during each daily observation period, including the number and type of piles that were driven or removed and by what method (*i.e.,* impact, vibratory or drilling), total duration of driving time for each pile (vibratory and drilling) and number of strikes for each pile (impact);

(iii) PSO locations during marine mammal monitoring;

(iv) Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;

(v) Upon observation of a marine mammal, the follow information:

(A) Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting;

(B) Time of sighting;

(C) Identification of the animal(s) (*e.g.,* genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;

(D) Distance and location of each observed marine mammal relative to the pile being driven for each sighting;

(E) Estimated number of animals (min/max/best estimate);

(F) Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.);

(G) Animal's closest point of approach and estimated time spent within the harassment zone;

(vi) Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted form the activity (*e.g.,* no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);

(vii) Number of marine mammals detected within the harassment zones, by species; and

(viii) Detailed information about implementation of any mitigation (*e.g.,* shutdown and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.

(12) The Holder must submit all PSO datasheets and/or raw sighting data within the draft report.

(13) All draft and final monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *ITP.corcoran@noaa.gov.*

(14) The Navy must report hydroacoustic data collected as required by a LOA issued under §§ 216.106 of this chapter and 217.116 and as discussed in the Navy's Marine Mammal Monitoring Plan approved by NMFS.

(15) In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the Navy shall report the incident to the Office of Protected Resources (OPR), NMFS and to the Greater Atlantic Region New England/Mid-Atlantic Regional Stranding Coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, the Navy must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the authorization. The Navy must not resume their activities until notified by NMFS. The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);

(ii) Species identification (if known) or description of the animal(s) involved;

(iii) Condition of the animal(s) (including carcass condition if the animal is dead);

(iv) Observed behaviors of the animal(s), if alive;

(v) If available, photographs or video footage of the animal(s); and

(vi) General circumstances under which the animal was discovered.

§ 217.116 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, the Navy must apply for and obtain an LOA.

(b) An LOA, unless suspended or revoked, may be effective for a period of time not to exceed the expiration date of these regulations.

(c) If an LOA expires prior to the expiration date of these regulations, the Navy may apply for and obtain a renewal of the LOA.

(d) In the event of projected changes to the activity or to mitigation and monitoring measures required by an LOA, the Navy must apply for and obtain a modification of the LOA as described in § 217.116.

(e) The LOA must set forth the following information:

(1) Permissible methods of incidental taking;

(2) Means of effecting the least practicable adverse impact (*i.e.,* mitigation) on the species, its habitat, and on the availability of the species for subsistence uses; and

(3) Requirements for monitoring and reporting.

(f) Issuance of the LOA must be based on a determination that the level of taking must be consistent with the findings made for the total taking allowable under these regulations.

(g) Notice of issuance or denial of an LOA must be published in the **Federal Register** within 30 days of a determination.

§ 217.117 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under §§ 216.106 of this chapter and 217.116 for the activity identified in § 217.110(a) may be renewed or modified upon request by the applicant, provided that:

(1) The proposed specified activity and mitigation, monitoring, and reporting measures, as well as the anticipated impacts, are the same as those described and analyzed for these regulations; and

(2) NMFS determines that the mitigation, monitoring, and reporting measures required by the previous LOA under these regulations were implemented.

(b) For LOA modification or renewal requests by the applicant that include changes to the activity or the mitigation, monitoring, or reporting that do not change the findings made for the regulations or result in no more than a minor change in the total estimated number of takes (or distribution by species or years), NMFS may publish a notice of proposed LOA in the **Federal Register**, including the associated analysis of the change, and solicit public comment before issuing the LOA.

(c) A LOA issued under §§ 216.106 of this chapter and 217.116 for the activity identified in § 217.110(a) may be modified by NMFS under the following circumstances:

(1) NMFS may modify (including augment) the existing mitigation, monitoring, or reporting measures (after consulting with Navy regarding the practicability of the modifications) if doing so creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring set forth in the preamble for these regulations;

(i) Possible sources of data that could contribute to the decision to modify the mitigation, monitoring, or reporting measures in a LOA:

(A) Results from Navy's monitoring from previous years;

(B) Results from other marine mammal and/or sound research or studies; and

(C) Any information that reveals marine mammals may have been taken in a manner, extent or number not authorized by these regulations or subsequent LOAs; and

(ii) If, through adaptive management, the modifications to the mitigation, monitoring, or reporting measures are substantial, NMFS must publish a notice of proposed LOA in the **Federal Register** and solicit public comment;

(2) If NMFS determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in a LOA issued pursuant to §§ 216.106 of this chapter and 217.116, a LOA may be modified without prior notice or opportunity for public comment. Notification would be published in the **Federal Register** within 30 days of the action.

§§ 217.118–217.119 [Reserved]

[FR Doc. 2023–04613 Filed 3–8–23; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 648

[Docket No. 230303–0063]

RTID 0648–XC715

Fisheries of the Northeastern United States; Atlantic Spiny Dogfish Fishery; 2023 Specifications

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

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS proposes specifications for the 2023 Atlantic spiny dogfish fishery, as recommended by the Mid-Atlantic and New England Fishery Management Councils. This action is necessary to establish allowable harvest levels for the spiny dogfish fishery to prevent overfishing while enabling optimum yield, using the best scientific information available. This rule also informs the public of the proposed fishery specifications and provides an opportunity for comment.

DATES: Comments must be received by March 24, 2023.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2023–0014, by the following method:

Electronic Submission: Submit all electronic public comments via the Federal e-Rulemaking Portal.

1. Go to *https://www.regulations.gov,* and enter ''NOAA–NMFS–2023–0014'' in the Search box;

2. Click the ''Comment'' icon, complete the required fields; and

3. Enter or attach your comments.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter''N/A'' in the required fields if you wish to remain anonymous). If you are unable to submit your comment through *www.regulations.gov,* contact Cynthia Ferrio, Fishery Policy Analyst, *Cynthia.Ferrio@noaa.gov.*

A draft environmental assessment (EA) has been prepared for this action that describes the proposed measures and other considered alternatives, as well as provides an analysis of the impacts of the proposed measures and alternatives. Copies of the specifications document, including the EA, are available on request from Dr. Christopher M. Moore, Executive Director, Mid-Atlantic Fishery Management Council, Suite 201, 800 North State Street, Dover, DE 19901. These documents are also accessible via the internet at *https://www.mafmc.org/action-archive.*

FOR FURTHER INFORMATION CONTACT: Cynthia Ferrio, Fishery Policy Analyst, (978) 281–9180.

SUPPLEMENTARY INFORMATION:

Background

The Mid-Atlantic and New England Fishery Management Councils jointly manage the Atlantic Spiny Dogfish Fishery Management Plan (FMP), with the Mid-Atlantic Council acting as the administrative lead. Additionally, the Atlantic States Marine Fisheries Commission manages the spiny dogfish fishery in state waters from Maine to North Carolina through an interstate fishery management plan. The Federal FMP requires the specification of an acceptable biological catch (ABC), annual catch limit (ACL), annual catch target (ACT), total allowable landings (TAL), and a coastwide commercial quota. These limits and other related management measures may be set for up to five fishing years at a time, with each