DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 217

[Docket No. 230321–0081]

RIN 0648–BL78

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to U.S. Navy Construction at Portsmouth Naval Shipyard, Kittery, Maine

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

ACTION: Final rule; notification of issuance of Letter of Authorization.

SUMMARY: NMFS, upon request from the U.S. Navy (Navy), hereby issues regulations to govern the unintentional taking of marine mammals incidental to construction at the Portsmouth Naval Shipyard in Kittery, Maine, over the course of 5 years (2023–2028). These regulations, which allow for the issuance of a Letter of Authorization (LOA) for the incidental take of marine mammals during the described activities and specified timeframes, prescribe the permissible methods of taking and other means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, as well as requirements pertaining to the monitoring and reporting of such taking.

DATES: Effective from April 1, 2023, through March 31, 2028.

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-construction-portsmouth-naval-shipyard-kittery-maine-0.* In case of problems accessing these documents, please call the contact listed below.

FOR FURTHER INFORMATION CONTACT: Reny Tyson Moore, Office of Protected Resources, NMFS, *ITP.tyson.moore@noaa.gov,* (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Purpose and Need for Regulatory Action

We received an application from the Navy requesting 5-year regulations and authorization to take multiple species of marine mammals. This rule establishes a framework under the authority of the MMPA (16 U.S.C. 1361 *et seq.*) to allow for the authorization of take by Level A and Level B harassment of marine mammals incidental to the Navy's construction activities related to the multifunctional expansion and modification of Dry Dock 1 at the Portsmouth Naval Shipyard in Kittery, Maine. Please see the Background section below for definitions of harassment.

Legal Authority for the 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 5 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 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 rule containing 5 year regulations, and for any subsequent Letters of Authorization (LOAs). As directed by this legal authority, this rule contains mitigation, monitoring, and reporting requirements.

Summary of Major Provisions Within the Regulations

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

- Required monitoring of the in-water construction areas to detect the presence of marine mammals before beginning in-water construction activities;
- Shutdown of in-water 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; and
- Implementation of a bubble curtain during rock hammering and down-the-hole (DTH) cluster drilling to reduce underwater noise impacts.

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 incidental take authorization 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.

Summary of Request

On May 9, 2022, NMFS received a request from the Navy for authorization to take marine mammals incidental to construction activities related to the multifunctional expansion and modification of Dry Dock 1 at Portsmouth Naval Shipyard in Kittery, Maine. We provided comments on the application, and the Navy submitted revised versions and responses to our comments on July 5, 2022, August 15, 2022, August 19, 2022, and August 25, 2022, with the latter version deemed adequate and complete. On September 1, 2022, we published a notice of receipt of the Navy's application in the **Federal Register** (87 FR 53731), requesting comments and information related to the request. During the 30-day comment period, we received two supportive letters from private citizens.

On October 19 and 25, 2022, NMFS was notified by the Navy of project modifications and shifting Fleet submarine schedules that required the resequencing of certain activities associated with the construction at Dry Dock 1 in order to accommodate the modifications and meet the new vessel docking demands. On October 31, 2022, the Navy submitted an addendum to its

application describing these changes. We published a notice of the proposed rulemaking in the **Federal Register** on January 18, 2023 (88 FR 3146) incorporating these changes and requested comments and information from the public. Please see Comments and Responses below. The regulations are valid for 5 years, from April 1, 2023 through March 31, 2028, and authorize the Navy to take five species of marine mammals by Level A and Level B harassment incidental to construction activities related to the multifunctional expansion and modification of Dry Dock 1 at the Portsmouth Naval Shipyard in Kittery, Maine. Neither the Navy nor NMFS expect serious injury or mortality to result from this activity.

NMFS previously issued five IHAs to the Navy for waterfront improvement work at the Portsmouth Naval Shipyard: in 2016 (81 FR 85525, November 28, 2016), 2018 (83 FR 3318, January 24, 2018), 2019 (84 FR 24476, May 28, 2019), a renewal of the 2019 IHA (86 FR 14598, March 17, 2021), and in 2022 (87 FR 19886, April 6, 2022). The most recent IHA (87 FR 19886) provided authorization to take marine mammals during the first year of the construction project described in this final rule. As required, the applicant provided monitoring reports (available at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities*) which confirm that the applicant has implemented the required mitigation and monitoring, and which also shows that no impacts of a scale or nature not previously analyzed or authorized have occurred as a result of the activities conducted.

Description of the Specified Activity

Overview

Multifunctional Expansion of Dry Dock 1 (P–381) is one of three projects that support the overall expansion and modification of Dry Dock 1, located in the western extent of the Portsmouth Naval Shipyard. The two additional projects, construction of a super flood basin (P–310) and extension of portal crane rail and utilities (P–1074), are currently under construction. In-water work associated with these projects was completed under the aforementioned separate IHAs issued by NMFS. The projects have been phased to support Navy mission schedules. P–381 will be constructed within the same footprint of the super flood basin over an approximate 7-year period, during which 5 years of in-water work will occur. An IHA was issued by NMFS for the first year of P–381 construction activities between April 1, 2022 and March 31, 2023 (87 FR 19866, April 6, 2022). This request is associated with the remaining 4 years of P–381 in-water construction activities planned to occur from April 1, 2023 through March 31, 2028, as well as for additional in-water construction activities associated with the removal of emergency repair components of the super flood basin that will occur during the period of effectiveness for the regulations. Although the in-water construction described in this rule is anticipated to be completed by December 2026, unanticipated schedule delays could result in the Navy conducting construction activity over the full 5 years.

The purpose of the Navy's project (P–381) is to modify the super flood basin to create two additional dry docking positions (Dry Dock 1 North and Dry Dock 1 West) in front of the existing Dry Dock 1 East. The Navy's specified activity also includes emergency repairs of the P–310 super flood basin. Construction activities will include the excavation and/or installation of 1,118 holes, 198 shafts, and 580 sheet piles via impact and vibratory pile driving, hydraulic rock hammering, rotary drilling, and mono and cluster DTH. The construction activities are expected to require approximately 2,498 days if the activities are considered independently over the 5-year period. However, the actual construction duration is expected to be within 4 years as many of the construction activities will occur concurrently.

Dates and Duration

The in-water construction activities associated with this rule are anticipated to begin in April 2023 and proceed to December 2026 (4 years); however, the incidental take authorization is valid for 5 years in the event of unexpected scheduled delays. In-water construction activities will occur consecutively over a 4-year period. The Navy plans to conduct all in-water work activities with expected potential for incidental harassment of marine mammals during daylight hours.

Table 1 provides the estimated schedule and production rates for P–381 construction activities. Many of the activities included in Table 1 will span across multiple construction years and/or will occur concurrently. Because of mission requirements and operational schedules at the dry docking positions and berths, this schedule is subject to change. In-water construction activities for P–381 will occur consecutively over a 4-year period. Note, for the purposes of this analysis, the construction years are identified as years 2 through 5; Year 1 of the Navy's construction activities is currently ongoing in association with a previously issued IHA (87 FR 19886, April 6, 2022). Vibratory pile driving and extraction is assumed to occur for 141 days. Impact pile driving will occur for 34 days. DTH excavation (mono-hammer and cluster drill) will occur for 1,446 days. Rotary drilling will occur for 238 days (assuming that casings and sockets for cluster drills will be set, excavated, and removed in a single day). Rock hammering will occur for 277 days. Note that pile driving days are not necessarily consecutive, and certain activities may occur at the same time, decreasing the total number of actual in-water construction days. The contractor could be working in more than one area of the berths at a time.

TABLE 1—IN-WATER CONSTRUCTION ACTIVITIES

Activity ID	Activity	Total amount and estimated dates (construction years *)	Activity component	Method	Daily production rate	Total production days
A1 [1]	Center Wall—Install Foundation Support Piles.	Drill 18 shafts Apr 23 [3] to Aug 23 (2).	Install 102-inch diameter outer casing.	Rotary drill	1 shaft/day 1 hour/day	[4] 18
A2 [1]			Pre-drill 102-inch diameter socket.	Rotary drill	1 shaft/day 9 hours/day	[4] 18
A3 [1]			Remove 102-inch outer casing.	Rotary drill	1 casing/day 15 minutes/casing.	[4] 18
A4 [1]			Drill 78-inch diameter shaft.	Cluster drill DTH	6.5 days/shaft 10 hours/day.	[4] 117
R [1]	Dry Dock 1 North Entrance—Install Temporary Cofferdam.	Install 48 sheet piles Apr 23 [3] to May 23 (2).	28-inch wide Z-shaped sheets.	Impact with initial vibratory set.	8 sheets/day 5 minutes and 300 blows/pile.	[4] 6

TABLE 1—IN-WATER CONSTRUCTION ACTIVITIES—Continued

Activity ID	Activity	Total amount and estimated dates (construction years *)	Activity component	Method	Daily production rate	Total production days
1	Berth 11—Remove Shutter Panels.	Remove 112 panels Apr 23 [3] to May 23 (2).	Concrete shutter panels	Hydraulic rock hammering.	5 hours/day	[4] 56
2	Berth 1—Remove Sheet Piles.	Remove 168 sheet piles Apr 23 [3] to Jun 24 (2, 3).	25-inch-wide Z-shaped	Vibratory extraction	4 piles/day	[4] 42
3	Berth 1—Remove Granite Block Quay Wall.	2,800 cubic yards (cy) Apr 23 [3] to Jun 24 (2, 3).	Removal of granite blocks.	Hydraulic rock hammering.	2.5 hours/day	[4] 47
4	Berth 1—Top of Wall Removal for Waler Installation.	320 linear feet (lf) Apr 23 [3] to Jun 24 (2, 3).	Mechanical concrete removal.	Hydraulic rock hammering.	10 hours/day	[4] 74
5	Berth 1—Install southeast corner Support of Excavation (SOE).	Install 28 sheet piles Apr 23 to Jul 23 (2).	28-inch-wide Z-shaped	Impact with initial vibratory set.	4 piles/day 5 minutes/pile and 300 blows/pile.	[4] 8
6	Berth 11—Mechanical Rock Removal at Basin Floor.	700 cy Apr 23 [3] to Aug 23 (2).	Excavate Bedrock	Hydraulic rock hammering.	12 hours/day	[3 4] 60
7	Berth 11 Face—Mechanical Rock Removal at Basin Floor.	Drill 924 relief holes Apr 23 [3] to Aug 23 (2).	4–6 inch diameter holes	DTH mono-hammer	27 holes/day 22 min/hole.	[4] 35
8	Install Temporary Cofferdam Extension.	Install 14 sheet piles Apr 23 to Jun 23 (2).	28-inch-wide Z-shaped	Impact with initial vibratory set.	4 piles/day 5 minutes/pile and 300 blows/pile.	4
9a	Gantry Crane Support Piles at Berth 1 West.	Drill 16 shafts Apr 23 to Aug 23 (2).	Set 102-inch diameter casing.	Rotary drill	1 shaft/day 1 hours/day	16
9b			Pre-drill 102-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	16
9c			Remove 102-inch casing.	Rotary drill	1 casing/day 15 minutes/casing.	16
9d			72-inch diameter shafts	Cluster drill DTH	5 days/shaft 10 hours/day.	80
10 [2]	Berth 1—Mechanical Rock Removal at Basin Floor.	300 cy Apr 23 [3] to Sep 23 (2).	Excavate Bedrock	Hydraulic rock hammering.	13 cy/day 12 hours/day	[5] 25
11	Dry Dock 1 North Entrance—Drill Tremie Tie Downs.	Drill 50 rock anchors Apr 23 [3] to Oct 23 (2).	9-inch diameter holes	DTH mono-hammer	2 holes/day 5 hours/hole.	[4] 25
12	Center Wall—Install Tie-In to Existing West Closure Wall.	Install 15 sheet piles Apr 23 to Dec 23 (2).	28-inch wide Z-shaped	Impact with initial vibratory set.	4 piles/day 5 minutes/pile and 300 blows/pile.	4
13a	Dry Dock 1 North—Temporary Work Trestle Piles.	Drill 20 shafts May 23 to Nov 24 (2, 3).	Set 102-inch diameter casing.	Rotary drill	1 shaft/day 1 hours/day	20
13b			Pre-drill 102-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	20
13c			Remove 102-inch casing.	Rotary drill	1 casing/day 15 minutes/casing.	20
13d			84-inch diameter shafts	Cluster drill DTH	3.5 days/shaft 10 hours/day.	70
14	Dry Dock 1 North—Remove Temporary Work Trestle Piles.	Remove 20 piles May 23 to Nov 24 (2, 3).	84-inch diameter drill piles.	Rotary drill	1 day/pile 15 minutes/pile.	20
15a	Dry Dock 1 North—Install Leveling Piles (Diving Board Shafts).	Drill 18 shafts May 23 to Nov 24 (2, 3).	Set 84-inch casing	Rotary drill	1 shaft/day 1 hours/day	18
15b			Pre-drill 84-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	18
15c			Remove 84-inch casing	Rotary drill	1 casing/day 15 minutes/casing.	18
15d			78-inch diameter shaft	Cluster drill DTH	7.5 days/shaft 10 hours/day.	135
16a	Wall Support Shafts for Dry Dock 1 North (Berth 11 Face and Head Wall).	Drill 20 shafts Jun 23 to Nov 24 (2, 3).	Set 102-inch diameter casing.	Rotary drill	1 shaft/day 1 hours/day	20
16b			Pre-drill 102-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	20
16c			Remove 102-inch casing.	Rotary drill	1 casing/day 15 minutes/casing.	20
16d			Drill 78-inch diameter shaft.	Cluster drill DTH	7.5 days/shaft 10 hours/day.	150
17a	Foundation (Floor) Shafts for Dry Dock 1 North (Foundation Support Piles).	Drill 23 shafts Jun 23 to Nov 24 (Const. years 2, 3).	Set 126-inch diameter Casing.	Rotary drill	1 shaft/day 1 hours/day	23
17b			Pre-drill 126-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	23
17c			Remove 126-inch casing.	Rotary drill	1 casing/day 60 minutes/casing.	23
17d			Drill 108-inch diameter shafts.	Cluster drill DTH	8.5 days/shaft 10 hours/day.	196
18	Berth 11 End Wall—Remove Temporary Guide Wall.	Remove 60 sheet piles Jul 23 to Aug 23 (2, 3).	28-inch wide Z-shaped	Vibratory extraction	8 piles/day 5 minutes/pile.	[5] 10
19	Remove Berth 1 southeast corner SOE.	Remove 28 sheet piles Jul 23 to Sep 23 (2).	28-inch-wide Z-shaped	Vibratory extraction	8 piles/day 5 minutes/pile.	[4] 5

TABLE 1—IN-WATER CONSTRUCTION ACTIVITIES—Continued

Activity ID	Activity	Total amount and estimated dates (construction years *)	Activity component	Method	Daily production rate	Total production days
20[2]	Removal of Berth 1 Emergency Repair Sheet Piles.	Remove 108 sheet piles Apr 23[3] to Jul 23 (2).	28-inch-wide Z-shaped	Vibratory extraction	6 piles/day 5 minutes/pile.	18
21[2]	Removal of Berth 1 Emergency Repair Tremie Concrete.	500 cy Apr 23[3] to Aug 23 (2).	Mechanical concrete removal.	Hydraulic rock hammering.	4 hours/day	15
22	Center Wall Foundation—Drill in Monolith Tie Downs.	Install 72 rock anchors Aug 23 to May 24 (2, 3).	9-inch diameter holes	DTH mono-hammer	2 holes/day 5 hours/hole.	36
23	Center Wall—Remove Tie-In to Existing West Closure Wall (Dry Dock 1 North)[4].	Remove 16 sheet piles[6] Aug 23 to Aug 24 (2, 3).	28-inch-wide Z-shaped	Vibratory extraction	8 piles/day 5 minutes/pile.	[5]3
24	Center Wall East—Sheet Pile Tie-In to Existing Wall.	Install 23 sheet piles Aug 23 to Oct 24 (2, 3).	28-inch wide Z-shaped	Impact with initial vibratory set.	2 piles/day 5 minutes/pile and 300 blows/pile.	12
25	Remove Tie-In to West Closure Wall (Dry Dock 1 West).	Remove 15 sheet pile Dec 23 to Dec 24 (2, 3).	28-inch wide Z-shaped	Vibratory extraction	8 piles/day 5 minutes/pile.	[5]3
26	Remove Center Wall East—Sheet Pile Tie-In to Existing Wall (Dry Dock 1 West).	Remove 23 sheet piles Dec 23 to Dec 24 (2, 3).	28-inch wide Z-shaped	Vibratory extraction	8 piles/day 5 minutes/pile.	[5]12
27	Dry Dock 1 North Entrance—Remove Temporary Cofferdam.	Remove 96 sheet piles Jan 24 to Sep 24 (Const. years 2, 3).	28-inch wide Z-shaped	Vibratory extraction	8 piles/day 5 minutes/pile.	12
28	Remove Temporary Cofferdam Extension.	Remove 14 sheet piles Jan 24 to Sep 24 (2, 3).	28-inch wide Z-shaped	Vibratory extraction	8 piles/day 5 minutes/pile.	2
29a	Dry Dock 1 West—Install Temporary Work Trestle Piles.	Drill 20 shafts Apr 24 to Feb 26 (3, 4).	Set 102-inch diameter casing.	Rotary drill	1 shaft/day 1 hours/day	20
29b			Pre-drill 102-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	20
29c			Remove 102-inch casing.	Rotary drill	1 casing/day 15 minutes/casing.	20
29d			84-inch diameter shafts	Cluster drill DTH	3.5 days/shaft 10 hours/day.	70
30	Dry Dock 1 West—Remove Temporary Work Trestle Piles.	Remove 20 piles Apr 24 to Feb 26 (3, 4).	84-inch diameter piles	Rotary drill	1 day/pile 15 minutes/pile.	20
31a	Wall Support Shafts for Dry Dock 1 West (Berth 1 Face).	Drill 22 shafts Jun 24 to Feb 26 (3, 4).	Set 102-inch diameter casing.	Rotary drill	1 shaft/day 1 hours/day	22
31b			Pre-drill 102-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	22
31c			Remove 102-inch casing.	Rotary drill	1 casing/day 15 minutes/casing.	22
31d			78-inch diameter shaft	Cluster drill DTH	7.5 days/shaft 10 hours/day.	165
32a	Foundation (Floor) Shafts for Dry Dock 1 West (Foundation Support Piles).	Drill 23 shafts Jun 24 to Feb 26 (3, 4).	Set 126-inch casing	Rotary drill	1 shaft/day 1 hours/day	23
32b			Pre-drill 126-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	23
32c			Remove 126-inch casing.	Rotary drill	1 casing/day 15 minutes/casing.	23
32d			Drill 108-inch diameter shaft.	Cluster drill DTH	8.5 days/shaft 10 hours/day.	196
33a	Dry Dock 1 West—Install Leveling Piles (Diving Board Shafts).	Drill 18 shafts Jun 24 to Feb 26 (3, 4).	Set 84-inch casing	Rotary Drill	1 shaft/day 1 hours/day	18
33b			Pre-drill 84-inch rock socket.	Rotary drill	1 shaft/day 9 hours/day	18
33c			Remove 84-inch casing	Rotary drill	1 casing/day 15 minutes/casing.	18
33d			Drill 78-inch diameter shaft.	Cluster drill DTH	7.5 days/shaft 10 hours/day.	135
34	Dry Dock 1 North—Tie Downs.	Install 36 rock anchors Jul 24 to Jul 25 (3, 4).	9-inch diameter holes	DTH mono-hammer	2 holes/day 5 hours/hole.	18
35	Dry Dock 1 West—Install Tie Downs.	Install 36 rock anchors Dec 25 to Dec 26 (4, 5).	9-inch diameter hole	DTH mono-hammer	2 holes/day 5 hours/hole.	18
Total excavated holes/drilled shafts/sheet piles.		1,118/198/580				2,498

* **Note:** for the purposes of this analysis, the construction years are identified as years 2 through 5; potential marine mammal takes incidental to Year 1 of the Navy's construction activities were authorized under a previously issued IHA (87 FR 19886, April 6, 2022).

[1] These activities were not included in the original application made available for public review during the Notice of Receipt comment period (NOR; 87 FR 53731), but have been added due to changes needed in the construction schedule.

[2] These activities were included in the original application, but the amount of activity has been modified due to changes needed in the construction schedule.

[3] These activities began in construction year 1.

[4] These activities began in year 1. Only the number of production days occurring in construction years 2 through 6 are presented.

[5] Additional production days are included to account for equipment repositioning.

[6] Sheet piles were installed in construction year 1.

Specific Geographic Region

The shipyard is located in the Piscataqua River in Kittery, Maine. The Piscataqua River originates at the boundary of Dover, New Hampshire, and Eliot, Maine (Figure 1). The river flows in a southeasterly direction for 2,093 meters (m) (13 miles (mi)) before entering Portsmouth Harbor and emptying into the Atlantic Ocean. The lower Piscataqua River is part of the Great Bay Estuary system and varies in width and depth. Many large and small islands break up the straight-line flow of the river as it continues toward the Atlantic Ocean. Seavey Island, the location of the specified activities, is located in the lower Piscataqua River approximately 500 m, 1,640 feet (ft) from its southwest bank, 200 m (656 ft) from its north bank, and approximately 4 kilometers (km) (2.5 mi) from the mouth of the river.

Water depths in the project area range from 6.4 m (21 ft) to 11.9 m (39 ft) at Berths 11, 12, and 13. Water depths in the lower Piscataqua River near the project area range from 4.6 m (15 ft) in the shallowest areas to 21 m (69 ft) in the deepest areas. The river is approximately 914 m (3,300 ft) wide near the project area, measured from the Kittery shoreline north of Wattlebury Island to the Portsmouth shoreline west of Peirce Island. The furthest direct line of sight from the project area is 1,287 m (0.8 mi) to the southeast and 418 m (0.26 mi) to the northwest.

The nearshore environment of the Shipyard is characterized by a mix of hard bottom, gravel, soft sediments, rock outcrops, and rocky shoreline associated with fast tidal currents near the installation. The nearshore areas surrounding Seavey Island are predominately hard bottom (65 percent of benthic habitat) and gravel (26 percent) habitat, with only 9 percent soft bottom sediments within the surveyed area around Seavey Island (Tetra Tech, 2016). Much of the shoreline in the project area is composed of hard shores (rocky intertidal). In general, rocky intertidal areas consist of bedrock that alternates between marine and terrestrial habitats, depending on the tide. Rocky intertidal areas consist of ''bedrock, stones, or boulders that singly or in combination cover 75 percent or more of an area that is covered less than 30 percent by vegetation'' (Federal Geographic Data Committee, 2013).

The lower Piscataqua River is home to Portsmouth Harbor and is used by commercial, recreational, and military vessels. Between 150 and 250 commercial shipping vessels transit the lower Piscataqua River each year (Magnusson *et al.,* 2012). Commercial fishing vessels are also very common in the river year-round, as are recreational vessels, which are more common in the warmer summer months. The shipyard is a dynamic industrial facility situated on an island with a narrow separation of waterways between the installation and the communities of Kittery and Portsmouth (Figure 2). The predominant noise sources from Shipyard industrial operations consist of dry dock cranes; passing vessels; and industrial equipment (*e.g.,* forklifts, loaders, rigs, vacuums, fans, dust collectors, blower belts, heating, air conditioning, and ventilation (HVAC) units, water pumps, and exhaust tubes and lids). Other components such as construction, vessel ground support equipment for maintenance purposes, vessel traffic across the Piscataqua River, and vehicle traffic on the shipyard's bridges and on local roads in Kittery and Portsmouth produce noise, but such noise generally represents a transitory contribution to the average noise level environment (Blue Ridge Research and Consulting (BRRC), 2015; ESS Group, 2015). Ambient sound levels recorded at the shipyard are considered typical of a large outdoor industrial facility and vary widely in space and time (ESS Group, 2015).

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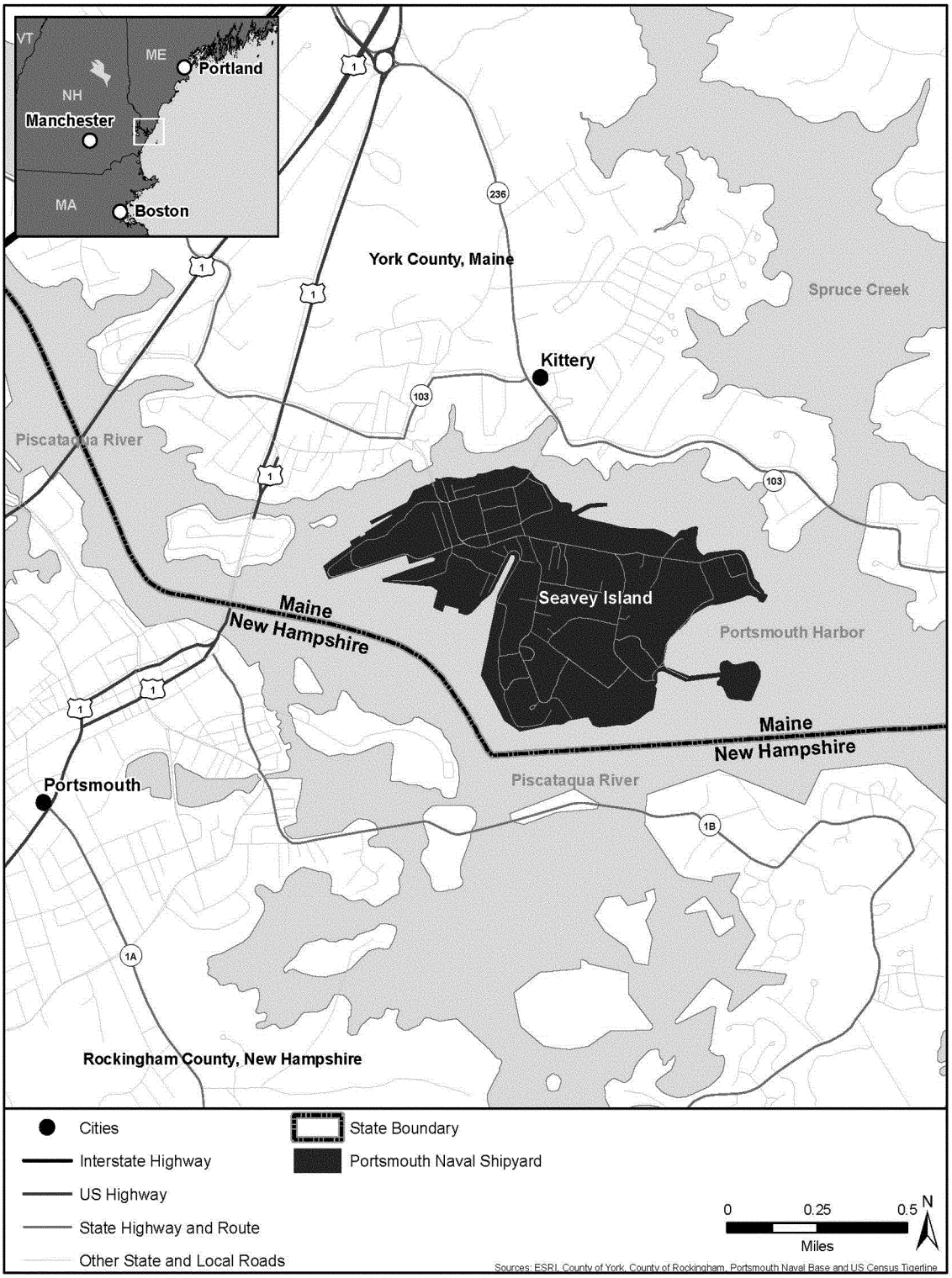

Figure 1 -- Site Location Map of the Project Area

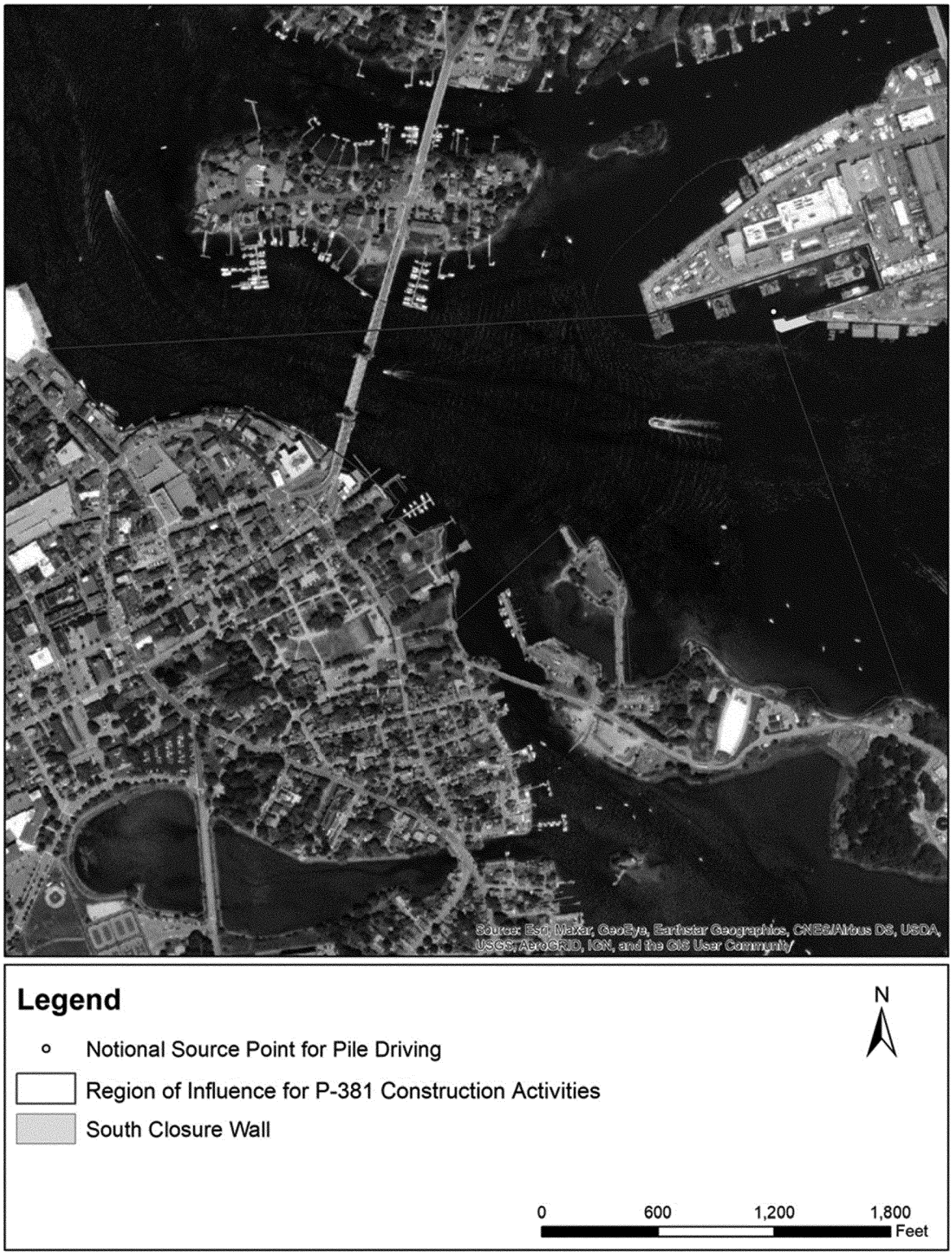

Figure 2 -- Region of Influence for Underwater Noise for P-381 In-water Construction Activities

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Detailed Description of the Specified Activity

The Navy's P–381 project will modify the super flood basin to create two additional dry docking positions (Dry Dock 1 North and Dry Dock 1 West) in front of the existing Dry Dock 1 East. The super flood basin provides the starting point for the P–381 work. Several steps are required to convert the super flood basin to a dry dock with two positions fully capable of supporting the maintenance of submarines while maintaining access to the existing interior dry dock (Dry Dock 1 East). The dry dock positions (including the center wall) will be constructed using large precast segments (referred to as monoliths) that require both sidewall and base support. The monoliths will be manufactured offsite and transported to the construction site. Segments will be floated and/or lifted into place to create the center wall, followed by Dry Dock 1 North, and finally Dry Dock 1 West. Once the monoliths are set and grouted in place, the respective dry docks can be dewatered allowing the remaining interior construction to be performed in dry conditions.

P–381 years 2 through 5 (*i.e.,* the time period of the Navy's specified activity for this rule) construction activities will complete bedrock removal and the preparation of the walls and floors of the super flood basin to support the placement of the monoliths and the construction of the two dry dock positions. Most of the in-water construction will occur behind the existing super flood basin walls that will act as a barrier to sound and will contain underwater noise to within a small portion of the Piscataqua River. However, the west closure wall will be removed in order to install the Dry Dock 1 North entrance structure and caisson. In addition, the caissons may not always be in place throughout in-water construction. As such, the analyses presented herein conservatively assume the west closure wall, as well as the future caissons, will not be present throughout in-water construction activities.

The Navy's request also considers emergency repairs of the P–310 super flood basin. During P–310 super flood testing in January 2022, excessive exfiltration (*i.e.,* transport of material outside of the basin) was observed along Berths 1 and 2 and between the west closure wall and super flood basin entrance structure. Emergency structural repairs were required to reduce excessive transport of material through the berths and west closure wall/entrance structure and prevent further damage. As a result, 216 28-inch Z-shaped sheet piles were installed along the Berth 1 face. After installation, these sheet piles were cut off approximately 3 m (10 ft) above the mudline and concrete was tremie placed behind them to plug any gaps in the existing structure that contributed to the exfiltration. The removal of these 216 Berth 1 emergency repair piles and excess tremie concrete (approximately 382 cubic meters, 500 cubic yards (cy)) will be completed during this LOA period and are accounted for in the Navy's request. Similarly, 10 28-inch wide, Z-shaped sheet piles were installed between the super flood basin entrance structure and the west closure wall, cut off approximately 3 m (10 ft) above the mudline, and had concrete tremie placed behind them. These 10 sheet piles will be removed during the P–381 year 1 IHA period (covered under the IHA issued by NMFS for the first year of P–381 construction activities; 87 FR 19866, April 6, 2022).

Several additional preparatory activities (*e.g.,* torch cutting, dredging, *etc.*) will not create noise expected to result in harassment of marine mammals. Noise created during dredging of sediment and demolition debris (*e.g.,* bedrock, granite blocks, concrete) is unlikely to exceed that generated by other normal shipyard activities and is not expected to result in incidental take of marine mammals. Activities such as grouting (*i.e.,* pouring of concrete) and torch cutting are not noisy by design and will not result in incidental take of marine mammals. These activities are not addressed in the analyses of noise producing actions in the Navy's request, and are not considered by NMFS in our analysis, but are included in the work descriptions to clarify the construction progression.

P–381 In-Water Construction Activities

The work remaining for P–381 can be generally grouped into five categories for ease of explanation: temporary structures, mechanical bedrock removal, continued demolition of super flood basin wall components, center wall tie-downs, and dry dock foundation and gantry crane support. Each category involves one or more activities expected to generate noise that could result in injury or harassment of marine mammals. Some of these activities are a continuation of work started in year 1, which were covered under a separate IHA issued by NMFS on April 6, 2022 (87 FR 19886).

Temporary Structures—Several temporary structures will be installed and removed to facilitate the construction of the dry docks. The conversion of the existing west closure wall to the Dry Dock 1 North entrance requires reinforcement of the section of the west closure wall that will become the new dry dock entrance. The existing west closure wall structure will be surrounded by a temporary cofferdam. The cofferdam will be constructed with 48 28-inch wide, Z-shaped sheet piles. The sheet piles will be installed using an initial vibratory set followed by driving with impact hammers to refusal.

The temporary guide wall along the Berth 11 end wall installed during year 1 (60 28-inch wide, Z-shaped sheet piles) will be removed with a vibratory hammer. An extension to the temporary cofferdam around the Dry Dock 1 entrance structure installed during P–381 year 1 will also be constructed. The extension will consist of 14 28-inch wide, Z-shaped sheet piles. The extension and the cofferdam (96 28-inch wide, Z-shaped sheet piles) will be removed in 2024 using a vibratory hammer.

A temporary work trestle will be constructed to support the excavation of large shafts within the individual dry docking positions. The trestle will be installed in Dry Dock 1 North first and then relocated to Dry Dock 1 West. The trestle system will be supported by 4 84-inch steel pipe piles and will be relocated five times within each dry dock. As a result, the piles will be installed and removed 20 times in Dry Dock 1 North and 20 times in Dry Dock 1 West. The piles will be installed with a cluster drill consisting of multiple DTH hammers and removed with a rotary drill. Before the cluster drill will be deployed, a 102-inch casing will be set into bedrock and a 5-ft (1.5-m) deep rock socket will be excavated with a rotary drill (see Figure 1–4 in the Navy's application). The socket will be filled with concrete and a second, 84-inch casing will be installed inside the larger casing and set in the concrete. No drilling will be required to install the second casing. The outer casing will then be removed with a rotary drill. The 84-inch diameter cluster drill will operate independently inside the second casing to excavate the shaft. Once the shaft is drilled the inner casing will be removed by torch cutting.

A temporary tie-in consisting of 15 28-inch wide, Z-shaped sheet piles will be installed between the center wall foundation and the west closure wall at Dry Dock 1 West. Twenty-three 28-inch wide, Z-shaped sheet piles will also be installed on the easterly end of Dry Dock 1 West to provide a similar temporary tie-in to the center wall foundation near the entrance to Dry

Dock 1 East. The sheet piles will be installed using an initial vibratory set followed by driving with impact hammers. These tie-ins will be removed using a vibratory hammer along with the Dry Dock 1 North tie-in to the west closure wall (16 28-inch wide, Z-shaped sheet piles) that was installed under the P–381 year 1 IHA (87 FR 19886).

To support excavation activities along Berth 1, 28 28-inch wide, Z-shaped sheet piles will be installed at the southeast corner of the berth using a combination of vibratory and impact hammers. These piles will be removed using a vibratory hammer.

Mechanical Bedrock Removal—Mechanical removal of bedrock will be completed by the end of 2023 using various methods appropriate for the removal location and as needed to avoid damage to adjacent structures. Bedrock removal will occur along the Berth 11 face and abutment and along Berth 1.

Bedrock will be removed by breaking it up with a hydraulic hammer (*i.e.,* hoe ram or breaker). To protect adjacent structures during mechanical bedrock removal, 924 4–6-inch diameter relief holes will be drilled using a DTH mono-hammer. A total of approximately 918 cubic meters (1,200 cy) of bedrock are anticipated to be removed.

Demolition of Super Flood Basin Wall Components—Demolition of existing wall components will include the removal of shutter panels, granite quay walls, sheet piles, and concrete making up the super flood basin. Demolition of existing wall structures will be conducted using a rock hammer. Specifically, the remaining sections of the existing concrete shutter panels making up the face of Berth 11 (112 panels), portions of the granite block quay wall (2,141 cm, 2,800 cy) at Berth 1, and the remaining existing sheet pile wall at Berth 1 (168 25-inch wide, Z-shaped sheet piles) will be removed.

The installation of a structural support waler (steel beam) at Berth 1 will also be completed. To complete the installation of the waler, about 98 m (320 linear ft) of concrete wall will be demolished using a hydraulic rock hammer.

Center Wall Tie-downs—Additional work in the center wall area will involve the installation of support tie downs for future tremie concrete work. The tie downs require the placement of a total of 194 rock anchors requiring 9-inch diameter holes. The rock anchors will be installed using a DTH mono-hammer.

Dry Dock and Gantry Crane Support—The location of the future center wall requires reinforcement to allow placement of the large pre-cast monolith structures forming the separation between the two new dry docking positions. Specifically, the floor of the existing basin must be able to provide an adequate foundation for the pre-cast monoliths that will make up the dry dock interiors and center wall. The basin floor will be reinforced by excavating 18 78-inch diameter shafts throughout the footprint of the center wall that will be filled with concrete to create the structural support piles for the center wall. The shafts will be excavated using a cluster drill consisting of multiple DTH mono-hammers. Before the cluster drill is deployed, a 102-inch diameter casing will be set into bedrock and a 1.5 m (5 ft) deep rock socket will be excavated using a 102-inch diameter rotary drill (see Figure 1–4 of the Navy's application). The rock socket will be filled with concrete and a second, 78-inch diameter casing will be installed inside the 102-inch casing and set in the concrete. No drilling is required to install the second casing. The 102-inch diameter outer casing will then be removed with a rotary drill.

The future Dry Dock 1 North and Dry Dock 1 West require significant structural reinforcement to provide an adequate foundation for the installation of the large pre-cast monolith structures forming the dry dock interior. Reinforcement of the individual dry dock foundations and walls will begin first at Dry Dock 1 North and, once completed, continue at Dry Dock 1 West. Twenty 78-inch diameter shafts will be excavated along the Berth 11 face and head wall to support the walls of Dry Dock 1 North. Along the floor of Dry Dock 1 North, 23 108-inch diameter shafts will be excavated for the installation of the foundation support piles and 18 78-inch diameter shafts will be excavated for the installation of leveling piles (*i.e.,* diving board shafts).

The dry dock foundation and wall support pile and leveling pile shafts will be filled with concrete to create the support piles for the dry dock walls and floors. The shafts will be excavated using a cluster drill consisting of multiple DTH hammers in the same manner as previously described for the temporary work trestle piles. Once the wall and foundation support piles and leveling piles for Dry Dock 1 North have been installed, foundation and wall support piles and leveling piles will be installed for Dry Dock 1 West. Twenty-two 78-inch diameter shafts will be excavated along the Berth 1 face to support the walls of Dry Dock 1 West. Twenty-three 108-inch diameter shafts will be excavated along the floor of Dry Dock 1 West for the installation of foundation support piles and 18 78-inch shafts will be excavated for the installation of leveling piles (*i.e.,* diving board shafts). The casing sizes and rotary drill sizes for each shaft are specified in Table 1.

The large concrete monolithic sections used to create the dry docks and the center wall separation will be placed using a gantry crane. The gantry crane system will be structurally supported by the installation of 16 72-inch diameter shafts installed along the western extent of the Berth 1 face. The shafts will be installed using a DTH cluster drill as described for the temporary work trestle piles. The casing sizes and rotary drill sizes for the gantry crane support shafts are specified in Table 1.

P–310 Emergency Repairs

Testing of the super flood basin on January 5, 2022 resulted in excess exfiltration through Berths 1 and 2, prompting the need for emergency repairs along Berth 1 as well as between the super flood basin entrance structure and the west closure wall. Emergency repairs consisted of the installation of sheet piles and the tremie pouring of concrete to fill in gaps along the structure walls and floor. Installation of emergency repairs at Berth 1 and the installation and removal of emergency repairs at the west closure wall and entrance structure occurred before the period described in the Navy's LOA application. Only the removal of Berth 1 emergency repair components will occur during the requested LOA period.

The removal of the 216 28-inch wide, Z-shaped sheet piles along the Berth 1 face will be completed through direct pulling via barge-mounted crane or by vibratory hammer. Specific methods will be determined by the contractor based on resistance to extraction from the seabed. Direct pulling via crane is not anticipated to generate harmful levels of underwater sound. If required, the use of the vibratory hammer to extract the installed sheet piles will be limited to an initial effort to break the sheets loose, allowing them to be directly pulled out. As a conservative measure, vibratory extraction of these sheet piles is assumed for all analyses.

The removal of 765 cubic meters (1,000 cy) of tremie concrete is anticipated to require use of a hydraulic rock hammer to break up material into smaller pieces. Smaller pieces will then be retrieved via excavator bucket for offsite disposal. The Navy estimates daily active use of the rock hammer for the removal of concrete from emergency repairs to be 4 hours per day.

Means and Methods for Noise Producing Activities

Only 28-inch wide, Z-shaped sheet piles will be installed or removed with pile-driving equipment during P–381 construction. The installation of 28-inch wide, Z-shaped steel sheet piles will be installed initially using vibratory means and then finished with impact hammers, if necessary. Impact hammers will also be used to push obstructions out of the way and where sediment conditions do not permit the efficient use of vibratory hammers. Pile removal activities will use cranes and vibratory hammers exclusively.

The removal of bedrock and concrete and the demolition of concrete shutter panels at Berth 11 and granite blocks and sheet piles at Berth 1 during P–381 construction will be by mechanical means. These features will be demolished using a hydraulic rock hammer (*i.e.,* hoe ram). The type/size of rock hammers used will be determined by the contractor selected to perform the work.

Two methods of rock excavation will be used during P–381 construction; DTH excavation and rotary drilling. During P–381 construction, rotary drilling will be used to set the casings and pre-drill rock sockets for DTH cluster drills. DTH excavation using mono-hammers will be used to create shafts for rock anchors and tie downs and for the excavation of relief holes during mechanical bedrock removal. For the largest shafts (greater than 42-inches in diameter), DTH excavation will use a cluster drill. A cluster drill uses multiple mono-hammers within a single bit to efficiently break up bedrock and create large diameter holes (see Figure 1–5 in the Navy's application).

Concurrent Activities

In order to maintain project schedules, it is likely that multiple pieces of equipment will operate at the same time within the basin. No ancillary activities are anticipated during the construction period that will require unimpeded access to the super flood basin. Therefore, it is anticipated that there will be space available within the project area for additional construction equipment. A maximum of 13 pieces of equipment could potentially operate in the project area at a single time. While this is an unlikely scenario, it could occur for a very brief period. Construction equipment will be staged along the perimeter of the super flood basin (Berth 11, Berth 1 and head wall) as well on multiple barges within the super flood basin. Table 2 provides a summary of possible equipment combinations that could be used simultaneously over the course of the construction period.

TABLE 2—SUMMARY OF MULTIPLE EQUIPMENT SCENARIOS

Year	Quantity	Equipment
2023	5	Rock Hammer (2), Vibratory Hammer (2), Impact Hammer (1).
	5	Rock Hammer (2), Vibratory Hammer (1), Impact Hammer (1), DTH Mono-hammer (1).
	5	Rock Hammer (1), Vibratory Hammer (1), Impact Hammer (1), DTH Mono-hammer (1), Rotary Drill (1).
	5	Rock Hammer (1), Vibratory Hammer (1), DTH Mono-hammer (1), Cluster Drill (2).
	5	Cluster Drill (2), Vibratory Hammer (1), Mono-hammer DTH (1), Rotary Drill (1).
	5	Rock Hammer (1), Impact Hammer (1), DTH Mono-hammer (1), Cluster Drill (2).
	6	Rock Hammer (2), DTH Mono-hammer (2), Cluster Drill (1), Rotary Drill (1).
	6	Rock Hammer (2), Vibratory Hammer (1), DTH Mono-hammer (1), Rotary Drill (2).
	8	Rock Hammer (2), Vibratory Hammer (2), DTH Mono-hammer (2), Cluster Drill (2).
	10	Rock Hammer (3), Vibratory Hammer (2), Impact hammer (1), DTH Mono-hammer (2), Cluster Drill (2).
	13	Rock Hammer (5), Cluster Drill (2), Vibratory Hammer (2), Impact Hammer (1), Mono-hammer DTH (3).
2024	8	Rock Hammer (2), Vibratory Hammer (2), DTH Mono-hammer (2), Cluster Drill (2).
	5	Cluster Drill (2), DTH mono-hammer (1), Vibratory hammer (1), Impact Hammer (1).
	3	Cluster Drill (2), DTH mono-hammer (1).
	3	Cluster Drill (1), Rotary Drill (1), DTH mono-hammer (1).
	3	Rotary Drill (2), DTH mono-hammer (1).
2025	3	Cluster Drill (2), DTH mono-hammer (1).
	3	Cluster Drill (1), Rotary Drill (1), DTH mono-hammer (1).
	3	Rotary Drill (2), DTH mono-hammer (1).
	2	Rotary Drill (2).
	2	Cluster Drill (2).

Source: 381 Constructors, 2022.

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

Comments and Responses

A notice of NMFS' proposed rulemaking to the Navy was published in the **Federal Register** on January 18, 2023 (88 FR 3146). That proposed rule described, in detail, the Navy's activities, the marine mammal species that may be affected by the activities, and the anticipated effects on marine mammals. In that proposed rule, we requested public input on the request for authorization described therein, our analyses, the proposed authorization, and any other aspect of the notice of proposed rulemaking, and requested that interested persons submit relevant information, suggestions, and comments. This proposed rule was available for a 30-day public comment period.

During the 30-day public comment period, NMFS received no comments.

Changes From the Proposed IHA to Final IHA

No public comments were received during the comment period; however, NMFS made a few minor clarifications and corrections in this final rule. In the sections of the documents that refer to the use of a bubble curtain, it was established that the bubble curtain will be used in cases where the Level A harassment zone extends to the full region of influence (ROI). To clarify this further, NMFS adds that this refers to all rock hammering and DTH cluster drilling. In addition, for bubble curtains, NMFS clarified that the air flow to the bubblers will be balanced across the entrance openings to the super flood basin, rather than the piles. Finally, NMFS removed the mitigation condition requiring that protected species observers (PSOs) work in shifts lasting no longer than 4 hours (hrs) with at least

a 1-hr break between shifts and limiting PSO duties to no more than 12 hrs in a 24-hr period. This is not a required condition for the Navy for these construction activities, rather it is related to other activity types, such as offshore seismic surveys, but was accidentally included. That said, NMFS communicated to the Navy that observers should be given adequate breaks and work in shifts to reduce observer fatigue to ensure their ability to best monitor for marine mammals.

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, referenced here, 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 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. Atlantic and Gulf of Mexico SARs. All values presented in Table 3 are the most recent available at the time of publication (including from the 2022 draft SARs) 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	MMPA stock	ESA/MMPA status; strategic (Y/N) [1]	Stock abundance Nbest, (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]
Order Cetartiodactyla—Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Phocoenidae (porpoises):						
Harbor Porpoise	*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	*Halichoerus grypus*	Western North Atlantic	-; N	27,300 [4] (0.22; 22,785; 2016)	1,389	4,453
Harp seal	*Pagophilus groenlandicus*	Western North Atlantic	-; N	7,600,000 (unk,7,100.000, 2019)	426,000	178,573
Hooded seal	*Cystophora cristata*	Western North Atlantic	-; N	593,500	Unknown	1,680

[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-assessments.* CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable (N.A.).

[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 abundance value and the associated PBR value reflect the US population only. Estimated abundance for the entire Western North Atlantic stock, including animals in Canada, is 451,600. The annual M/SI estimate is for the entire stock.

As indicated above, all five species (with five managed stocks) in Table 3 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur.

A detailed description of the species likely to be affected by the Navy's construction activities, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed rule (88 FR 3146, January 18, 2023). Since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to the NMFS website (*https://www.fisheries.noaa.gov/find-species*) for generalized species accounts.

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 (2018a) 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, 2018a]

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 (2018a) for a review of available information.

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

The effects of underwater noise from the Navy's construction activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the project area. The notice of the proposed rulemaking (88 FR 3146, January 18, 2023) included a discussion of the effects of anthropogenic noise on marine mammals and the potential effects of underwater noise from the Navy's construction activities on marine mammals and their habitat. That information and analysis is referenced in this final rule and is not repeated here; please refer to the notice of the proposed rulemaking (88 FR 3146, January 18, 2023).

Estimated Take

This section provides an estimate of the number of incidental takes authorized under the rule, which will inform both NMFS' consideration of ''small numbers'' and NMFS' negligible impact determinations.

As described previously, no serious injury or mortality is anticipated or authorized for this activity. 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 will primarily be by Level B harassment, as use of the acoustic sources (*i.e.,* impact and vibratory pile installation and removal, rotary drilling, DTH, and rock hammering) 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 frequency species and/or phocids because predicted auditory injury zones are larger than for mid-frequency species and/or otariids. The requirements pertaining to mitigation and monitoring are expected to minimize the severity of the taking to the extent practicable. Below we describe how the authorized 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 estimated take numbers.

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.,* seismic airguns) or intermittent (*e.g.,* scientific sonar) sources. Generally speaking, Level B harassment take estimates based on these behavioral harassment thresholds are expected to include any likely takes by TTS as, in most cases, the likelihood of TTS occurs at distances from the source less than those at which behavioral harassment is likely. TTS of a sufficient degree can manifest as behavioral harassment, as reduced hearing sensitivity and the potential reduced opportunities to detect important signals (conspecific communication, predators, prey) may result in changes in behavior patterns that would not otherwise occur.

The Navy's activities include the use of continuous (vibratory pile driving/removal, rotary drilling) and intermittent (impact pile driving, rock hammering) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1 μPa, respectively, are applicable. DTH systems have both continuous and intermittent components as discussed in the *Description of Sound Sources* section in the proposed rule (88 FR 3146, January 18, 2023). When evaluating Level B harassment, NMFS recommends treating DTH as a continuous source and applying the RMS SPL thresholds of 120 dB re 1 μPa (see NMFS recommended guidance on DTH systems at *https://media.fisheries.noaa.gov/2022-11/PUBLIC%20DTH%20Basic%20Guidance_November%202022.pdf;* NMFS, 2022).

Level A harassment—NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (NMFS, 2018a) 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). The Navy's activities include the use of impulsive (impact pile driving, rock hammering, DTH) and non-impulsive (vibratory pile driving/removal, rotary drilling, DTH) 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-protection/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 1μPa²s. 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.

The sound field in the project area is the existing background noise plus additional construction noise from the project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.,* impact pile driving, vibratory pile driving, vibratory pile removal, rotary drilling, rock hammering, and DTH).

Sound Source Levels—The intensity of pile driving sounds is greatly influenced by factors such as the type of piles, hammers, and the physical environment (*e.g.,* sediment type) in which the activity takes place. The Navy evaluated sound source level (SL) measurements available for certain pile types and sizes from similar environments from other Navy pile driving projects, including from past projects conducted at the Shipyard, and used them as proxy SLs to determine reasonable SLs likely to result from the pile driving and drilling activities in their application. Projects reviewed were those most similar to the specified activity in terms of drilling and rock hammering activities, type and size of piles installed, method of pile installation, and substrate conditions. Some of the proxy source levels used are expected to be more conservative as compared to what may be realized by the actual pile driving to take place, as the values are from larger pile sizes. In some instances, for reasons described below, NMFS relied on alternative proxy SLs in our evaluation of the impacts of the Navy's activities on marine mammals (Table 6). Note that the source levels in Table 6 represent the SPL referenced at a distance of 10 m from the source.

TABLE 6—SUMMARY OF UNATTENUATED IN-WATER PILE DRIVING SOURCE LEVELS

Pile type	Installation method	Pile diameter	Peak SPL (dB re 1 μPa)	RMS SPL (dB re 1 μPa)	SEL_{ss} (dB re 1 μPa² sec)
Casing/Socket	Rotary Drill	126-inch	NA	154 (169 at 1 m)	NA
		102-inch	NA	154 (169 at 1 m)	NA
		84-inch	NA	154 (169 at 1 m)	NA
Shaft	DTH Cluster Drill	108-inch	NA	201.6 [5] (Level A) 174 [6] (Level B)	NA
		84-inch	NA	196.7 [5] (Level A) 174 [6](Level B)	NA
		78-inch	NA	195.2 [5] (Level A) 174 [6] (Level B)	181
		72-inch	NA	193.7 [5] (Level A) 174 [6] (Level B)	NA
Rock anchor	DTH mono-hammer	9-inch	172	167	146
Relief hole	DTH mono-hammer	4 to 6-inch	170	[6] 156	144
Z-shaped Sheet	Impact	[1] 28-inch	211	196	181
	Vibratory	28-inch [2]	NA	167	167
	Vibratory	25-inch [3]	NA	167	167
Bedrock and concrete demolition	Rock Hammer [4]	NA	197	186 [4]	[4] 171

[1] An appropriate proxy value for impact driving 28-inch wide, Z-shaped sheet piles is not available, so a value for 30-inch steel pipe piles was used as a proxy value (NAVFAC SW, 2020 [p. A–4]).
[2] An appropriate proxy value for vibratory pile driving 28-inch wide, Z-shaped sheet piles is not available, so a value for 30-inch steel pipe piles was used as a proxy value (Navy, 2015 [p. 14]).
[3] An appropriate proxy value for vibratory pile driving 25-inch sheet piles is not available, so the value for 28-inch wide, Z-shaped sheet piles was used as a proxy.
[4] Escude, 2012.
[5] RMS SPL values were derived from regression and extrapolation calculations of existing data by NMFS.
[6] SPLs vary from those proposed in the Navy's application as the NMFS DTH recommended guidance updated the source level proxy it recommends for some DTH systems after the Navy's application was deemed adequate and complete (NMFS, 2022).
Notes: All SPLs are unattenuated and represent the SPL referenced at a distance of 10 m from the source; NA = Not applicable; single strike SEL are the proxy source levels for impact pile driving used to calculate distances to PTS; dB re 1 μPa = decibels (dB) referenced to a pressure of 1 microPascal, measures underwater SPL.; dB re 1 μPa²-sec = dB referenced to a pressure of 1 microPascal squared per second, measures underwater SEL.

With regards to the proxy values summarized in Table 6, very little information is available regarding source levels for in-water rotary drilling activities. As a conservative measure and to be consistent with previously issued IHAs for similar projects in the region, a proxy of 154 dB RMS is used for all rotary drilling activities (Dazey, 2012).

NMFS recommends treating DTH systems as both impulsive and continuous, non-impulsive sound source types simultaneously. Thus, impulsive thresholds are used to evaluate Level A harassment, and the continuous threshold is used to evaluate Level B harassment. The Navy consulted with NMFS to obtain the appropriate proxy values for DTH mono- and cluster-hammers. With regards to DTH mono-hammers, NMFS recommended proxy levels for Level A harassment based on available data regarding DTH systems of similar sized piles and holes (Table 6) (Denes *et al.,* 2019; Guan and Miner, 2020; Reyff and Heyvaert, 2019; Reyff, 2020; Heyvaert and Reyff, 2021). No hydroacoustic data exist for cluster DTH systems; therefore, NMFS recommends proxy values based off of regression and extrapolation calculations of existing data for mono-hammers until hydroacoustic data on DTH cluster drills be obtained (NMFS, 2022). Because of the high number of hammers and strikes for this system, DTH cluster drills are treated as a continuous sound source for the time component of Level A harassment (*i.e.,* for the entire duration DTH cluster drills are operational, they are considered to be producing strikes, rather than indicating the number of strikes per second, which is unknown), but still used the impulsive thresholds.

At the time of the Navy's application submission, NMFS recommended that the RMS SPL at 10 m should be 167 dB when evaluating Level B harassment (Heyvaert and Reyff, 2021 as cited in NMFS, 2021b) for all DTH pile/hole sizes. However, since that time, NMFS has received additional clarifying information regarding DTH data presented in Reyff and Heyvaert (2019) and Reyff (2020) that allows for different RMS SPL at 10 m to be recommended for piles/holes of varying diameters (NMFS, 2022). Therefore, the following proxy RMS SPLs at 10 m are used to evaluate Level B harassment from this sound source in this analysis (Table 6): 156 dB RMS for the 4 to 6 inch mono hammers (Reyff and Heyvaert, 2019; Reyff, 2020), 167 dB RMS for the 9 inch mono-hammers (Heyvaert and Reyff, 2021), and 174 dB RMS for all DTH cluster drills greater or equal to 74 inches (Reyff and Heyvaert, 2019; Reyff, 2020). See Footnote 6 in Table 6.

Rock hammering is analyzed as an impulsive noise source. For purposes of this analysis, it is assumed that the hammer will have a maximum strike rate of 460 strikes per minute and will operate for a maximum duration of 15 minutes before needing to reposition or stop to check progress. Therefore, noise impacts for rock hammering activities are assessed using the number of blows per 15-minute interval (6,900 blows) and the number of 15-minute intervals anticipated over the course of the day based on the durations provided in Tables 1, 7, and 8. As with rotary drilling, very little information is available regarding source levels associated with nearshore rock hammering. In previous IHAs related to the Shipyard, NMFS relied on preliminary measurements from the Tappan Zee Bridge replacement project (Reyff, 2018a, 2018b) as well as data from a WSDOT concrete pier demolition project (Escude, 2012) to inform proxy SLs for rock hammering. However, a few discrepancies in the preliminary data of the Tappan Zee Bridge reports have been identified resulting from NMFS' further inspection into the report's data. Therefore, the SLs reported only from the Escude (2012) concrete pier demolition project are used as proxy values for rock hammering activities associated with P–381 (Table 6).

Level B Harassment Zones—Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and

bottom composition and topography. The general formula for underwater TL is:

TL = B * log10 (R1/R2),

Where:

B = transmission loss coefficient (assumed to be 15)

R1 = the distance of the modeled SPL from the driven pile, and

R2 = the distance from the driven pile of the initial measurement.

This formula neglects loss due to scattering and absorption, which is assumed to be zero here. The degree to which underwater sound propagates away from a sound source is dependent on a variety of factors, most notably the water bathymetry and presence or absence of reflective or absorptive conditions including in-water structures and sediments. The recommended TL coefficient for most nearshore environments is the practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, which is the most appropriate assumption for the Navy's activities in the absence of specific modelling. All Level B harassment isopleths are reported in Tables 7 and 8 considering RMS SLs.

Level A Harassment Zones—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 (NMFS, 2018a) 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 from impact and vibratory pile driving, drilling, DTH, and rock hammering), 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 User Spreadsheet can be found in Appendix A of the Navy's application, Appendix A of the Navy's addendum, and the resulting isopleths are reported in Tables 7 and 8.

TABLE 7—CALCULATED DISTANCE AND AREAS OF LEVEL A AND LEVEL B HARASSMENT FOR IMPULSIVE NOISE

[DTH, impact pile driving, hydraulic rock hammering]

Activity ID	Year [1]/activity	Purpose	Duration, count, size, and or rate	Total production days	Level A harassment [2]		Level B harassment
					High frequency cetaceans (harbor porpoise)	Phocid pinnipeds	All species
1	2 Hydraulic Rock Hammer.	Shutter Panel Demolition (112 panels).	5 hours/day (20 intervals/day at 15 each).	56	5,034.5 m/0.417417 km².	2,261.9 m/0.417417 km²	541.17 m/0.277858 km².
3	2–3 Hydraulic Rock Hammer.	Removal of Granite Quay Wall (2,800 cy).	2.5 hours/day (10 intervals/day at 15 min each).	47	3,171.6 m/0.417417 km².	1,424.9 m/0.417417 km²	541.17 m/0.277858 km².
4	2–3 Hydraulic Rock Hammer.	Berth 1 Top of Wall Demolition for Waler Install (320 lf).	10 hours/day (40 intervals/day at 15 min each).	74	7,991.8 m/0.417417 km².	3,590.5 m/0.417417 km²	541.17 m/0.277858 km².
6	2 Hydraulic Rock Hammer.	Mechanical Rock Removal (700 cy) at Berth 11 Basin Floor.	12 hours/day (48 intervals/day at 15 min each).	60	9,024.7 m/0.417417 km².	4,054.5 m/0.417417 km²	541.17 m/0.277858 km².
10	2 Hydraulic Rock Hammer.	Mechanical Rock Removal (300 cy) at Berth 1 Basin Floor.	12 hours/day (48 intervals/day at 15 min each).	25	9,024.7 m/0.417417 km².	4,054.5 m/0.417417 km²	541.17 m/0.277858 km².
21	2 Hydraulic Rock Hammer.	Removal of Emergency Repair Concrete (500 cy) at Berth 1.	4 hours/day (16 intervals/day at 15 min each).	15	4,388.6 m/0.417417 km².	1,949.2 m/0.417417 km²	541.17 m/0.277858 km².
7	2 DTH Monohammer.	Relief Holes at Berth 11 Basin Floor.	924 4–6 inch holes 27 holes/day.	35	178.9 m/0.047675 km²	80.4 m/0.014413 km²	2,512 m/0. 417417 km².
11	2 DTH Monohammer.	Dry Dock 1 North entrance Rock Anchors.	50 9-inch holes 2 holes/day.	25	244.8 m/0.073751 km²	110 m/0.022912 km²	13,594 m/0.417417 km².
22	2–3 DTH Monohammer.	Center Wall Foundation Rock Anchors.	72 9-inch holes 2 holes/day.	36	244.8 m/0.073751 km²	110 m/0.022912 km²	13,594 m/0.417417 km².
34	3–4 DTH Monohammer.	Dry Dock 1 North Rock Anchors.	36 9-inch holes 2 holes/day.	18	244.8 m/0.073751 km²	110 m/0.022912 km²	13,594 m/0.417417 km².
35	4–5 DTH Monohammer.	Dry Dock 1 West Rock Anchors.	36 9-inch holes 2 holes/day.	18	244.8 m/0.073751 km²	110 m/0.022912 km²	13,594 m/0. 417417 km².
R	2 Impact Pile Driving.	Dry Dock 1 North Entrance Temporary Cofferdam.	48 28-inch Z-shaped sheets 8 sheets/day.	6	1,568.6 m/0.417417 km².	704.7 m/0.364953 km²	2,512 m/0.417417 km².
5	2 Impact Pile Driving.	Berth 1 Support of Excavation.	28 28-inch Z-shaped sheets 4 piles/day.	8	988.2 m/0.403411 km²	444.0 m/0.201158 km²	2,512 m/0.417417 km².
8	2 Impact Pile Driving.	Temporary Cofferdam Extension.	14 28-inch Z-shaped sheets 4 piles/day.	4	988.2 m/0.403411 km²	444.0 m/0.201158 km²	2,512 m/0.417417 km².

TABLE 7—CALCULATED DISTANCE AND AREAS OF LEVEL A AND LEVEL B HARASSMENT FOR IMPULSIVE NOISE—Continued

[DTH, impact pile driving, hydraulic rock hammering]

Activity ID	Year [1]/activity	Purpose	Duration, count, size, and or rate	Total production days	Level A harassment [2]		Level B harassment
					High frequency cetaceans (harbor porpoise)	Phocid pinnipeds	All species
12	2 Impact Pile Driving.	Center Wall Tie-in to West Closure Wall.	15 28-inch Z-shaped sheets 4 piles/day.	4	988.2 m/0.403411 km²	444.0 m/0.201158 km²	2,512 m/0.417417 km².
24	2–3 Impact Pile Driving.	Center Wall East Tie-in to Existing Wall.	23 28-inch Z-shaped sheets 2 piles/day.	12	622.5 m/0.334747 km²	279.7 m/0.090757 km²	2,512 m/0.417417 km².
A4	2 DTH Cluster Drill.	Dry Dock 1 North Entrance Foundation Support Piles.	18 78-inch shafts 10 hours/day 6.5 days/shaft.	117	84,380.4 m/0.417417 km².	37,909.7 m/0.417417 km²	39,811 m/0.417417 km².
9d	2 DTH Cluster Drill.	Gantry Crane Support Piles.	16 72-inch shafts 10 hours/day 5 days/shaft.	80	67,025.7 m/0.417417 km².	30,112.8 m/0.417417 km²	39,811 m/0.417417 km².
13d	2–3 DTH Cluster Drill.	Dry Dock 1 North Temporary Work Trestle.	20 84-inch shafts 10 hours/day 3.5 days/shaft.	70	106,228.6 m/0.417417 km².	47,725.5 m/0.417417 km²	39,811 m/0.417417 km².
15d	2–3 DTH Cluster Drill.	Dry Dock 1 North Leveling Piles (Diving Board Shafts).	18 78-inch shafts 10 hours/day 7.5 days/shaft.	135	84,380.4 m/0.417417 km².	37,909.7 m/0.417417 km²	39,811 m/0.417417 km².
16d	2–3 DTH Cluster Drill.	Wall Shafts for Dry Dock 1 North.	20 78-inch shafts 10 hours/day 7.5 days/shaft.	150	84,380.4 m/0.417417 km².	37,909.7 m/0.417417 km²	39,811 m/0.417417 km².
17d	2–3 DTH Cluster Drill.	Foundation Shafts for Dry Dock 1 North.	23 108-inch shafts 10 hours/day 8.5 days/shaft.	196	225,376.2 m/0.417417 km².	101,255.2 m/0.417417 km²	39,811 m/0.417417 km².
29d	3–4 DTH Cluster Drill.	Dry Dock 1 West Temporary Work Trestle.	20 84-inch shafts 10 hours/day 3.5 days/shaft.	70	106,228.6 m/0.417417 km².	47,725.5 m/0.417417 km²	39,811 m/0.417417 km².
31d	3–4 DTH Cluster Drill.	Wall Shafts for Dry Dock 1 West.	22 78-inch shafts 10 hours/day 7.5 days/shaft.	165	84,380.4 m/0.417417 km².	37,909.7 m/0.417417 km²	39,811 m/0.417417 km².
32d	3–4 DTH Cluster Drill.	Foundation Shafts for Dry Dock 1 West.	23 108-inch shafts 10 hours/day 8.5 days/pile.	196	225,376.2 m/0.417417 km².	101,255.2 m/0.417417 km²	39,811 m/0.417417 km².
33d	3–4 DTH Cluster Drill.	Dry Dock 1 West Leveling Piles (Diving Board Shafts).	18 78-inch shafts 10 hours/day 7.5 days/pile.	135	84,380.4 m/0.417417 km².	37,909.7 m/0.417417 km²	39,811 m/0.417417 km².

[1] Note, for the purposes of this analysis, the construction years are identified as years 2 through 5; takes for marine mammals during Year 1 of the Navy's construction activities were authorized in a previously issued IHA (87 FR 19886, April 6, 2022).

[2] To determine underwater harassment zone size, ensonified areas from the source were clipped along the shoreline using Geographical Information Systems (GIS).

TABLE 8—CALCULATED DISTANCE AND AREAS OF LEVEL A AND LEVEL B HARASSMENT FOR NON-IMPULSIVE NOISE

[Rotary drilling and vibratory pile driving/extracting]

Activity ID	Year [1]/ activity	Purpose	Duration, count, size, and or rate	Total production days	Level A harassment [2]		Level B harassment
					High frequency cetaceans (harbor porpoise)	Phocid pinnipeds	All species
R	2 Vibratory Pile Driving.	Dry Dock 1 North Entrance Temporary Cofferdam.	48 28-inch Z-shaped sheets 8 sheets/day.	6	19.4 m/0.001041 km²	8.0 m/0.0002 km²	13,594 m/0.417417 km².
2	2–3 Vibratory Extraction.	Remove Berth 1 Sheet Piles.	168 25-inch Z-shaped sheets 4 piles/day.	42	12.2 m/0.000454 km²	5.0 m/0.000078 km²	13,594 m/0.417417 km².
5	2 Vibratory Pile Driving.	Install Berth 1 Support of Excavation.	28 28-inch Z-shaped sheets 4 piles/day.	8	12.2 m/0.000454 km²	5.0 m/0.000078 km²	13,594 m/0.417417 km².
8	2 Vibratory Pile Driving.	Install Temporary Cofferdam Extension.	14 28-inch Z-shaped sheets 4 piles/day.	4	12.2 m/0.000454 km²	5.0 m/0.000078 km²	13,594 m/0.417417 km².
12	2 Vibratory Pile Driving.	Center Wall Tie-In to Existing West Closure Wall.	15 28-inch Z-shaped sheets 4 piles/day.	4	12.2 m/0.000454 km²	5.0 m/0.000078 km²	13,594 m/0.417417 km².
18	2 Vibratory Extraction.	Berth 11 End Wall Temporary Guide Wall.	60 28-inch Z-shaped sheets 8 piles/day.	10	19.4 m/0.001041 km²	8.0 m/0.0002 km²	13,594 m/0.417417 km².
19	2 Vibratory Extraction.	Remove Berth 1 Support of Excavation.	28 28-inch Z-shaped sheets 8 piles/day.	5	19.4 m/0.001041 km²	8.0 m/0.0002 km²	13,594 m/0.417417 km².
20	2 Vibratory Extraction.	Remove Berth 1 Emergency Repairs.	108 28-inch Z-shaped sheets 6 piles/day.	18	16.0 m/0.000733 km²	6.6 m/0.000136 km²	13,594 m/0.417417 km².

TABLE 8—CALCULATED DISTANCE AND AREAS OF LEVEL A AND LEVEL B HARASSMENT FOR NON-IMPULSIVE NOISE—Continued

[Rotary drilling and vibratory pile driving/extracting]

Activity ID	Year [1]/ activity	Purpose	Duration, count, size, and or rate	Total production days	Level A harassment [2]		Level B harassment
					High frequency cetaceans (harbor porpoise)	Phocid pinnipeds	All species
23	2–3 Vibratory Extraction.	Dry Dock 1 North-Remove Center Wall Tie-in to West Closure Wall.	16 28-inch Z-shaped sheets 8 piles/day.	3	19.4 m/0.001041 km²	8.0 m/0.0002 km²	13,594 m/0.417417 km².
24	2–3 Vibratory Pile Driving.	Center Wall East Tie-in to Existing Wall.	23 28-inch Z-shaped sheets 2 piles/day.	12	7.7 m/0.000185 km²	3.2 m/0.000032 km²	13,594 m/0.417417 km².
25	2–3 Vibratory Extraction.	Dry Dock 1 West Remove Center Wall Tie-in to West Closure Wall.	15 28-inch Z-shaped sheets 8 piles/day.	3	19.4 m/0.001041 km²	8.0 m/0.0002 km²	13,594 m/0.417417 km².
26	2–3 Vibratory Extraction.	Remove Center Wall Tie-in to Existing Wall.	23 28-inch Z-shaped sheets 8 piles/day.	12	19.4 m/0.001041 km²	8.0 m/0.0002 km²	13,594 m/0.417417 km².
27	2–3 Vibratory Extraction.	Remove Temporary Cofferdam.	96 28-inch Z-shaped sheets 8 piles/day.	12	19.4 m/0.001041 km²	8.0 m/0.0002 km²	13,594 m/0.417417 km².
28	2–3 Vibratory Extraction.	Remove Temporary Cofferdam Extension.	14 28-inch Z-shaped sheets 8 piles/day.	2	19.4 m/0.001041 km²	8.0 m/0.0002 km²	13,594 m/0.417417 km².
A1	2 Rotary Drill.	Dry Dock 1 North Entrance Foundation Support Piles—Install Outer Casing.	18 102-inch borings 1 hour/day 1 casing/day.	18	2.1 m/0.000014 km²	1.3 m/0.000005 km²	1,848 m/0.417417 km².
A2	2 Rotary Drill.	Dry Dock 1 North Entrance Foundation Support Piles—Pre-Drill Socket.	18 102-inch borings 9 hours/day 1 socket/day.	18	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.41747 km².
A3	2 Rotary Drill.	Dry Dock 1 North Entrance Foundation Support Piles—Remove Outer Casing.	18 102-inch borings 15 minutes/casing 1 casing/day.	18	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
9a	2 Rotary Drill.	Gantry Crane Support—Install Outer Casing.	16 102-inch borings 1 hour/day 1 casing/day.	16	2.1 m/0.000014 km²	1.3 m/0.000005 km²	1,848 m/0.417417 km².
9b	2 Rotary Drill.	Gantry Crane Support—Pre-Drill Socket.	16 102-inch borings 9 hours/day 1 socket/day.	16	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
9c	2 Rotary Drill.	Gantry Crane Support—Remove Outer Casing.	16 102-inch borings 15 minutes/casing 1 casing/day.	16	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
13a	2–3 Rotary Drill.	Dry Dock 1 North Temporary Work Trestle—Install Outer Casing.	20 102-inch borings 1 hour/day 1 casing/day.	20	2.1 m/0.000014 km²	1.3 m/0.000005 km²	1,848 m/0.417417 km².
13b	2–3 Rotary Drill.	Dry Dock 1 North Temporary Work Trestle—Pre-Drill Socket.	20 102-inch borings 9 hours/day 1 socket/day.	20	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
13c	2–3 Rotary Drill.	Dry Dock 1 North Temporary Work Trestle—Remove Outer Casing.	20 102-inch borings 15 minutes/casing 1 casing//day.	20	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
14	2–3 Rotary Drill.	Remove Dry Dock 1 North Temporary Work Trestle Piles.	20 84-inch borings 15 minutes/casing 1 casing/day.	20	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
15a	2–3 Rotary Drill.	Dry Dock 1 North Leveling Piles—Install Outer Casing.	18 84-inch borings 1 hour/day 1 casing/day.	18	2.1 m/0.000014 km²	1.3 m/0.000005km²	1,848 m/0.417417 km².
15b	2–3 Rotary Drill.	Dry Dock 1 North Leveling Piles—Pre-Drill Socket.	18 84-inch borings 9 hours/day 1 socket/day.	18	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
15c	2–3 Rotary Drill.	Dry Dock 1 North Leveling Piles—Remove Outer Casing.	18 84-inch borings 15 minutes/casing 1 casing/day.	18	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
16a	2–3 Rotary Drill.	Dry Dock 1 North Wall Shafts—Install Outer Casing.	20 102-inch borings 1 hour/day 1 casing/day.	20	2.1 m/0.000014 km²	1.3 m/0.000005 km²	1,848 m/0.417417 km².
16b	2–3 Rotary Drill.	Dry Dock 1 North Wall Shafts—Pre-Drill Socket.	20 102-inch borings 9 hours/day 1 socket/day.	20	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
16c	2–3 Rotary Drill.	Dry Dock 1 North Wall Shafts—Remove Outer Casing.	20 102-inch borings 15 minutes/casing 1 casing/day.	20	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
17a	2–3 Rotary Drill.	Dry Dock 1 North Foundation Shafts—Install Outer Casing.	23 126-inch borings 1 hour/day 1 casing/day.	23	2.1 m/0.000014 km²	1.3 m/0.000005 km²	1,848 m/0.417417 km².

TABLE 8—CALCULATED DISTANCE AND AREAS OF LEVEL A AND LEVEL B HARASSMENT FOR NON-IMPULSIVE NOISE—Continued

[Rotary drilling and vibratory pile driving/extracting]

Activity ID	Year [1]/ activity	Purpose	Duration, count, size, and or rate	Total production days	Level A harassment [2]		Level B harassment
					High frequency cetaceans (harbor porpoise)	Phocid pinnipeds	All species
17b	2–3 Rotary Drill.	Dry Dock 1 North Foundation Shafts Pre-Drill Sockets.	23 126-inch borings 9 hours/day 1 socket/day.	23	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
17c	2–3 Rotary Drill.	Dry Dock 1 North Foundation Shafts—Remove Outer Casing.	23 126-inch borings 15 minutes/casing 1 casing/day.	23	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
29a	3–4 Rotary Drill.	Dry Dock 1 West Temporary Work Trestle—Install Outer Casing.	20 102-inch borings 1 hour/day 1 casing/day.	20	2.1 m/0.000014 km²	1.3 m/0.000005 km²	1,848 m/0.417417 km².
29b	3–4 Rotary Drill.	Dry Dock 1 West Temporary Work Trestle—Pre-Drill Socket.	20 102-inch borings 9 hours/day 1 socket/day.	20	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
29c	3–4 Rotary Drill.	Dry Dock 1 West Temporary Work Trestle—Remove Outer Casing.	20 102-inch borings 15 minutes/casing 1 casing/day.	20	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
30	3–4 Rotary Drill.	Dry Dock 1 West Remove Temporary Work Trestle Piles.	20 84-inch borings 15 minutes/pile 1 pile/day.	20	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
31a	3–4 Rotary Drill.	Dry Dock 1 West Wall Shafts—Install Outer Casing.	22 102-inch borings 1 hour/day 1 casing/day.	22	2.1 m/0.000014 km²	1.3 m/0.000005km²	1,848 m/0.417417 km².
31b	3–4 Rotary Drill.	Dry Dock 1 West Wall Shafts—Pre-Drill Socket.	22 102-inch borings 9 hours/day 1 socket/day.	22	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
31c	3–4 Rotary Drill.	Dry Dock 1 West Wall Shafts—Remove Outer Casing.	22 102-inch borings 15 minutes/casing 1 casing/day.	22	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
32a	3–4 Rotary Drill.	Dry Dock 1 West Foundation Shafts—Install Outer Casing.	23 126-inch borings 1 hour/day 1 casing/day.	23	2.1 m/0.000014 km²	1.3 m/0.000005 km²	1,848 m/0.417417 km².
32b	3–4 Rotary Drill.	Dry Dock 1 West Foundation Shafts Pre-Drill Sockets.	23 126-inch borings 9 hours/day 1 socket/day.	23	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
32c	3–4 Rotary Drill.	Dry Dock 1 West Foundation Shafts—Remove Outer Casing.	23 126-inch borings 15 minutes/casing 1 casing/day.	23	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².
33a	3–4 Rotary Drill.	Dry Dock 1 North Leveling Piles—Install Outer Casing.	18 84-inch borings 1 hour/day 1 casing/day.	18	2.1 m/0.000014 km²	1.3 m/0.000005 km²	1,848 m/0.417417 km².
33b	3–4 Rotary Drill.	Dry Dock 1 West Leveling Piles—Pre-Drill Socket.	18 84-inch borings 9 hours/day 1 socket/day.	18	8.9 m/0.000248 km²	5.4 m/0.000091 km²	1,848 m/0.417417 km².
33c	3–4 Rotary Drill.	Dry Dock 1 North Leveling Piles—Remove Outer Casing.	18 84-inch borings 15 minutes/casing 1 casing/day.	18	0.8 m/0.000002 km²	0.5 m/0.000001 km²	1,848 m/0.417417 km².

[1] Note, for the purposes of this analysis, the construction years are identified as years 2 through 5; takes for marine mammals during Year 1 of the Navy's construction activities were authorized in a previously issued IHA (87 FR 19886, April 6, 2022).

[2] To determine underwater harassment zone size, ensonified areas from the source were clipped along the shoreline using Geographical Information Systems (GIS).

The calculated maximum distances corresponding to the underwater marine mammal harassment zones from impulsive (impact pile driving, rock hammering, DTH) and non-impulsive (vibratory pile driving, rotary drilling) noise and the area of the harassment zone within the ROI are summarized in Tables 7 and 8, respectively. Sound source locations were chosen to model the greatest possible affected areas; typically, these locations will be at the riverward end of the super flood basin. The calculated distances do not take the land masses into consideration, but the ensonified areas do. Neither consider the reduction that will be achieved by the required use of a bubble curtain and therefore all take estimates are considered conservative. Refer to Figures 6–1 through 6–20 of the Navy's application for visual representations of the calculated maximum distances corresponding to the underwater marine mammal harassment zones from impulsive (impact pile driving, rock hammering, DTH) and non-impulsive (vibratory pile driving, rotary drilling) noise and the corresponding area of the harassment zone within the ROI.

Calculated distances to Level A harassment and Level B harassment thresholds are large, especially for DTH and rock hammering activities. However, in most cases the full distance of sound propagation will not be reached due to the presence of land masses and anthropogenic structures that will prevent the noise from reaching nearly the full extent of the harassment isopleths. Refer to Figure 1–3 in the Navy's application for the ROI, which illustrates that the land masses preclude the sound from traveling more than approximately 870 m (3,000 ft) from the source, at most. Areas encompassed within the threshold (harassment zones) were calculated by using a Geographical Information System (GIS) to clip the maximum calculated distances to the extent of the ROI (see Figure 2).

Concurrent Activities—Simultaneous use of pile drivers, hammers, and drills could result in increased SPLs and harassment zone sizes given the proximity of the component sites and the rules of decibel addition (see Table 9 below). Due to the relatively small size of the ROI, the use of a single DTH cluster drill or rock hammer will ensonify the entire ROI to the Level A (PTS Onset) harassment thresholds (refer to Table 7). Therefore, when this equipment is operated in conjunction with other noise-generating equipment, there will be no change in the size of the harassment zone. The entire ROI will remain ensonified to the Level A harassment thresholds for the duration of the activity and there will be no Level B harassment zone. However, when DTH cluster drills or rock hammers are not in use, increased SPLs and harassment zone sizes within the ROI could result. Due to the substantial amount of rock hammering and DTH excavation required for the construction of the multifunctional expansion of Dry Dock 1, the only scenarios identified in which cluster drills and/or rock hammers will not be in operation will be at the end of the project (construction years 3 and 4) when two rotary drills or two rotary drills and a DTH mono-hammer (9-inch) could be used simultaneously (refer to Table 2).

When two noise sources have overlapping sound fields, there is potential for higher sound levels than for non-overlapping sources because the isopleth of one sound source encompasses the sound source of another isopleth. In such instances, the sources are considered additive and combined using the rules of decibel addition, presented in Table 9 below (NMFS, 2021d; WSDOT, 2020).

TABLE 9—ADJUSTMENTS FOR SOUND EXPOSURE LEVEL CRITERION

Source types	Difference in sound level (at specified meters)	Adjustments to specifications for Level A harassment RMS/SEL_{ss}* calculations
Non-impulsive, continuous/Non-impulsive, continuous, OR	0 or 1 dB	Add 3 dB to the highest sound level (at specified meters) AND adjust number of piles per day to account for overlap (space and time).
	2 or 3 dB	Add 2 dB to the highest sound level (at specified meters) AND adjust number of piles per day to account for overlap (space and time).
Impulsive source (multiple strikes per second)/Impulsive source (multiple strikes per second.	4 to 9 dB	Add 1 dB to the highest sound level (at specified meters) AND adjust number of piles per day to account for overlap (space and time).
	10 dB or more	Add 0 dB to the highest sound level (at specified meters) AND adjust number of piles per day to account for overlap (space and time).

* RMS level for vibratory pile driving/rotary hammer and single strike SEL (SEL_{ss}) level for DTH/rock hammer.

For simultaneous usage of three or more continuous sound sources, the three overlapping sources with the highest SLs are identified. Of the three highest SLs, the lower two are combined using the above rules, then the combination of the lower two is combined with the highest of the three. For example, with overlapping isopleths from 24-, 36-, and 42-inch diameter steel pipe piles with sound source levels of 161, 167, and 168 dB RMS respectively, the 24- and 36-inch would be added together; given that 167–161 = 6 dB, then 1 dB is added to the highest of the two sound source levels (167 dB), for a combined noise level of 168 dB. Next, the newly calculated 168 dB is added to the 42-inch steel pile with sound source levels of 168 dB. Since 168 − 168 = 0 dB, 3 dB is added to the highest value, or 171 dB in total for the combination of 24-, 36-, and 42-inch steel pipe piles (NMFS, 2021d). By using this method, revised proxy SPLs were determined for the use of two 102-inch diameter rotary drills and the use of two 108-inch rotary drills and one 9-inch DTH mono-hammer. The revised proxy values are presented in Table 10 and the resulting harassment zones are summarized in Table 11 (visually depicted in Figures 6–21 and 6–22 in the Navy's application).

TABLE 10—REVISED PROXY VALUES FOR SIMULTANEOUS USE OF NON-IMPULSIVE SOURCES

Source A		Source B		Revised proxy RMS SPL (dB re 1 μPa)
Equipment	RMS SPL (dB re 1 μPa)	Equipment	RMS SPL (dB re 1 μPa)	
Rotary Drill	154	Rotary Drill	154	157
Two Rotary Drills	157	DTH Mono-Hammer	167	167

TABLE 11—LEVEL A AND LEVEL B HARASSMENT ZONES RESULTING FROM CONCURRENT ACTIVITIES

Multiple source scenario	Level A harassment		Level B harassment
	High frequency cetaceans (harbor porpoise)	Phocid pinnipeds	All species
2 Rotary Drills (9 hrs)	23.6 m/0.001514 km^2	9.7 m/0.000294 km^2	2,929 m/0.417417 km^2.
2 Rotary Drills (9 hrs) and 1 DTH Mono-Hammer (5 hrs).	74.2 m/0.012773 km^2	30.5 m/0.002489 km^2	13,594 m/0.417417 km^2.

Marine Mammal Occurrence and Take Estimation

In this section we provide information about the occurrence of marine mammals, including density or other relevant information, that inform the take calculations. We also describe how the information provided above is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur.

Potential exposures to impact and vibratory pile driving, rotary drilling, DTH, and rock hammering noise for each acoustic threshold were estimated using marine mammal density estimates (N) from the Navy Marine Species Density Database (NMSDD; Navy, 2017) or from monitoring reports from the Berth 11 Waterfront Improvements and P–310 construction projects. Specifically, where monitoring data specific to the project area were available, they were used, and the NMSDD data were used when there were no monitoring data available. The take estimate was determined using the following equation: take estimate = N * days of activity * area of harassment. A 10 m shutdown zone designed to prevent animal interactions with equipment was subtracted from the Level A harassment zone, and the area of the Level A harassment zone was subtracted from the Level B harassment zone to avoid double counting of takes during these take calculations. Days of construction were conservatively based on relatively slow daily production rates. The pile type, size, and installation method that produce the largest zone of influence were used to estimate exposure of marine mammals to noise impacts. In instances where an activity will ensonify the entire ROI to the Level A harassment threshold, all potential takes are assumed to be by Level A harassment.

Because some construction activities will occur over more than 1 construction year, the number of takes per year were determined by the percent duration of each construction activity occurring each year (calculated by months). For example, if an activity were to occur for 6 months, with 3 months occurring in year 2 and 3 months occurring in year 3, then 50 percent of the takes were assigned to year 2 and 50 percent to year 3. In instances where only one take was calculated but activities spanned more than 1 construction year, one take was authorized for each construction year. Table 12 summarizes the calculated duration percentages for each activity that were used to divide take numbers by year.

TABLE 12—DIVISION OF TAKES BY CONSTRUCTION YEAR

Activity ID	Total amount and estimated dates	Activity component	Year 2 [1] % takes	Year 3 [1] % takes	Year 4 [1] % takes	Year 5 [1] % takes
(A1,2,3,4) Center Wall—Install Foundation Support Piles.	Drill 18 shafts *Apr 23 to Aug 23* ..	Install 102-inch diameter outer casing.	100	0	0	0
		Pre-drill 102-inch outer casing	100	0	0	0
		Remove 102-inch outer casing	100	0	0	0
		Drill 79-inch diameter shaft	100	0	0	0
(R) Dry Dock 1 North Entrance—Install Temporary Cofferdam.	Install 48 sheet piles *Apr 23 to May 23.*	28-inch wide Z-shaped sheets	100	0	0	0
(1) Berth 11—Remove Shutter Panels.	Remove 112 panels *Apr 23 to Apr 23.*	Concrete shutter panels	100	0	0	0
(2) Berth 1—Remove Sheet Piles	Remove 168 sheet piles *Apr 23 to Jun 24.*	25-inch-wide Z-shaped	80	20	0	0
(3) Berth 1—Remove Granite Block Quay Wall.	2,800 cy *Apr 23 to Jun 24*	Removal of granite blocks	80	20	0	0
(4) Berth 1—Top of Wall Removal for Waler Installation.	320 lf *Apr 23 to Jun 24*	Mechanical concrete removal	80	20	0	0
(5) Berth 1—Install southeast corner SOE.	Install 28 sheet piles Apr 23 to Jul 23.	28-inch-wide Z-shaped	100	0	0	0
(6) Berth 11—Mechanical Rock Removal at Basin Floor.	700 cy *Apr 23 to Aug 23*	Excavate Bedrock	100	0	0	0
(7) Berth 11 Face—Mechanical Rock Removal at Basin Floor.	Drill 924 relief holes *Apr 23 to Aug 23.*	4–6 inch diameter holes	100	0	0	0
(8) Temporary Cofferdam Extension.	Install 14 sheet piles *Apr 23 to Jun 23.*	28-inch-wide Z-shaped	100	0	0	0
(9a, b, c, d) Gantry crane Support Piles at Berth 1 West.	Drill 16 shafts *Apr 23 to Aug 23* ..	Set 102-inch diameter casing	100	0	0	0
		Pre-drill 102-inch rock socket	100	0	0	0
		Remove 102-inch casing	100	0	0	0
		72-inch diameter shafts	100	0	0	0
(10) Berth 1—Mechanical Rock Removal at Basin Floor.	500 cy *Apr 23 to Sep 23*	Excavate Bedrock	100	0	0	0
(11) Dry Dock 1 North Entrance—Drill Tremie Tie Downs.	Drill 50 rock anchors *Apr 23 to Oct 23.*	9-inch diameter holes	100	0	0	0
(12) Center Wall—Install Tie-In to Existing West Closure Wall.	Install 15 sheet piles *Apr 23 to Dec 23.*	28-inch wide Z-shaped	100	0	0	0
(13a, b, c, d) Dry Dock 1 North—Temporary Piles.	Drill 20 shafts *May 23 to Nov 24*	Set 102-inch diameter casing	60	40	0	0
		Pre-drill 102-inch rock socket	60	40	0	0
		Remove 102-inch casing	60	40	0	0
		84-inch diameter shafts	60	40	0	0
(14) Dry Dock 1 North—Remove Temporary Work Trestle Piles.	Remove 20 piles *May 23 to Nov 24.*	84-inch diameter drill piles	60	40	0	0
(15a, b, c, d) Dry Dock 1 North—Install Leveling Piles (Diving Board Shafts).	Drill 18 shafts *May 23—Nov 24* ..	Set 84-inch casing	60	40	0	0
		Pre-drill 84-inch rock socket	60	40	0	0
		Remove 84-inch casing	60	40	0	0
		78-inch diameter shaft	60	40	0	0
(16a, b, c, d) Wall Shafts for Dry Dock 1 North.	Drill 20 shafts *Jun 23 to Nov 24* ..	Set 102-inch diameter casing	60	40	0	0
		Pre-drill 102-inch rock socket	60	40	0	0
		Remove 102-inch casing	60	40	0	0
		Drill 78-inch diameter shaft	60	40	0	0
(17a, b, c, d) Foundation Shafts for Dry Dock 1 North.	Drill 23 shafts *Jun 23 to Nov 24* ..	Set 126-inch diameter Casing	60	40	0	0
		Pre-drill 126-inch rock socket	60	40	0	0
		Remove 126-inch casing	60	40	0	0

TABLE 12—DIVISION OF TAKES BY CONSTRUCTION YEAR—Continued

Activity ID	Total amount and estimated dates	Activity component	Year 2 [1] % takes	Year 3 [1] % takes	Year 4 [1] % takes	Year 5 [1] % takes
		Drill 108-inch diameter shafts	60	40	0	0
(18) Berth 11 End Wall—Remove Temporary Guide Wall.	Remove 60 sheet piles *Jul 23 to Aug 23*.	28-inch wide Z-shaped	100	0	0	0
(19) Remove Berth 1 southeast corner SOE.	Remove 28 sheet piles *Jul 23 to Sep 23*.	28-inch-wide Z-shaped	100	0	0	0
(20) Removal of Berth 1 Emergency Repair Sheet Piles.	Remove 216 sheet piles *Aug 23 to Mar 24*.	28-inch-wide Z-shaped	100	0	0	0
(21) Removal of Berth 1 Emergency Repair Tremie Concrete.	765 cubic meters (1,000 cy) *Aug 23 to Mar 24*.	Mechanical concrete removal	100	0	0	0
(22) Center wall foundation—Drill in monolith Tie Downs.	Install 72 rock anchors *Aug 23 to May 24*.	9-inch diameter holes	80	20	0	0
(23) Center Wall—Remove tie-in to existing west closure wall (Dry Dock 1 North).	Remove 16 sheet piles *Aug 23 to Aug 24*.	28-inch-wide Z-shaped	60	40	0	0
(24) Center wall East—sheet pile tie-in to Existing Wall.	Install 23 sheet piles *Aug 23 to Oct 24*.	28-inch wide Z-shaped	50	50	0	0
(25) Remove tie-in to West Closure Wall (Dry Dock 1 West).	Remove 15 sheet pile *Dec 23 to Dec 24*.	28-inch wide Z-shaped	30	70	0	0
(26) Remove Center wall East—sheet pile tie-in to Existing Wall (Dry Dock 1 West).	Remove 23 sheet piles *Dec 23 to Dec 24*.	28-inch wide Z-shaped	30	70	0	0
(27) Dry Dock 1 north entrance—Remove Temporary Cofferdam.	Remove 96 sheet piles *Jan 24 to Sep 24*.	28-inch wide Z-shaped	33	66	0	0
(28) Remove Temporary Cofferdam Extension.	Remove 14 sheet piles *Jan 24 to Sep 24*.	28-inch wide Z-shaped	33	66	0	0
(29a, b, c, d) Dry Dock 1 West—Install Temporary Piles.	Drill 20 shafts *Apr 24 to Feb 26*	Set 102-inch diameter casing	0	50	50	0
		Pre-drill 102-inch rock socket	0	50	50	0
		Remove 102-inch casing	0	50	50	0
		84-inch diameter shafts	0	50	50	0
(30) Dry Dock 1 West—Remove Temporary Work Trestle Piles.	Remove 20 piles *Apr 24 to Feb 26*.	84-inch diameter piles	0	50	50	0
(31a, b, c, d) Wall Shafts for Dry Dock 1 West.	Drill 22 shafts *Jun 24 to Feb 26*	Set 102-inch diameter casing	0	50	50	0
		Pre-drill 102-inch rock socket	0	50	50	0
		Remove 102-inch casing	0	50	50	0
		78-inch diameter shaft	0	50	50	0
(32a, b, c, d) Foundation Shafts for Dry Dock 1 West.	Drill 23 shafts *Jun 24 to Feb 26*	Set 126-inch casing	0	50	50	0
		Pre-drill 126-inch rock socket	0	50	50	0
		Remove 126-inch casing	0	50	50	0
		Drill 108-inch diameter shaft	0	50	50	0
(33a, b, c, d) Dry Dock 1 West—Install Leveling Piles (Diving Board Shafts).	Drill 18 shafts *Jun 24 to Feb 26*	Set 84-inch casing	0	50	50	0
		Pre-drill 84-inch rock socket	0	50	50	0
		Remove 84-inch casing	0	50	50	0
		Drill 78-inch diameter shaft	0	50	50	0
(34) Dry Dock 1 North—Tie Downs.	Install 36 rock anchors *Jul 24 to Jul 25*.	9-inch diameter holes	0	70	30	0
(35) Dry Dock 1 West—Install Tie Downs.	Install 36 rock anchors *Dec 25 to Dec 26*.	9-inch diameter hole	0	0	30	70

* Note, for the purposes of this analysis, the construction years are identified as years 2 through 5; takes for marine mammals during Year 1 of the Navy's construction activities were authorized in a previously issued IHA (87 FR 19886, April 6, 2022).

We describe how the information provided above is brought together to produce a quantitative take estimate in the species sections below. A summary of authorized take is available in Table 16.

Harbor Porpoise

Harbor porpoises are expected to be present in the project area from April to December. Based on density data from the NMSDD, their presence is highest in spring, decreases in summer, and slightly increases in fall. During construction monitoring in the project area, there were three harbor porpoise observations between April and December of 2017; two harbor porpoise observations in early August of 2018; and one harbor porpoise observation in 2020 (Cianbro, 2018; Navy, 2019; NAVFAC, 2021). There were no harbor porpoise observations in the project area in 2021 (NAVFAC, 2022). Given that monitoring data specific to the project area are available, the more general NMSDD data were not used to determine species density in the project area. Instead, the Navy used observation data from the 2017 and 2018 construction monitoring for the Berth 11 Waterfront Improvements Project and determined that the density of harbor porpoise for the largest harassment zone was equal to 0.04/km^2. Estimated take was calculated with this density estimate multiplied by the harassment zone multiplied by the days for each activity (see Table 13).

TABLE 13—ESTIMATED TAKE OF HARBOR PORPOISE BY PROJECT ACTIVITY

Activity ID	Year/activity	Purpose	Density	Total production days	Level A harassment zone (km²)	Take by Level A harassment					Level B harassment zone (km²)	Take by Level B harassment				
						Total	Year 2	Year 3	Year 4	Year 5		Total	Year 2	Year 3	Year 4	Year 5
A	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	0.04	18	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	0.04	18	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	0.04	18	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	2 DTH Cluster Drill.	Center Wall—Install Foundation Support Piles.	0.04	117	0.417417	2	2	0	0	0	0.417417	0	0	0	0	0
R	2 Vibratory Pile Driving.	Dry Dock 1 North Entrance—Install Temporary Cofferdam.	0.04	6	0.0014041	0	0	0	0	0	0.417417	0	0	0	0	0
	2 Impact Pile Driving.	Dry Dock 1 North Entrance—Install Temporary Cofferdam.	0.04	6	0.417417	0	0	0	0	0	0.417417	0	0	0	0	0
1	2 Hydraulic Rock Hammer.	Shutter Panel Demolition (112 panels).	0.04	56	0.417417	1	1	0	0	0	0.277858	0	0	0	0	0
2	2–3 Vibratory Extraction.	Remove Berth 1 Sheet Piles	0.04	42	0.000454	0	0	0	0	0	0.417417	[1] 2	1	1	0	0
3	2–3 Hydraulic Rock Hammer.	Removal of Granite Quay Wall (2,800 cy).	0.04	47	0.417417	[1] 2	1	1	0	0	0.277858	0	0	0	0	0
4	2–3 Hydraulic Rock Hammer.	Berth 1 Top of Wall Demolition for Waler Install (320 lf).	0.04	74	0.417417	[1] 2	1	1	0	0	0.277858	0	0	0	0	0
5	2 Vibratory Pile Driving.	Install Berth 1 Support of Excavation.	0.04	8	0.000454	0	0	0	0	0	0.417417	0	0	0	0	0
	2 Impact Pile Driving.	Berth 1 Support of Excavation	0.04	8	0.403411	0	0	0	0	0	0.417417	0	0	0	0	0
6	2 Hydraulic Rock Hammer.	Mechanical Rock Removal (700 cy) at Berth 11 Basin Floor.	0.04	60	0.417417	1	1	0	0	0	0.277858	0	0	0	0	0
7	2 DTH Monohammer.	Relief Holes at Berth 11 Basin Floor.	0.04	35	0.047675	0	0	0	0	0	0.417417	1	1	0	0	0
8	2 Vibratory Pile Driving.	Install Temporary Cofferdam Extension.	0.04	4	0.000454	0	0	0	0	0	0.417417	0	0	0	0	0
	2 Impact Pile Driving.	Temporary Cofferdam Extension	0.04	4	0.403411	0	0	0	0	0	0.417417	0	0	0	0	0
9	2 Rotary Drill	Gantry Crane Support—Install Outer Casing.	0.04	16	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	2 Rotary Drill	Gantry Crane Support—Pre-Drill Socket.	0.04	16	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	2 Rotary Drill	Gantry Crane Support—Remove Outer Casing.	0.04	16	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	2 DTH Cluster Drill.	Gantry Crane Support Piles	0.04	80	0.417417	1	1	0	0	0	0.417417	0	0	0	0	0
10	2 Hydraulic Rock Hammer.	Mechanical Rock Removal (300 cy) at Berth 1 Basin Floor.	0.04	25	0.417417	0	0	0	0	0	0.277858	0	0	0	0	0
11	2 DTH Monohammer.	Dry Dock 1 North Entrance Rock Anchors.	0.04	25	0.073751	0	0	0	0	0	0.417417	0	0	0	0	0
12	2 Vibratory Pile Driving.	Center Wall Tie-In to Existing West Closure Wall.	0.04	4	0.000454	0	0	0	0	0	0.417417	0	0	0	0	0
	2 Impact Pile Driving.	Center Wall Tie-in to West Closure Wall.	0.04	4	0.403411	0	0	0	0	0	0.417417	0	0	0	0	0
13	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Install Outer Casing.	0.04	20	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Pre-Drill Socket.	0.04	20	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0

TABLE 13—ESTIMATED TAKE OF HARBOR PORPOISE BY PROJECT ACTIVITY—Continued

Activity ID	Year/activity	Purpose	Density	Total production days	Level A harassment zone (km²)	Take by Level A harassment					Level B harassment zone (km²)	Take by Level B harassment				
						Total	Year 2	Year 3	Year 4	Year 5		Total	Year 2	Year 3	Year 4	Year 5
	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Remove Outer Casing.	0.04	20	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 DTH Cluster Drill.	Dry Dock 1 North Temporary Work Trestle.	0.04	70	0.417417	[1]2	1	1	0	0	0.417417	0	0	0	0	0
14	2–3 Rotary Drill	Remove Dry Dock 1 North Temporary Work Trestle Piles.	0.04	20	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
15	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Install Outer Casing.	0.04	18	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Pre-Drill Socket.	0.04	18	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Remove Outer Casing.	0.04	18	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 DTH Cluster Drill.	Dry Dock 1 North Leveling Piles (Diving Board Shafts).	0.04	135	0.417417	2	1	1	0	0	0.417417	0	0	0	0	0
16	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Install Outer Casing.	0.04	20	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Pre-Drill Socket.	0.04	20	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Remove Outer Casing.	0.04	20	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 DTH Cluster Drill.	Wall Shafts for Dry Dock 1 North.	0.04	150	0.417417	3	2	1	0	0	0.417417	0	0	0	0	0
17	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts—Install Outer Casing.	0.04	23	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts Pre-Drill Sockets.	0.04	23	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts—Remove Outer Casing.	0.04	23	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 DTH Cluster Drill.	Foundation Shafts for Dry Dock 1 North.	0.04	196	0.417417	3	2	1	0	0	0.417417	0	0	0	0	0
18	2 Vibratory Extraction.	Berth 11 End Wall Temporary Guide Wall.	0.04	10	0.001041	0	0	0	0	0	0.417417	0	0	0	0	0
19	2 Vibratory Extraction.	Remove Berth 1 Support of Excavation.	0.04	5	0.001041	0	0	0	0	0	0.417417	0	0	0	0	0
20	2 Vibratory Extraction.	Remove Berth 1 Emergency Repairs.	0.04	18	0.000733	0	0	0	0	0	0.417417	1	1	0	0	0
21	2 Hydraulic Rock Hammer.	Removal of Emergency Repair Concrete (500 cy) at Berth 1.	0.04	15	0.417417	0	0	0	0	0	0.277858	0	0	0	0	0
22	2–3 DTH Monohammer.	Center Wall Foundation Rock Anchors.	0.04	36	0.073751	0	0	0	0	0	0.417417	0	0	0	0	0
23	2–3 Vibratory Extraction.	Dry Dock 1 North-Remove Center Wall Tie-in to West Closure Wall.	0.04	3	0.001041	0	0	0	0	0	0.417417	0	0	0	0	0
24	2–3 Vibratory Pile Driving.	Center Wall East Tie-in to Existing Wall.	0.04	12	0.000185	0	0	0	0	0	0.417417	0	0	0	0	0
	2–3 Impact Pile Driving.	Center Wall East Tie-in to Existing Wall.	0.04	12	0.334747	0	0	0	0	0	0.417417	0	0	0	0	0
25	2–3 Vibratory Extraction.	Dry Dock 1 West Remove Center Wall Tie-in to West Closure Wall.	0.04	3	0.001041	0	0	0	0	0	0.417417	0	0	0	0	0
26	2–3 Vibratory Extraction.	Remove Center Wall Tie-in to Existing Wall.	0.04	12	0.001041	0	0	0	0	0	0.417417	0	0	0	0	0
27	2–3 Vibratory Extraction.	Remove Temporary Cofferdam	0.04	12	0.001041	0	0	0	0	0	0.417417	0	0	0	0	0
28	2–3 Vibratory Extraction.	Remove Temporary Cofferdam Extension.	0.04	2	0.001041	0	0	0	0	0	0.417417	0	0	0	0	0

29	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Install Outer Casing.	0.04	20	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Pre-Drill Socket.	0.04	20	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Remove Outer Casing.	0.04	20	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 DTH Cluster Drill.	Dry Dock 1 West Temporary Work Trestle.	0.04	70	0.417417	[1] 2	0	1	1	0	0.417417	0	0	0	0	0
30	3–4 Rotary Drill	Dry Dock 1 West Remove Temporary Work Trestle Piles.	0.04	20	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
31	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Install Outer Casing.	0.04	22	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Pre-Drill Socket.	0.04	22	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Remove Outer Casing.	0.04	22	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 DTH Cluster Drill.	Wall Shafts for Dry Dock 1 West	0.04	165	0.417417	3	0	1	2	0	0.417417	0	0	0	0	0
32	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts—Install Outer Casing.	0.04	23	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts Pre-Drill Sockets.	0.04	23	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts—Remove Outer Casing.	0.04	23	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 DTH Cluster Drill.	Foundation Shafts for Dry Dock 1 West.	0.04	196	0.417417	3	0	1	2	0	0.417417	0	0	0	0	0
33	3–4 Rotary Drill	Dry Dock 1 North Leveling Piles—Install Outer Casing.	0.04	18	0.000014	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Leveling Piles—Pre-Drill Socket.	0.04	18	0.000248	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 North Leveling Piles—Remove Outer Casing.	0.04	18	0.000002	0	0	0	0	0	0.417417	0	0	0	0	0
	3–4 DTH Cluster Drill.	Dry Dock 1 West Leveling Piles (Diving Board Shafts).	0.04	135	0.417417	2	0	1	1	0	0.417417	0	0	0	0	0
34	3–4 DTH Monohammer.	Dry Dock 1 North Rock Anchors	0.04	18	0.073751	0	0	0	0	0	0.417417	0	0	0	0	0
35	4–5 DTH Monohammer.	Dry Dock 1 West Rock Anchors	0.04	18	0.073751	0	0	0	0	0	0.417417	0	0	0	0	0
Total	.....	.....	.....	.....	.....	29	13	10	6	0	.....	4	3	[2] 2	0	0

*Note: for the purposes of this analysis, the construction years are identified as years 2 through 5; takes for marine mammals during Year 1 of the Navy's construction activities were authorized in a previously issued IHA (87 FR 19886, April 6, 2022).

[1] In instances where only 1 take was calculated but activities spanned more than 1 construction year, 1 take was requested by the Navy for each construction year.

[2] 1 take by Level B harassment was added to construction year 3 to account for average group size of harbor porpoises (see *https://www.fisheries.noaa.gov/species/harbor-porpoise#:~:text=The%20harbor%20porpoise%20is%20a,estuaries%2C%20harbors%2C%20and%20fjords*).

** No additional takes are expected to result from the simultaneous use of 2 rotary drills and a DTH mono-hammer in construction years 3 and 4 and the simultaneous use of 2 rotary drills in construction year 4.

Although no construction activity is currently planned for the final year of the LOA period (construction year 6), potential schedule slips may occur as a result of equipment failure, inclement weather, or other unforeseen events. However, potential takes that could occur during year 6 as a result of delays to activities scheduled for years 2–5 are accounted for through the analyses for those years, and no additional take is authorized.

Harbor Seal

Harbor seals may be present year-round in the project vicinity, with consistent densities throughout the year. Harbor seals are the most common pinniped in the Piscataqua River near the Shipyard. Sightings of this species were recorded during monthly surveys conducted in 2017 and 2018 (NAVFAC Mid-Atlantic, 2018, 2019b) as well as during Berth 11 and P–310 construction monitoring in 2017, 2018, 2020 and 2021 (Cianbro, 2018; Navy, 2019; NAVFAC, 2021, 2022), and therefore density estimates from these efforts were considered in the analysis. Based on observations recorded during the Berth 11 Waterfront Improvements (199 observations of harbor seals during year 1 and 249 observations of harbor seals during year 2 [448 total] over 322 days) and P–310 project construction monitoring (721 observations of harbor seals during year 1 and 451 observations of harbor seals during year 2 [1,172 total] over 349 days), harbor seal density was estimated to be 3.0/km² in the project area (Cianbro, 2018; Navy, 2019; NAVFAC, 2021, 2022).

Takes by Level A harassment were calculated for harbor seals where the density of animals (3 harbor seals/km²) was multiplied by the harassment zone and the number of days per construction activity. This method was deemed to be inappropriate by the Navy for calculating takes by Level B harassment for harbor seals as it produced take numbers that were lower than the number of harbor seals that has been previously observed in the Navy's monitoring reports. Therefore, the Navy proposed (and NMFS concurred) to increase the estimated take by Level B harassment to more accurately reflect harbor seal observations in the monitoring reports, by using the value of three harbor seals observed a day multiplied by the total number of construction days (*i.e.,* 349 days), resulting in 1,047 takes per year by Level B harassment. This method is consistent with the methodology used to estimate takes by Level B harassment in IHA issued by NMFS for the first year of P–381 construction activities (87 FR 19866, April 6, 2022).

Additional takes by Level B harassment may occur during the simultaneous use of two rotary drills and a DTH mono-hammer in construction years 3 and 4 and the simultaneous use of two rotary drills in construction year 4. The simultaneous use of 2 rotary drills will result in 28 additional takes by Level B harassment of harbor seals. The simultaneous use of 2 rotary drills and a DTH mono-hammer will result in 22 additional takes by Level B harassment of harbor seals. Note, the use of cluster drills and rock hammers in construction years 2 and 3 result in the entire ROI being ensonified to Level A harassment thresholds; therefore, there will be no change to the size of the harassment zones from concurrent construction activities during these years and thus no need to authorize additional takes. To account for concurrent activities in construction years 3 and 4, the Navy requested to add additional takes by Level B harassment to the estimated take numbers (22 harbor seal in construction year 3 and 50 harbor seal in construction year 4). Therefore the Navy requests and NMFS authorizes 1,047 takes by Level B harassment for harbor seals in construction year 2, 1,069 takes by Level B harassment for harbor seals in construction year 3, 1,097 takes by Level B harassment for harbor seals in construction year 4, and 1,047 takes by Level B takes for harbor seals in construction year 5 (note the division of takes over the construction years is summarized in Table 12).

Take by Level A harassment of harbor seals is shown in Table 14 below. Note that where the Level A harassment zone is as large as the Level B harassment zone and fills the entire potentially ensonified area, the enumerated takes in the Level A harassment column may be in the form of Level A harassment and/or Level B harassment, but are authorized as takes by Level A harassment. The authorized takes by Level B harassment are not included in Table 14 as they were calculated by a different method (*i.e.,* by using the value of three harbor seals observed per day multiplied by the total number of construction days; *i.e.,* 349 days).

TABLE 14—ESTIMATED TAKE BY LEVEL A HARASSMENT OF HARBOR SEAL BY PROJECT ACTIVITY

Activity ID	Year/activity	Purpose	Density	Total production days	Level A harassment zone (km²)	Take by Level A harassment				
						Total	Year 2	Year 3	Year 4	Year 5
A	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	3	18	0.000005	0	0	0	0	0
	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	3	18	0.000091	0	0	0	0	0
	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	3	18	0.000001	0	0	0	0	0
	2 DTH Cluster Drill	Center Wall—Install Foundation Support Piles.	3	117	0.417417	147	147	0	0	0
R	2 Vibratory Pile Driving.	Dry Dock 1 North Entrance—Install Temporary Cofferdam.	3	6	0.0002	0	0	0	0	0
	2 Impact Pile Driving.	Dry Dock 1 North Entrance—Install Temporary Cofferdam.	3	6	0.364953	7	7	0	0	0
1	2 Hydraulic Rock Hammer.	Shutter Panel Demolition (112 panels).	3	56	0.417417	70	70	0	0	0
2	2–3 Vibratory Extraction.	Remove Berth 1 Sheet Piles	3	42	0.000078	0	0	0	0	0
3	2–3 Hydraulic Rock Hammer.	Removal of Granite Quay Wall (2,800 cy).	3	47	0.417417	59	47	12	0	0
4	2–3 Hydraulic Rock Hammer.	Berth 1 Top of Wall Demolition for Waler Install (320 lf).	3	74	0.417417	93	74	19	0	0
5	2 Vibratory Pile Driving.	Install Berth 1 Support of Excavation	3	8	0.000078	0	0	0	0	0
	2 Impact Pile Driving.	Berth 1 Support of Excavation	3	8	0..201158	5	5	0	0	0

TABLE 14—ESTIMATED TAKE BY LEVEL A HARASSMENT OF HARBOR SEAL BY PROJECT ACTIVITY—Continued

Activity ID	Year/ activity	Purpose	Density	Total production days	Level A harassment zone (km²)	Take by Level A harassment				
						Total	Year 2	Year 3	Year 4	Year 5
6	2 Hydraulic Rock Hammer.	Mechanical Rock Removal (700 cy) at Berth 11 Basin Floor.	3	60	0.417417	75	75	0	0	0
7	2 DTH Mono-hammer.	Relief Holes at Berth 11 Basin Floor	3	35	0.014413	1	1	0	0	0
8	2 Vibratory Pile Driving.	Install Temporary Cofferdam Extension.	3	4	0.000078	0	0	0	0	0
	2 Impact Pile Driving.	Temporary Cofferdam Extension	3	4	0.201158	2	2	0	0	0
9	2 Rotary Drill	Gantry Crane Support—Install Outer Casing.	3	16	0.000005	0	0	0	0	0
	2 Rotary Drill	Gantry Crane Support—Pre-Drill Socket.	3	16	0.000091	0	0	0	0	0
	2 Rotary Drill	Gantry Crane Support—Remove Outer Casing.	3	16	0.000091	0	0	0	0	0
	2 DTH Cluster Drill	Gantry Crane Support Piles	3	80	0.417417	100	100	0	0	0
10	2 Hydraulic Rock Hammer.	Mechanical Rock Removal (300 cy) at Berth 1 Basin Floor.	3	25	0.417417	31	31	0	0	0
11	2 DTH Mono-hammer.	Dry Dock 1 North Entrance Rock Anchors.	3	25	0.022912	2	2	0	0	0
12	2 Vibratory Pile Driving.	Center Wall Tie-In to Existing West Closure Wall.	3	4	0.000078	0	0	0	0	0
	2 Impact Pile Driving.	Center Wall Tie-in to West Closure Wall.	3	4	0.201158	2	2	0	0	0
13	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Install Outer Casing.	3	20	0.000005	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Pre-Drill Socket.	3	20	0.000091	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Remove Outer Casing.	3	20	0.000001	0	0	0	0	0
	2–3 DTH Cluster Drill.	Dry Dock 1 North TemporaryWork Trestle.	3	70	0.417417	88	53	35	0	0
14	2–3 Rotary Drill	Remove Dry Dock 1 North Temporary Work Trestle Piles.	3	20	0.000002	0	0	0	0	0
15	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Install Outer Casing.	3	18	0.000005	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Pre-Drill Socket.	3	18	0.000091	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Remove Outer Casing.	3	18	0.000001	0	0	0	0	0
	2–3 DTH Cluster Drill.	Dry Dock 1 North Leveling Piles (Diving Board Shafts).	3	135	0.417417	169	101	68	0	0
16	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Install Outer Casing.	3	20	0.000005	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Pre-Drill Socket.	3	20	0.000091	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Remove Outer Casing.	3	20	0.000001	0	0	0	0	0
	2–3 DTH Cluster Drill.	Wall Shafts for Dry Dock 1 North	3	150	0.417417	188	113	75	0	0
17	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts—Install Outer Casing.	3	23	0.000005	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts Pre-Drill Sockets.	3	23	0.000091	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts—Remove Outer Casing.	3	23	0.000001	0	0	0	0	0
	2–3 DTH Cluster Drill.	Foundation Shafts for Dry Dock 1 North.	3	196	0.417417	245	147	98	0	0
18	2 Vibratory Extraction.	Berth 11 End Wall Temporary Guide Wall.	3	10	0.0002	0	0	0	0	0
19	2 Vibratory Extraction.	Remove Berth 1 Support of Excavation.	3	5	0.0002	0	0	0	0	0
20	2 Vibratory Extraction.	Remove Berth 1 Emergency Repairs	3	18	0.000136	0	0	0	0	0
21	2 Hydraulic Rock Hammer.	Removal of Emergency Repair Concrete (500 cy) at Berth 1.	3	15	0.417417	19	19	0	0	0
22	2–3 DTH Mono-hammer.	Center Wall Foundation Rock Anchors.	3	36	0.022912	2	1	1	0	0
23	2–3 Vibratory Extraction.	Dry Dock 1 North—Remove Center Wall Tie-in to West Closure Wall.	3	3	0.0002	0	0	0	0	0
24	2–3 Vibratory Pile Driving.	Center Wall East Tie-in to Existing Wall.	3	12	0.000032	0	0	0	0	0
	2–3 Impact Pile Driving.	Center Wall East Tie-in to Existing Wall.	3	12	0.090757	3	2	1	0	0
25	2–3 Vibratory Extraction.	Dry Dock 1 West Remove Center Wall Tie-in to West Closure Wall.	3	3	0.0002	0	0	0	0	0
26	2–3 Vibratory Extraction.	Remove Center Wall Tie-in to Existing Wall.	3	12	0.0002	0	0	0	0	0
27	2–3 Vibratory Extraction.	Remove Temporary Cofferdam	3	12	0.0002	0	0	0	0	0

TABLE 14—ESTIMATED TAKE BY LEVEL A HARASSMENT OF HARBOR SEAL BY PROJECT ACTIVITY—Continued

Activity ID	Year/ activity	Purpose	Density	Total production days	Level A harassment zone (km²)	Take by Level A harassment				
						Total	Year 2	Year 3	Year 4	Year 5
28	2–3 Vibratory Extraction.	Remove Temporary Cofferdam Extension.	3	2	0.0002	0	0	0	0	0
29	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Install Outer Casing.	3	20	0.000005	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Pre-Drill Socket.	3	20	0.000091	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Remove Outer Casing.	3	20	0.000001	0	0	0	0	0
	3–4 DTH Cluster Drill.	Dry Dock 1 West Temporary Work Trestle.	3	70	0.417417	88	0	44	44	0
30	3–4 Rotary Drill	Dry Dock 1 West Remove Temporary Work Trestle Piles.	3	20	0.000002	0	0	0	0	0
31	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Install Outer Casing.	3	22	0.000005	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Pre-Drill Socket.	3	22	0.000091	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Remove Outer Casing.	3	22	0.000001	0	0	0	0	0
	3–4 DTH Cluster Drill.	Wall Shafts for Dry Dock 1 West	3	165	0.417417	206	0	103	103	0
32	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts—Install Outer Casing.	3	23	0.000005	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts Pre-Drill Sockets.	3	23	0.000091	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts—Remove Outer Casing.	3	23	0.000001	0	0	0	0	0
	3–4 DTH Cluster Drill.	Foundation Shafts for Dry Dock 1 West.	3	196	0.417417	245	0	122	123	0
33	3–4 Rotary Drill	Dry Dock 1 North Leveling Piles—Install Outer Casing.	3	18	0.000005	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Leveling Piles—Pre-Drill Socket.	3	18	0.000091	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 North Leveling Piles—Remove Outer Casing.	3	18	0.000001	0	0	0	0	0
	3–4 DTH Cluster Drill.	Dry Dock 1 West Leveling Piles (Diving Board Shafts).	3	135	0.417417	169	0	84	85	0
34	3–4 DTH Mono-hammer.	Dry Dock 1North Rock Anchors	3	18	0.022912	1	0	1	0	0
35	4–5 DTH Mono-hammer.	Dry Dock 1 West Rock Anchors	3	18	0.022912	1	0	0	0	1
Total						2,018	999	663	355	1

* **Note:** for the purposes of this analysis, the construction years are identified as years 2 through 5; takes for marine mammals during Year 1 of the Navy's construction activities were authorized in a previously issued IHA (87 FR 19886, April 6, 2022).

Although no construction activity is currently planned for the final year of the LOA period (construction year 6), potential schedule slips may occur as a result of equipment failure, inclement weather, or other unforeseen events. However, potential takes that could occur during year 6 as a result of delays to activities scheduled for years 2–5 are accounted for through the analyses for those years, and no additional take is authorized.

Gray Seal

Gray seals may be present year-round in the project vicinity, with consistent densities throughout the year. Gray seals are less common in the Piscataqua River than the harbor seal. A total of nine sightings of gray seals were recorded during P–310 construction monitoring (NAVFAC, 2021, 2022). Density estimates of gray seals were based on the Berth 11 Waterfront Improvements (24 observations of gray seals during year 1 and 12 observations of gray seals during year 2 [36 total] over 322 days) and P–310 project construction monitoring (47 observations of gray seals during year 1 and 21 observations of gray seals during year 2 [68 total] over 349 days) and was estimated to be 0.2/km² (Cianbro, 2018; Navy, 2019; NAVFAC, 2021, 2022). These data were preferred in this analysis over the more general density data from the NMSDD.

Takes by Level A harassment were calculated for gray seals where the density of animals (0.2 gray seals/km²) was multiplied by the harassment zone and the number of days per construction activity. This method was deemed to be inappropriate by the Navy for calculating takes by Level B harassment for gray seals as it produced take that were fewer than the number of gray seals that has been previously observed in the Navy's monitoring reports. Therefore, the Navy proposed (and NMFS concurred), to increase the take by Level B harassment to more accurately reflect gray seal observations in the monitoring reports, by using the value of 0.2 gray seals a day multiplied by the total number of construction days (*i.e.,* 349 days) resulting in 70 takes by Level B harassment authorized per year. This method is consistent with the methodology used to estimate takes by Level B harassment in IHA issued by NMFS for the first year of P–381 construction activities (87 FR 19866; April 6, 2022).

Additional takes by Level B harassment may occur during the simultaneous use of two rotary drills and a DTH mono-hammer in construction years 3 and 4 and the simultaneous use of two rotary drills in construction year 4. The simultaneous use of two rotary drills will result in two additional Level B takes of gray seals. The simultaneous use of two rotary drills and a DTH mono-hammer will result in one additional Level B take of

gray seals. Note, the use of cluster drills and rock hammers in construction years 2 and 3 result in the entire ROI being ensonified to Level A harassment thresholds; therefore, there will be no change to the size of the harassment zones from concurrent construction activities during these years and thus no need to request additional takes. To account for concurrent activities in construction years 3 and 4, the Navy requested additional takes by Level B harassment to the take numbers (one gray seal in construction year 3 and three gray seals in construction year 4). Therefore the Navy requests and NMFS authorizes 70 takes by Level B takes for gray seals in construction year 2, 71 takes by Level B harassment for gray seals in construction year 3, 73 takes by Level B harassment for gray seals in construction year 4, and 70 takes by Level B harassment for gray seals in construction year 5 (note the division of takes over the construction years is summarized in Table 12).

Take by Level A harassment of gray seals is shown in Table 15 below. Note that where the Level A harassment zone is as large as the Level B harassment zone and fills the entire potentially ensonified area, the enumerated takes in the Level A harassment column may be in the form of Level A harassment and/or Level B harassment, but will be authorized as takes by Level A harassment. The authorized takes by Level B harassment are not included in Table 15 as they were calculated by a different method (*i.e.,* by using the value of 0.2 gray seals observed a day multiplied by the total number of construction days; *i.e.,* 349 days).

TABLE 15—ESTIMATED TAKE BY LEVEL A HARASSMENT OF GRAY SEAL BY PROJECT ACTIVITY

Activity ID	Year/activity	Purpose	Density	Total production days	Level A harassment zone (km^2)	Take by Level A harassment				
						Total	Year 2	Year 3	Year 4	Year 5
A	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	0.2	18	0.000005	0	0	0	0	0
	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	0.2	18	0.000091	0	0	0	0	0
	2 Rotary Drill	Center Wall—Install Foundation Support Piles.	0.2	18	0.000001	0	0	0	0	0
	2 DTH Cluster Drill.	Center Wall—Install Foundation Support Piles.	0.2	117	0.417417	10	10	0	0	0
R	2 Vibratory Pile Driving.	Dry Dock 1 North Entrance—Install Temporary Cofferdam.	0.2	6	0.0002	0	0	0	0	0
	2 Impact Pile Driving.	Dry Dock 1 North Entrance—Install Temporary Cofferdam.	0.2	6	0.364953	0	0	0	0	0
1	2 Hydraulic Rock Hammer.	Shutter Panel Demolition (112 panels).	0.2	56	0.417417	5	5	0	0	0
2	2–3 Vibratory Extraction.	Remove Berth 1 Sheet Piles	0.2	42	0.000078	0	0	0	0	0
3	2–3 Hydraulic Rock Hammer.	Removal of Granite Quay Wall (2,800 cy).	0.2	47	0.417417	4	3	1	0	0
4	2–3 Hydraulic Rock Hammer.	Berth 1 Top of Wall Demolition for Waler Install (320 lf).	0.2	74	0.417417	6	5	1	0	0
5	2 Vibratory Pile Driving.	Install Berth 1 Support of Excavation.	0.2	8	0.000078	0	0	0	0	0
	2 Impact Pile Driving.	Berth 1 Support of Excavation	0.2	8	0.201158	0	0	0	0	0
6	2 Hydraulic Rock Hammer.	Mechanical Rock Removal (700 cy) at Berth 11 Basin Floor.	0.2	60	0.417417	5	5	0	0	0
7	2 DTH Monohammer.	Relief Holes at Berth 11 Basin Floor.	0.2	35	0.014413	0	0	0	0	0
8	2 Vibratory Pile Driving.	Install Temporary Cofferdam Extension.	0.2	4	0.000078	0	0	0	0	0
	2 Impact Pile Driving.	Temporary Cofferdam Extension	0.2	4	0.201158	0	0	0	0	0
9	2 Rotary Drill	Gantry Crane Support—Install Outer Casing.	0.2	16	0.000005	0	0	0	0	0
	2 Rotary Drill	Gantry Crane Support—Pre-Drill Socket.	0.2	16	0.000091	0	0	0	0	0
	2 Rotary Drill	Gantry Crane Support—Remove Outer Casing.	0.2	16	0.000091	0	0	0	0	0
	2 DTH Cluster Drill.	Gantry Crane Support Piles	0.2	80	0.417417	7	7	0	0	0
10	2 Hydraulic Rock Hammer.	Mechanical Rock Removal (300 cy) at Berth 1 Basin Floor.	0.2	25	0.417417	2	2	0	0	0
11	2 DTH Monohammer.	Dry Dock 1 North Entrance Rock Anchors.	0.2	25	0.022912	0	0	0	0	0
12	2 Vibratory Pile Driving.	Center Wall Tie- In to Existing West Closure Wall.	0.2	4	0.000078	0	0	0	0	0
	2 Impact Pile Driving.	Center Wall Tie-in to West Closure Wall.	0.2	4	0.201158	0	0	0	0	0
13	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Install Outer Casing.	0.2	20	0.000005	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Pre-Drill Socket.	0.2	20	0.000091	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Temporary Work Trestle—Remove Outer Casing.	0.2	20	0.000001	0	0	0	0	0
	2–3 DTH Cluster Drill.	Dry Dock 1 North Temporary Work Trestle.	0.2	70	0.417417	6	4	2	0	0
14	2–3 Rotary Drill	Remove Dry Dock 1 North Temporary Work Trestle Piles.	0.2	20	0.000002	0	0	0	0	0

TABLE 15—ESTIMATED TAKE BY LEVEL A HARASSMENT OF GRAY SEAL BY PROJECT ACTIVITY—Continued

Activity ID	Year/activity	Purpose	Density	Total production days	Level A harassment zone (km^2)	Take by Level A harassment				
						Total	Year 2	Year 3	Year 4	Year 5
15	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Install Outer Casing.	0.2	18	0.000005	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Pre-Drill Socket.	0.2	18	0.000091	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Leveling Piles—Remove Outer Casing.	0.2	18	0.000001	0	0	0	0	0
	2–3 DTH Cluster Drill.	Dry Dock 1 North Leveling Piles (Diving Board Shafts).	0.2	135	0.417417	11	7	4	0	0
16	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Install Outer Casing.	0.2	20	0.000005	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Pre-Drill Socket.	0.2	20	0.000091	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Wall Shafts—Remove Outer Casing.	0.2	20	0.000001	0	0	0	0	0
	2–3 DTH Cluster Drill.	Wall Shafts for Dry Dock 1 North	0.2	150	0.417417	13	8	5	0	0
17	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts—Install Outer Casing.	0.2	23	0.000005	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts Pre-Drill Sockets.	0.2	23	0.000091	0	0	0	0	0
	2–3 Rotary Drill	Dry Dock 1 North Foundation Shafts—Remove Outer Casing.	0.2	23	0.000001	0	0	0	0	0
	2–3 DTH Cluster Drill.	Foundation Shafts for Dry Dock 1 North.	0.2	196	0.417417	16	10	6	0	0
18	2 Vibratory Extraction.	Berth 11 End Wall Temporary Guide Wall.	0.2	10	0.0002	0	0	0	0	0
19	2 Vibratory Extraction.	Remove Berth 1 Support of Excavation.	0.2	5	0.0002	0	0	0	0	0
20	2 Vibratory Extraction.	Remove Berth 1 Emergency Repairs.	0.2	18	0.000136	0	0	0	0	0
21	2 Hydraulic Rock Hammer.	Removal of Emergency Repair Concrete (500 cy) at Berth 1.	0.2	15	0.417417	1	1	0	0	0
22	2–3 DTH Monohammer.	Center Wall Foundation Rock Anchors.	0.2	36	0.022912	0	0	0	0	0
23	2–3 Vibratory Extraction.	Dry Dock North-Remove Center Wall Tie-in to West Closure Wall.	0.2	3	0.0002	0	0	0	0	0
24	2–3 Vibratory Pile Driving.	Center Wall East Tie-in to Existing Wall.	0.2	12	0.000032	0	0	0	0	0
	2–3 Impact Pile Driving.	Center Wall East Tie-in to Existing Wall.	0.2	12	0.090757	0	0	0	0	0
25	2–3 Vibratory Extraction.	Dry Dock 1 West Remove Center Wall Tie-in to West Closure Wall.	0.2	3	0.0002	0	0	0	0	0
26	2–3 Vibratory Extraction.	Remove Center Wall Tie-in to Existing Wall.	0.2	12	0.0002	0	0	0	0	0
27	2–3 Vibratory Extraction.	Remove Temporary Cofferdam	0.2	12	0.0002	0	0	0	0	0
28	2–3 Vibratory Extraction.	Remove Temporary Cofferdam Extension.	0.2	2	0.0002	0	0	0	0	0
29	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Install Outer Casing.	0.2	20	0.000005	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Pre-Drill Socket.	0.2	20	0.000091	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Temporary Work Trestle—Remove Outer Casing.	0.2	20	0.000001	0	0	0	0	0
	3–4 DTH Cluster Drill.	Dry Dock 1 West Temporary Work Trestle.	0.2	70	0.417417	6	0	3	3	0
30	3–4 Rotary Drill	Dry Dock 1 West Remove Temporary Work Trestle Piles.	0.2	20	0.000002	0	0	0	0	0
31	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Install Outer Casing.	0.2	22	0.000005	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Pre-Drill Socket.	0.2	22	0.000091	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Wall Shafts—Remove Outer Casing.	0.2	22	0.000001	0	0	0	0	0
	3–4 DTH Cluster Drill.	Wall Shafts for Dry Dock 1 West	0.2	165	0.417417	14	0	7	7	0
32	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts—Install Outer Casing.	0.2	23	0.000005	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts Pre-Drill Sockets.	0.2	23	0.000091	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Foundation Shafts—Remove Outer Casing.	0.2	23	0.000001	0	0	0	0	0
	3–4 DTH Cluster Drill.	Foundation Shafts for Dry Dock 1 West.	0.2	196	0.417417	16	0	8	8	0
33	3–4 Rotary Drill	Dry Dock 1 North Leveling Piles—Install Outer Casing.	0.2	18	0.000005	0	0	0	0	0
	3–4 Rotary Drill	Dry Dock 1 West Leveling Piles—Pre-Drill Socket.	0.2	18	0.000091	0	0	0	0	0

TABLE 15—ESTIMATED TAKE BY LEVEL A HARASSMENT OF GRAY SEAL BY PROJECT ACTIVITY—Continued

Activity ID	Year/activity	Purpose	Density	Total production days	Level A harassment zone (km²)	Take by Level A harassment				
						Total	Year 2	Year 3	Year 4	Year 5
	3–4 Rotary Drill ..	Dry Dock 1 North Leveling Piles—Remove Outer Casing.	0.2	18	0.000001	0	0	0	0	0
	3–4 DTH Cluster Drill.	Dry Dock 1 West Leveling Piles (Diving Board Shafts).	0.2	135	0.417417	11	0	6	5	0
34	3–4 DTH Mono-hammer.	Dry Dock 1 North Rock Anchors ...	0.2	18	0.022912	0	0	0	0	0
35	4–5 DTH Mono-hammer.	Dry Dock 1 West Rock Anchors	0.2	18	0.022912	0	0	0	0	0
Total	.....	.....	.....	.....	.....	133	67	43	23	0

* **Note:** for the purposes of this analysis, the construction years are identified as years 2 through 5; takes for marine mammals during Year 1 of the Navy's construction activities were authorized in a previously issued IHA (87 FR 19886, April 6, 2022).

Although no construction activity is currently planned for the final year of the LOA period (construction year 6), potential schedule slips may occur as a result of equipment failure, inclement weather, or other unforeseen events. However, potential takes that could occur during year 6 as a result of delays to activities scheduled for years 2–5 are accounted for through the analyses for those years, and no additional take is authorized.

Hooded Seal

Hooded seals may be present in the project vicinity from January through May, though their exact seasonal densities are unknown. In general, hooded seals are much rarer than the harbor seal and gray seal in the Piscataqua River. NMFS authorized one take by Level B harassment per month from January to May of a hooded seal for the Berth 11 Waterfront Improvements Construction project (NMFS, 2018b) and for P–310 (Super Flood Basin) (NMFS, 2016; NMFS, 2019; NMFS, 2021c). To date, the monitoring for those projects and for the density surveys have not recorded a sighting of hooded seal in the project area (Cianbro, 2018; NAVFAC Mid-Atlantic, 2018, 2019b; Navy 2019; NAVFAC, 2021, 2022). In order to guard against the potential for unauthorized take, the Navy again requested one take by Level B harassment of hooded seal per month (between the months of January and May) for each construction year. Therefore NMFS authorizes five takes by Level B harassment per year. Given the size of the shutdown zones in relation to the Level A harassment isopleths (see the Mitigation section below), NMFS also authorizes five takes by Level A harassment per year to safeguard against unauthorized take of hooded seals that may occur unnoticed in the Level A harassment zone for sufficient duration to incur PTS.

Harp Seal

In general, harp seals are much rarer than the harbor seal and gray seal in the Piscataqua River. Harp seals were not observed during marine mammal monitoring or survey events that took place in 2017, 2018, or 2021 (Cianbro, 2018; NAVFAC Mid-Atlantic, 2018, 2019b; Navy, 2019; NAVFAC, 2021, 2022); however, two harp seals (n=2) were observed in the River in 2020 (Stantec, 2020), and another harp seal was observed in 2016 (NAVFAC Mid-Atlantic, 2016; NMFS, 2016). As above for hooded seals, NMFS is authorizing one take by Level B harassment of harp seal per month of construction (between the months of January and May) for each construction year as was authorized by NMFS for the Berth 11 Waterfront Improvements Project (NMFS, 2018b) and for P–310 (Super Flood Basin) construction activities (NMFS, 2019, 2021a). Harp seals may occur in the area from January through May. Anticipating one Level B harassment harp seal take per month for 5 months per year during in-water construction will guard against potential unauthorized take of this species. Given the size of the shutdown zones in relation to the Level A harassment isopleths (see the Mitigation section below), NMFS also authorizes five takes by Level A harassment per year to safeguard against unauthorized take of harp seals that may occur unnoticed in the Level A harassment zone for sufficient duration to incur PTS.

Table 16 below summarizes the authorized take for all the species described above as a percentage of stock abundance.

TABLE 16—AUTHORIZED TAKE AS A PERCENTAGE OF STOCK ABUNDANCE

Construction year	Species	Stock (N_{EST})	Authorized take by Level A harassment	Authorized take by Level B harassment	Total authorized take	Percent of stock
2—Apr 2023–Mar 2024.	Harbor porpoise	Gulf of Maine/Bay of Fundy (95,543)	13	3	16	0.02
	Harbor seal	Western North Atlantic (61,336)	999	1,047	2,046	3.33
	Gray seal	Western North Atlantic (451,600)	67	70	137	0.03
	Harp seal	Western North Atlantic (7.6 million)	5	5	10	<0.01
	Hooded seal	Western North Atlantic (593,500)	5	5	10	<0.01
3—Apr 2024–Mar 2025.	Harbor porpoise	Gulf of Maine/Bay of Fundy (95,543)	10	2	12	0.01
	Harbor seal	Western North Atlantic (61,336)	663	1,069	1,732	2.82
	Gray seal	Western North Atlantic (451,600)	43	71	114	0.03
	Harp seal	Western North Atlantic (7.6 million)	5	5	10	<0.01
	Hooded seal	Western North Atlantic (593,500)	5	5	10	<0.01
4—Apr 2025–Mar 2026.	Harbor porpoise	Gulf of Maine/Bay of Fundy (95,543)	6	0	6	0.01

TABLE 16—AUTHORIZED TAKE AS A PERCENTAGE OF STOCK ABUNDANCE—Continued

Construction year	Species	Stock (N_{EST})	Authorized take by Level A harassment	Authorized take by Level B harassment	Total authorized take	Percent of stock
	Harbor seal	Western North Atlantic (61,336)	355	1,097	1,452	2.37
	Gray seal	Western North Atlantic (451,600)	23	73	96	0.02
	Harp seal	Western North Atlantic (7.6 million)	5	5	10	<0.01
	≤Hooded seal	Western North Atlantic (593,500)	5	5	10	<0.01
5—Apr 2026–Mar 2027.	Harbor porpoise	Gulf of Maine/Bay of Fundy (95,543)	0	0	0	0
	Harbor seal	Western North Atlantic (61,336)	1	1,047	1,048	1.71
	Gray seal	Western North Atlantic (451,600)	0	70	70	0.02
	Harp seal	Western North Atlantic (7.6 million)	5	5	10	<0.01
	Hooded seal	Western North Atlantic (593,500)	5	5	10	<0.01
6—Apr 2027–Mar 2028.	Harbor porpoise	Gulf of Maine/Bay of Fundy (95,543)	0	0	0	<0.01
	Harbor seal	Western North Atlantic (61,336)	0	0	0	<0.01
	Gray seal	Western North Atlantic (451,600)	0	0	0	<0.01
	Harp seal	Western North Atlantic (7.6 million)	0	0	0	<0.01
	Hooded seal	Western North Atlantic (593,500)	0	0	0	<0.01
Total Authorized Take [1].	Harbor porpoise	Gulf of Maine/Bay of Fundy (95,543)	29	5	34	NA
	Harbor seal	Western North Atlantic (61,336)	2,018	4,260	6,278	NA
	Gray seal	Western North Atlantic (451,600)	133	284	438	NA
	Harp seal	Western North Atlantic (7.6 million)	25	25	50	NA
	Hooded seal	Western North Atlantic (593,500)	25	25	50	NA

[1] The total authorized take does not include take that may occur in year 6 as a result of schedule delays, as these potential takes are already accounted for in previous years.

Mitigation

In order to issue an LOA under section 101(a)(5)(A) 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, impact on operations.

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

General

In-water construction activities 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. If such circumstances recur, the Navy will consult with NMFS concerning the potential need for an additional take authorization.

Coordination

The Navy shall conduct briefings between construction supervisors and crews, the marine mammal monitoring team, and Navy staff prior to the start of in-water construction activities and when new personnel join the work, to ensure that responsibilities, communication procedures, marine mammal monitoring protocols, and operational procedures are clearly understood.

Soft Start

The Navy shall use soft start techniques when impact pile driving. The objective of a soft start is to provide a warning and/or give animals in close proximity to pile-driving a chance to leave the area prior to an impact driver operating at full capacity, thereby exposing fewer animals to loud underwater and airborne sounds. Soft start requires contractors to provide an initial set of strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. Note the number of strikes will vary at reduced energy because raising the hammer at less than full power and then releasing it results in the hammer ''bouncing'' as it strikes the pile, resulting in multiple ''strikes.'' A 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. Soft start is not applicable to other in-water construction activities.

Bubble Curtain

During construction of the multifunctional expansion of Dry Dock 1, portions of the west closure wall and/or the super flood basin caisson gate may not be in place. A bubble curtain

will be installed across the entrance openings to mitigate underwater noise impacts outside of the basin for those activities where Level A harassment thresholds are achieved across the entire ROI (*i.e.,* cluster drill and hydraulic rock hammering (Table 7)). A bubble curtain similar to the one employed during P–310 blasting activities and proposed for use during P–381 year 1 construction will be used to minimize potential impacts outside of the basin. Hydroacoustic monitoring will be conducted inside of the bubble curtain to measure construction generated noise levels. Should the results of the recordings inside the bubble curtain show that the source levels do not result in the Level A harassment thresholds being achieved across the entire ROI by the activity occurring, upon review of the data by NMFS, the Navy may discontinue use of the bubble curtain for those activities that are not actually exceeding thresholds. The bubble curtain must adhere to the following restrictions:

- The bubble curtain must distribute air bubbles across 100 percent of the entrance openings for the full depth of the water column;
- The lowest bubble ring must be in contact with the substrate for the full extent of the curtain, and the weights attached to the bottom of the curtain must ensure 100 percent substrate contact. No parts of the curtain or other objects shall prevent full substrate contact; and
- Air flow to the bubblers must be balanced around the entrance openings to the superflood basin.

Avoiding Direct Physical Interaction

During all in-water construction activities, in order to prevent injury from physical interaction with construction equipment, a shutdown zone of 10 m (33 ft) will be implemented. If a marine mammal comes within 10 m (33 ft) of such activity, operations shall cease and vessels will reduce speed to the minimum level required to maintain steerage and safe working conditions. If human safety is at risk, the in-water activity will be allowed to continue until it is safe to stop.

Shutdown Zones

The Navy shall establish shutdown zones for all in-water construction 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 17). The shutdown zone distances for rock hammering, impact pile-driving of sheet piles, and DTH excavation (200 m (656 ft) for harbor porpoise and 50 m (164 ft) for seals) are consistent with those implemented for the same activities for P–381 year 1 construction activities (NMFS, 2022a; 87 FR 19886, April 6, 2022). NMFS has determined that these shutdown zones represent the largest area that can practicably be monitored.

TABLE 17—PILE DRIVING SHUTDOWN ZONE AND MONITORING ZONES DURING PROJECT ACTIVITIES

LOA year	Activity, size, and component	Shutdown zone (m)		Monitoring zone [1] (km^2)
		Harbor porpoise	Seals	
2	Rock Hammering [2]	200	50	ROI.[3]
2	Impact Pile Driving—8 sheet piles per day	200	50	ROI.[4]
2	Impact Pile Driving—4 sheet piles per day	200	50	ROI.[4]
2/3	Impact Pile Driving—2 sheet piles per day	200	50	ROI.[4]
2/3	Vibratory Pile Driving/Extraction—8 sheet piles per day	20	10	ROI.[4]
2	Vibratory Pile Driving/Extraction—6 sheet piles per day	20	10	ROI.[4]
2	Vibratory Pile Driving/Extraction—4 sheet piles per day	15	10	ROI.[4]
2/3	Vibratory Pile Driving/Extraction—2 sheet piles per day	10	10	ROI.[4]
2	DTH mono-hammer 4–6 inch relief holes	180	50	ROI.[4]
2/3/4/5	DTH mono-hammer 9-inch rock anchors for tie-downs	200	50	ROI.[4]
2/3/4	Rotary Drilling—1 hour to set casings	10	10	ROI.[4]
2/3/4	Rotary drilling—9 hours to drill socket	10	10	ROI.[4]
2/3/4	Rotary Drilling—15 minutes to remove casings and temporary work trestle piles.	10	10	ROI.[4]
2/3/4	Cluster Drilling [2]	200	50	ROI.[3 4]

[1] In instances where the harassment zone is larger than the region of influence (ROI), the entire ROI is indicated as the limit of monitoring (see Figure 1–3 in the Navy's application).
[2] Activities will employ a bubble curtain to reduce underwater noise impacts outside of the basin.
[3] The entire ROI will be ensonified to the Level A threshold.
[4] The entire ROI will be ensonified to the Level B threshold.

The Navy must delay or shutdown in-water construction activities should a marine mammal approach or enter the appropriate shutdown zone. The Navy may resume activities after one of the following conditions have been met: (1) the animal is observed exiting the shutdown zone; (2) the animal is thought to have exited the shutdown zone based on a determination of its course, speed, and movement relative to the pile driving location; or (3) the shutdown zone has been clear from any additional sightings for 15 minutes.

Protected Species Observers

The Navy shall employ at least three protected species observers (PSOs) to monitor marine mammal presence in the action area during all in-water construction activities. Additional PSOs may be added if warranted by site conditions (rough seas, rain) and the level of marine mammal activity. All PSOs will be approved by NMFS and the Navy prior to starting work as a PSO. PSOs must track marine mammals observed anywhere within their visual range relative to in-water construction activities, and estimate the amount of time a marine mammal spends within the Level A or Level B harassment zones while construction activities are underway.

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. Pre-start clearance monitoring must be conducted for 30 minutes to ensure that the shutdown zones indicated in Table 17 are clear of marine mammals, and pile driving or drilling may commence when observers have declared the shutdown zone clear of marine mammals. Monitoring must occur throughout the time required to drive/drill a pile. If work ceases for more than 30 minutes, the pre-start clearance monitoring of the shutdown zones must 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).

The placement of PSOs during all pile driving and drilling activities (described in the Monitoring and Reporting section) must ensure that the entire shutdown zone and Level A harassment zone is visible during pile driving and drilling. Should environmental conditions deteriorate such that marine mammals within the entire shutdown zone or Level A harassment zone will not be visible (*e.g.,* fog, heavy rain), in-water construction activities must be delayed until the PSO is confident marine mammals within the shutdown zone or Level A harassment zone could be detected. However, if work on a pile has already begun, work is allowed to continue until that pile is installed.

If an in-water construction activity 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 indicated in Table 17 or 15 minutes have passed without re-detection of the animal. If in-water construction activities cease for more than 30 minutes, the pre-activity monitoring of the shutdown zone must commence.

Based on our evaluation of the applicant's planned measures, NMFS has determined that the 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.

Monitoring and Reporting

In order to issue an LOA for an activity, section 101(a)(5)(A) 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.

Under the MMPA implementing regulations, 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 shall submit a Marine Mammal Monitoring Plan to NMFS for approval in advance of the start of the construction covered by this rule. The plan will incorporate all monitoring and mitigation measures and reporting requirements of the incidental take regulations.

Monitoring Zones

The Navy shall conduct monitoring to include the entire ROI, which includes the area within the Level B harassment zones (areas where SPLs are equal to or exceed the 160 dB RMS threshold for impact driving and hydraulic rock hammering, and the 120 dB RMS threshold during vibratory pile driving, rotary drilling, and DTH) (see Table 7 and 8). These monitoring zones provide utility for monitoring conducted for mitigation purposes (*i.e.,* shutdown zone monitoring) by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring of these zones enables observers to be aware of and communicate the presence of marine mammals in the project area, but outside the shutdown zone, and thus prepare for potential shutdowns of activity.

Protected Species Observer (PSO) Monitoring Requirements and Locations

PSOs shall be responsible for monitoring the shutdown zones, the monitoring zones and the pre-clearance zones, as well as effectively documenting takes by Level A and B harassment. As described in more detail in the Marine Mammal Monitoring Reporting section below, they shall also (1) document the frequency at which marine mammals are present in the project area, (2) document behavior and group composition, (3) record all construction activities, and (4) document observed reactions (changes in behavior or movement) of marine mammals during each sighting. The PSOs shall monitor for marine mammals during all in-water construction activities associated with the project. The Navy shall monitor the project area to the extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions. Visual monitoring shall be conducted by three PSOs. It is assumed that three PSOs shall be located on boats, docks, or piers sufficient to monitor the respective ROIs given the abundance of suitable vantage points (see Figure 11–1 of the Navy's application). The PSOs must record all observations of marine mammals, regardless of distance from the in-water construction activity.

Monitoring of in-water construction activities shall be conducted by qualified, PSOs. The Navy shall adhere to the following conditions when selecting PSOs:

- PSOs must be independent (*i.e.,* not construction personnel) 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 activities 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;

▪ Where a team of three PSOs are required, a lead observer or monitoring coordinator shall 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; and

▪ PSOs must be approved by NMFS prior to beginning any activity subject to this rule.

The Navy will ensure that the PSOs have the following additional qualifications:

▪ Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance; use of binoculars may be necessary to correctly identify the target;

▪ Experience and 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.

Hydroacoustic Monitoring

The Navy shall conduct a sound source verification (SSV) study effort to measure SPLs from in-water construction activities not previously monitored as part of P–310 or as part of P–381 year 1 construction. The Navy will collect and evaluate acoustic sound record levels for the rock excavation (rotary drilling or DTH excavation) activities conducted up to a maximum limit of 10 piles/holes. One hydrophone will be placed at locations 10 m (33 ft) from the noise source and a second hydrophone will be placed at a representative monitoring location at an intermediate distance between the cetacean and phocid shutdown zones. These locations will be adhered to as practicable given safety considerations and levels of activity in the basin. For the 10 rock excavation (rotary drilling or DTH excavation) events acoustically measured, 100 percent of the data will be analyzed.

At a minimum, the methodology includes:

▪ For underwater recordings, a stationary hydrophone system with the ability to measure SPLs will be placed in accordance with NMFS' most recent guidance for the collection of source levels (NMFS, 2012).

▪ Hydroacoustic monitoring will be conducted for each type of activity not previously monitored under P–310 or the P–381 year 1 IHA up to a maximum limit of 10 piles/holes (Table 18). Monitoring will occur from the same locations approved by NMFS for P–310 construction activities. The resulting data set will be analyzed to examine and confirm sound pressure levels and rates of TL for each separate in-water construction activity. With NMFS concurrence, these measurements may be used to recalculate the limits of shutdown and Level A and Level B harassment zones, as appropriate. Hydrophones will be placed in the same manner as for P–310 construction activities. Locations of hydroacoustic recordings will be collected via global positioning system. A depth sounder and/or weighted tape measure will be used to determine the depth of the water. The hydrophone will be attached to a-weighted nylon cord or chain to maintain a constant depth and distance from the pile/drill/hammer location. The nylon cord or chain will be attached to a float or tied to a static line.

TABLE 18—HYDROACOUSTIC MONITORING SUMMARY

Pile type/shaft size	Number installed/ removed	Method of install/removal	Number monitored
126-inch shaft	138	Rotary Drill	10
84-inch shaft	148	Rotary Drill	10
108-inch shaft	46	DTH Cluster Drill	10
84-inch shaft	40	DTH Cluster Drill	10
72-inch shaft	16	DTH Cluster Drill	10

▪ Each hydrophone will be calibrated at the start of each action and will be checked frequently to the applicable standards of the hydrophone manufacturer.

▪ For each monitored location, a single hydrophone will be suspended midway in the water column in order to evaluate site-specific attenuation and propagation characteristics that may be present throughout the water column.

▪ Environmental data will 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, and other factors that could contribute to influencing the airborne and underwater sound levels (*e.g.,* aircraft, boats, *etc.*).

▪ The chief inspector will supply the acoustics specialist with the substrate composition, hammer/drill model and size, hammer/drill energy settings, depth of drilling, and boring rates and any changes to those settings during the monitoring.

▪ For acoustically monitored construction activities, data from the continuous monitoring locations will be post-processed to obtain the following sound measures:

○ Maximum peak sound pressure level recorded for all activities, expressed in dB re 1 μPa. This maximum value will originate from the phase of drilling/hammering during which drill/hammer energy was also at maximum (referred to as Level 4).

○ From all activities occurring during the Level 4 phase these additional measures will be made, as appropriate:

▪ Mean, median, minimum, and maximum RMS sound pressure level in (dB re 1 μPa);

▪ Mean duration of a pile strike (based on the 90 percent energy criterion);

▪ Number of hammer strikes;

▪ Mean, median, minimum, and maximum single strike SEL (dB re μPa^2 sec);

○ Median integration time used to calculate SPL RMS (for vibration

monitoring, the time period selected is 1-second intervals. For impulsive monitoring, the time period is 90 percent of the energy pulse duration).

○ A frequency spectrum (power spectral density) (dB re μPa² per Hz) based on all strikes with similar sound. Spectral resolution will be 1 Hz, and the spectrum will cover nominal range from 7 Hz to 20 kHz.

○ Finally, the cumulative SEL will be computed from all the strikes associated with each pile occurring during all phases, *i.e.,* soft start, Level 1, to Level 4. This measure is defined as the sum of all single strike SEL values. The sum is taken of the antilog, with $\log_{10}$ taken of result to express (dB re μPa² sec).

Marine Mammal Monitoring Reporting

The Navy shall submit annual draft reports to NMFS for each construction year within 90 calendar days of the completion of marine mammal monitoring as well as a draft 5-year comprehensive summary report at the end of the project. The report(s) will detail the monitoring protocol and summarize the data recorded during monitoring. Annual reports will also include results from acoustic monitoring (see below). Final annual report(s) (each portion of the project and comprehensive) must be prepared and submitted to NMFS within 30 days following resolution of any NMFS comments on the draft reports. If no comments are received from NMFS within 30 days of receipt of the draft report, the report shall be considered final. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments.

A draft 5-year comprehensive summary report shall be submitted to NMFS 90 days after the expiration of the regulations. The draft report will synthesize the data recorded during hydroacoustic and marine mammal monitoring. NMFS will provide comments within 30 days after receiving this draft report, and the Navy will address the comments and submit revisions within 30 days of receipt. If no comment is received from NMFS within 30 days, the draft report will be considered as final.

All draft and final marine mammal monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *ITP.tyson.moore@noaa.gov.* The report must contain the following informational elements, at minimum, (and be included in the Marine Mammal Monitoring Plan), including:

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

▪ Construction activities occurring during each daily observation period, including:

○ How many and what type of piles/shafts were driven and by what method (*e.g.,* impact, vibratory, rotary drilling, rock hammering, mono- or cluster-DTH); and

○ Total duration of driving time for each pile/hole (vibratory driving, rotary drilling) and number of strikes for each pile/hole (impact driving, hydraulic rock hammering); and

○ For DTH excavation, the duration of operation for both impulsive and non-pulse components, as well as the strike rate.

▪ PSO locations during marine mammal monitoring;

▪ 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:

○ PSO who sighted the animal and PSO location and activity at time of sighting;

○ Time of sighting;

○ Identification of the animal (*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 bearing of each marine mammal observed relative to the in-water construction activity for each sighting (if the in-water construction was occurring at time of sighting);

○ Estimated number of animals (minimum/maximum/best);

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

○ Animal's closest point of approach and estimated time spent within each harassment zone; and

○ Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral responses to the activity (*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;

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

▪ All PSO datasheets and/or raw sightings data.

The draft and final reports must also contain the informational elements described in the Hydroacoustic Monitoring Plan which, 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 DTH excavation (DTH mono-hammer and cluster drill) (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 (SPLrms); cumulative sound exposure level (SELcum), peak sound pressure level (SPLpeak), and single-strike sound exposure level (SELs-s);

▪ For vibratory driving/removal and/or DTH excavation (DTH mono-hammer and cluster drill) (per pile): Duration of driving per pile; mean, median, and maximum sound levels (dB re: 1 μPa): root mean square sound pressure level (SPLrms), cumulative sound exposure level (SELcum) (and timeframe over which the sound is averaged);

▪ One-third octave band spectrum and power spectral density plot; and

▪ General Daily Site Conditions;

○ Date and time of activities;

○ Water conditions (*e.g.,* sea state, tidal state); and

○ Weather conditions (*e.g.,* percent cover, visibility).

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 incident 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 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, rotary drilling, rock hammering, and DTH. 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 Navy's activities and associated impacts will occur within a limited, confined area of the stocks' range. Most of the work will occur behind the existing super flood basin walls that will act as a barrier to sound and will contain underwater noise to within a small portion of the Piscataqua River. The implementation of a soft start and a bubble curtain during some activities, along with other mitigation and monitoring measures already described, are expected to minimize the effects of the expected takes on the affected individuals. In addition, NMFS does not anticipate that serious injury or mortality will occur as a result of the Navy's construction activities given the nature of the activity, even in the absence of required mitigation.

Exposures to elevated sound levels produced during pile driving and drilling may cause behavioral disturbance of some individuals. Effects on individuals that are taken by Level B harassment, as enumerated in the Estimated Take section, 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). Marine mammals within the Level B harassment zones may not show any visual cues they are disturbed by activities or they could become alert, avoid the area, leave the area, or display other mild responses that are not observable such as changes in vocalization patterns or increased haul out time (Thorson and Reyff, 2006). Data from recent observations of harbor seals in the project area support the assumption that behavioral responses to the Navy's activities may be mild in nature (Navy, 2022). The Navy has observed 116 harbor seals in the project since January 20, 2022. This includes observations at the conclusion of P–310 construction (January to February 2022) and the start of P–381 construction (May 2022 through October 16, 2022). Forty-eight of these observations occurred during periods with active construction, and the most common behavior recorded (n=28; 58.3 percent) was no response. The other common behaviors noted for these observations were swimming or milling (n=18; 37.5 percent), with notably lower observations of retreat/flush behaviors (n=1, 2.1 percent) (Navy, 2022).

Additionally, some of the species present in the region will only be present temporarily based on seasonal patterns or during transit between other habitats. These temporarily present species will be exposed to even smaller periods of noise-generating activity, further decreasing the impacts. Most likely, individual animals will simply move away from the sound source and be temporarily displaced from the area, although even this reaction has been observed primarily only in association with impact pile driving. The activities analyzed here are similar to 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. These reactions and behavioral changes are expected to subside quickly when the exposures cease. The intensity of Level B harassment events will be minimized through use of mitigation measures described herein, including the soft starts and the use of the bubble curtain, which was not quantitatively factored into the take estimates. The Navy will use at least three PSOs stationed strategically to increase detectability of marine mammals during in-water construction activities and removal, enabling a high rate of success in implementation of shutdowns to avoid or minimize injury for most species. Further, given the absence of any major rookeries and only one isolated pinniped haulout site at Hicks Rocks approximately 2.4 km (1.5 mi) from the project area, we assume that takes by Level B harassment will have a negligible short-term effect on individuals and will not result in population-level impacts.

Due to the levels and durations of likely exposure, animals that experience

PTS will likely only receive slight PTS, *i.e.,* minor degradation of hearing capabilities within regions of hearing that align most completely with the frequency range of the energy produced by the Navy's activities (*i.e.,* the low-frequency region below 2 kHz), not severe hearing impairment or impairment in the reigns of greatest hearing sensitivity. If hearing impairment does occur, it is most likely that the affected animal will lose a few dBs in its hearing sensitivity, which in most cases is not likely to meaningfully affect its ability to forage and communicate with conspecifics. Data do not suggest that a single instance in which an animal accrues PTS (or TTS) and is subject to behavioral disturbance would result in impacts to reproduction or survival. If PTS were to occur, it will be at a lower level likely to accrue to a relatively small portion of the population by being a stationary activity in one particular location.

The project is also not expected to have significant adverse effects on any marine mammal habitat. The project activities will not modify existing marine mammal habitat since the project will occur within the same footprint as existing marine infrastructure. Impacts to the immediate substrate are anticipated, but these will be limited to minor, temporary suspension of sediments, which could impact water quality and visibility for a short amount of time, but which will not be expected to have any effects on individual marine mammals. The nearshore and intertidal habitat where the project will occur is an area of consistent vessel traffic from Navy and non-Navy vessels, and some local individuals will likely be somewhat habituated to the level of activity in the area, further reducing the likelihood of more severe impacts. The closest pinniped haulout used by harbor and gray seals is Hicks Rocks, located approximately 2.4 km (1.5 mi) away on the opposite side of the island and not within the ensonified area. There are no other biologically important areas for marine mammals near the project area.

In addition, impacts to marine mammal prey species are expected to be minor and temporary. Overall, the area impacted by the project is very small compared to the available surrounding habitat, and does not include habitat of particular importance. The most likely impact to prey will be temporary behavioral avoidance of the immediate area. During construction activities, it is expected that some fish and marine mammals will temporarily leave the area of disturbance, thus impacting marine mammals' foraging opportunities in a limited portion of the foraging range. But, because of the relatively small area of the habitat that may be affected, 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 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 serious injury or mortality is anticipated or authorized;
- Level A harassment is expected to be of a lower degree that would not impact the fitness of any animals;
- Anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior;
- The required mitigation measures (*i.e.,* soft starts, bubble curtain, shutdown zones) are expected to be effective in reducing the effects of the specified activity;
- Minimal impacts to marine mammal habitat/prey are expected;
- There is one pinniped haulout in the vicinity of the project area (Hicks Rocks), but it is on the opposite side of Seavey Island and not within the ensonified area; and
- There are no known biologically important areas in the vicinity of the project.

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 monitoring and mitigation measures, NMFS finds that the total marine mammal take from the Navy's activities 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 amount of take NMFS has authorized is below one-third of the estimated stock abundance for all five species (see Table 16). The number of animals authorized to be taken from these stocks is considered small relative to the relevant stock's abundances even if each estimated take occurred to a new individual, which is an unlikely scenario.

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

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 will 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 will contain an adaptive management component. The reporting requirements associated with this 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 will 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.

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 the proposed action (*i.e.,* the promulgation of regulations and subsequent issuance of LOAs) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (incidental take authorizations 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 determined that the action qualifies to be categorically excluded from further review under NEPA.

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 ensure 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 LOAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species.

No incidental take of ESA-listed species is authorized 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.

Classification

Pursuant to the procedures established to implement Executive Order 12866, the Office of Management and Budget has determined that this 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 certified to the Chief Counsel for Advocacy of the Small Business Administration at the proposed rule stage that this action will not have a significant economic impact on a substantial number of small entities. The Navy is the sole entity that will be subject to the requirements in these 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 is not required and none has been prepared.

This 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.

Waiver of Delay in Effective Date

The Assistant Administrator for Fisheries has determined that there is good cause under the Administrative Procedure Act (5 U.S.C 553(d)(3)) to waive the 30-day delay in the effective date of the measures contained in the final rule. The Navy is the only entity subject to these regulations, and it has informed NMFS that it requests that this final rule take effect by April 1, 2023, when the IHA previously issued by NMFS to govern the taking of marine mammals incidental to U.S. Navy construction of the multifunctional expansion of Dry Dock 1 at Portsmouth Naval Shipyard, Kittery, Maine (87 FR 19886, April 6, 2022) expires. Any delay in promulgating the final rule could result in a delay to the project schedule that would extend the completion of the project and cause further risks to the Navy Fleet boat schedule. In addition, in-water work at Dry Dock 1 is critical to timely completion of the overall project. Delaying the completion of ongoing work will have increased risk on other mission critical work, as some of the construction components cannot begin until others are started or in some cases completed. Moreover, the contractor is onsite and currently working under an existing IHA (87 FR 19886, April 6, 2022), therefore, the Navy is ready to operate under the LOA immediately. For these reasons, the Assistant Administrator finds good cause to waive the 30-day delay in the effective date. In addition, the rule allows authorization of incidental take of marine mammals that would otherwise be prohibited under the statute. Therefore, by granting an exception to the Navy, the rule will relieve restrictions under the MMPA, which provides a separate basis for waiving the 30-day effective date for the rule.

List of Subjects in 50 CFR Part 217

Exports, Fish, Imports, Indians, Labeling, Marine mammals, Penalties, Reporting and recordkeeping requirements, Seafood, Transportation.

Samuel D. Rauch, III,

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

For reasons set forth in the preamble, NMFS amends 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. Add Subpart N to part 217 to read as follows:

Subpart N—Taking and Importing Marine Mammals Incidental to U.S. Navy Construction at Portsmouth Naval Shipyard, Kittery, Maine.

Sec.

217.130 Specified activity and geographical region.
217.131 Effective dates.
217.132 Permissible methods of taking.
217.133 Prohibitions.
217.134 Mitigation requirements.
217.135 Requirements for monitoring and reporting.
217.136 Letters of Authorization.
217.137 Renewals and modifications of Letters of Authorization.
217.138 [Reserved]
217.139 [Reserved]

§ 217.130 Specified activity and geographical region.

(a) Regulations in this subpart apply only to taking of marine mammals by the U.S. Navy (Navy) and those persons it authorizes or funds to conduct activities that occur incidental to construction activities related to the multifunctional expansion and modification of Dry Dock 1 in the areas outlined in paragraph (b) of this section.

(b) The taking of marine mammals by the Navy may be authorized in a Letter of Authorization (LOA) only if it occurs at Portsmouth Naval Shipyard, Kittery, Maine.

§ 217.131 Effective dates.

Regulations in this subpart are effective for a period of 5 years from the date of issuance.

§ 217.132 Permissible methods of taking.

Under an LOA issued pursuant to § 216.106 of this chapter and § 217.136, the Holder of the LOA (hereinafter ''Navy'') may incidentally, but not intentionally, take marine mammals within the area described in

§ 217.130(b) by harassment associated with construction activities related to the multifunctional expansion and modification of Dry Dock 1, provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the applicable LOA.

§ 217.133 Prohibitions.

(a) Except for the takings contemplated in § 217.132 and authorized by a LOA issued under § 216.106 of this chapter and § 217.136, it is unlawful for any person to do any of the following in connection with the activities described in § 217.130:

(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 § 217.136;

(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 if 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 determines such taking results in an unmitigable adverse impact on the species or stock of such marine mammal for taking for subsistence uses.

(b) [Reserved]

§ 217.134 Mitigation requirements.

(a) When conducting the activities identified in § 217.130(a), the mitigation measures contained in this subpart and any LOA issued under § 216.106 of this chapter and § 217.136 must be implemented. These mitigation measures include:

(1) A copy of any issued LOA must be in the possession of the Navy, its designees, and work crew personnel operating under the authority of the issued LOA at all times that activities subject to this LOA are being conducted.

(2) Should environmental conditions deteriorate such that marine mammals within the entire shutdown zone would not be visible (*e.g.,* fog, heavy rain, night), the Navy shall delay pile driving and drilling until observers are confident marine mammals within the shutdown zone could be detected.

(3) The Navy must ensure that construction supervisors and crews, the monitoring team, and relevant Navy staff are trained prior to the start of construction activity subject to this rule, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood. New personnel joining during the project will be trained prior to commencing work.

(4) The Navy, construction supervisors and crews, protected species observers (PSOs), 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 will cease and vessels will reduce speed to the minimum level required to maintain steerage and safe working conditions, as necessary, to avoid direct physical interaction.

(5) 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 as described in this rule and the NMFS-approved Marine Mammal Monitoring Plan.

(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) For all pile driving and drilling activities, the Navy must implement shutdown zones with radial distances as identified in a LOA issued under § 216.106 of this chapter and § 217.136. If a marine mammal comes within or approaches the shutdown zone, such operations must cease.

(8) In the event of a delay or shutdown of activity resulting from marine mammals in the shutdown zone, animals must be allowed to remain in the shutdown zone (*i.e.,* must leave of their own volition) and their behavior must be monitored and documented. If a marine mammal is observed within the shutdown zone, pile driving or drilling activities may not commence or resume until at least one of the following conditions has been met:

(i) The animal has been observed exiting the shutdown zone;

(ii) The animal is thought to have exited the shutdown zone based on a determination of its course, speed, and movement relative to the pile driving location; or

(iii) The shutdown zone has been clear from any additional sightings for fifteen minutes.

(9) If pile driving or drilling construction activities cease for more than 30 minutes, the pre-activity monitoring of the shutdown zone must commence.

(10) The Navy must conduct monitoring to include the entire region of influence, which includes the area within the Level A and Level B harassment zones with radial distances as identified in a LOA issued under § 216.106 of this chapter and § 217.136.

(11) The Navy must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of strikes from the hammer at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. A 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.

(12) The Navy must install a bubble curtain across the entrance openings during DTH cluster drill and hydraulic rock hammering activities. The bubble curtain must adhere to the following restrictions:

(i) The bubble curtain must distribute air bubbles across 100 percent of the entrance openings for the full depth of the water column;

(ii) The lowest bubble ring must be in contact with the substrate for the full extent of the curtain, and the weights attached to the bottom of the curtain must ensure 100 percent substrate contact. No parts of the curtain or other objects shall prevent full substrate contact; and

(iii) Air flow to the bubblers must be balanced across the entrance openings to the super flood basin.

(iv) The Navy shall require that construction contractors train personnel in the proper balancing of air flow to the bubblers and corrections to the attenuation device to meet the performance standards. This shall occur prior to the initiation of in-water construction activities.

(13) The bubble curtain may be discontinued for certain activities should the results of hydroacoustic recordings inside the bubble curtain show that the source levels from those activities do not result in the Level A harassment thresholds being achieved across the entire region of influence, upon review of the data by NMFS.

(14) Pile driving and drilling activity must be halted upon observation of either a species entering or within the harassment zone 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.

(b) [Reserved]

§ 217.135 Requirements for monitoring and reporting.

(a) Marine Mammal monitoring must be conducted in accordance with the conditions in this section and the Marine Mammal Monitoring Plan. The Navy must submit a Marine Mammal

Monitoring Plan to NMFS for approval in advance of construction.

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

(1) PSOs must be independent (*i.e.,* not construction personnel) and have no other assigned tasks during monitoring periods.

(2) 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.

(3) Other PSOs may substitute 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.

(4) Where a team of three PSOs are required, a lead observer or monitoring coordinator shall 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; and

(5) One PSO must be designated as lead PSO or monitoring coordinator. The lead PSO must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.

(6) PSOs must work in shifts to reduce fatigue and ensure their ability to monitor for marine mammals.

(7) PSOs must be approved by NMFS prior to beginning any activity subject to this LOA.

(c) For all pile driving activities, a minimum of three PSOs must be stationed on boats, docks, or piers sufficient to monitor the harassment and shutdown zones, and as described in the Marine Mammal Monitoring Plan.

(d) PSOs must record all observations of marine mammals, regardless of distance from the pile/hole being driven/drilled or the construction activity taking place (*i.e.,* DTH, rotary drilling, rock hammering), as well as additional data indicated in the reporting requirements.

(e) The Navy must conduct hydroacoustic data collection (sound source verification and propagation loss) as described in a LOA and in accordance with a hydroacoustic monitoring plan that must be approved by NMFS in advance of construction. This plan shall include acoustic monitoring inside the bubble curtain to measure construction generated noise levels.

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

(g) The Navy must submit a draft monitoring report to NMFS within 90 work days of the completion of required monitoring for each portion of the project as well as a comprehensive summary report at the end of the project. The reports will detail the monitoring protocol and summarize the data recorded during monitoring. Final annual reports (each portion of the project and comprehensive) 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.

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

(i) The reports must at minimum contain the informational elements described as follows (as well as any additional information described in the Marine Mammal Monitoring Plan), including:

(1) Dates and times (begin and end) of all marine mammal monitoring.

(2) Construction activities occurring during each daily observation period, including:

(i) The number and type of piles that were driven or removed and by what method (*i.e.,* impact, vibratory, DTH, rotary drilling, rock hammering.

(ii) The total duration of driving time for each pile/hole (vibratory driving, rotary drilling) and number of strikes for each pile/hole (impact driving, hydraulic rock hammering).

(iii) For DTH, the duration of operation for both impulsive and non-pulse components as well as the strike rate.

(3) PSO locations during marine mammal monitoring.

(4) 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 (if less than the harassment zone distance);

(5) Upon observation of a marine mammal, the following information:

(i) Name of PSO who sighted the animal(s) and PSO location, as well as the activity at the time of the sighting;

(ii) Time of sighting;

(iii) Identification of the animal (*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;

(iv) Distances and bearings of each marine mammal observed in relation to the pile being driven or drilled for each sighting (if pile driving or drilling was occurring at time of sighting).

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

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

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

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

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

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

(j) The Holder will submit all PSO datasheets and/or raw sightings data with the draft reports.

(k) The Navy must report the hydroacoustic data collected as required by a LOA issued under § 216.106 of this chapter and § 217.136 and as described in the Acoustic Monitoring Plan, which at a minimum, must include:

(1) Hydrophone equipment and methods: recording device, sampling rate, distance (m) from the pile where recordings were made; depth of water and recording device(s);

(2) 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;

(3) 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;

(4) For impact pile driving and/or DTH excavation (DTH mono-hammer and cluster drill) (per pile/hole): 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 (SPLrms); cumulative sound exposure level (SELcum), peak sound pressure level

(SPLpeak), and single-strike sound exposure level (SELss);

(5) For vibratory driving/removal, rotary drilling, and/or DTH excavation (DTH mono-hammer and cluster drill) (per pile/hole): Duration of driving per pile; mean, median, and maximum sound levels (dB re: 1 μPa): root mean square sound pressure level (SPLrms), cumulative sound exposure level (SELcum) (and timeframe over which the sound is averaged);

(6) One-third octave band spectrum and power spectral density plot; and

(7) General Daily Site Conditions, including the date and time of activities, and environmental data such as wind speed and direction, air temperature, humidity, surface water temperature, tidal state, water depth, wave height, weather conditions, and other factors that could contribute to influencing the airborne and underwater sound levels (*e.g.,* aircraft, boats, etc.).

(l) In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the Navy must report incident to the Office of Protected Resources (OPR), NMFS (*PR.ITP.MonitoringReports@noaa.gov* and *ITP.tyson.moore@noaa.gov*) and to the Greater Atlantic Region New England/Mid-Atlantic Regional Stranding Coordinator (978–282–8478 or 978–281–9291) 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 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 rule and the LOA issued under § 216.106 of this chapter and § 217.136. The Navy will not resume their activities until notified by NMFS. The report must include the following information:

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

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

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

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

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

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

§ 217.136 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to this subpart, 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 § 217.137.

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

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

§ 217.137 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under § 216.106 of this chapter and § 217.136 for the activity identified in § 217.130(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 § 217.136 for the activity identified in § 217.130(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 will 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 § 217.136, a LOA may be modified without prior public notice or opportunity for public comment. Notification would be published in the **Federal Register** within 30 days of the action.

§ 217.138–217.139 [Reserved]

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