coast of Maryland. The Project would consist of a total capacity of up to two gigawatts (GW) and US Wind has secured power purchase agreements (PPAs) with the state of Maryland for 1,108 megawatts (MW). The Project would include MarWin, a wind farm of approximately 300 MW, Momentum Wind, consisting of approximately 808 MW, and future development in the remainder of the lease area. The Project would consist of up to 114 wind turbine generators, 4 OSSs, 1 met tower, 2 transmission cables to shore making landfall in Delaware, and up to 4 export cables.

US Wind anticipates the following activities may potentially result in the harassment of marine mammals during the effective period of the requested regulations and associated LOA:

- Installing up to 114 WTG monopile foundations with a maximum diameter of 11 meters (m) using a 4,400 kJ impact hammer;
- Installing up to four OSSs foundation using 11–m monopiles driven with a 4,400 kJ impact hammer or jacket foundation comprised of 3–m pin piles driven with a 1,500 kJ impact hammer, or suction bucket foundations;
- Installing one permanent met tower supported by three 1.8–m pin piles using a 500 kJ impact hammer; and
- Using HRG equipment to survey the Lease Area over 28 days.

Information Solicited

Interested persons may submit information, suggestions, and comments concerning US Wind's request (see **ADDRESSES**). NMFS will consider all information, suggestions, and comments related to the request during the development of proposed regulations governing the incidental taking of marine mammals by US Wind, if appropriate.

Dated: April 26, 2023.

Kimberly Damon-Randall,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2023–09194 Filed 5–1–23; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XC662]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Port of Nome Modification Project in Nome, Alaska

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

ACTION: Notice; proposed incidental harassment authorization; request for comments on proposed authorization and possible renewal.

SUMMARY: NMFS has received a request from the U.S. Army Corps of Engineers (USACE) for authorization to take marine mammals incidental to the Port of Nome Modification Project in Nome, Alaska. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-time, 1-year renewal that could be issued under certain circumstances and if all requirements are met, as described in Request for Public Comments at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than June 1, 2023.

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service and should be submitted via email to *ITP.Davis@noaa.gov.*

Instructions: NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period. Comments, including all attachments, must not exceed a 25-megabyte file size. All comments received are a part of the public record and will generally be posted online at *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.,* name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

FOR FURTHER INFORMATION CONTACT: Leah Davis, Office of Protected Resources, NMFS, (301) 427–8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities.* In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

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

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other ''means of effecting the least practicable adverse impact'' on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as ''mitigation''); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

National Environmental Policy Act

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

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

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

Summary of Request

On October 31, 2022, NMFS received a request from USACE for an IHA to take marine mammals incidental to construction activities in Nome, Alaska. Following NMFS' review of the application, USACE submitted a revised version on February 21, 2023 and a final version on February 23, 2023 that clarified a few minor errors. The application was deemed adequate and complete on March 30, 2023. USACE's request is for take of 10 species of marine mammals by Level B harassment only. Neither USACE nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

This proposed IHA would cover 1 year of a larger project for which USACE intends to request take authorization for subsequent facets of the project. The larger 7-year project involves expansion of the Port of Nome.

Description of Proposed Activity

Overview

USACE is planning to modify the Port of Nome in Nome, Alaska to increase capacity and alleviate congestion at existing port facilities. Vibratory and impact pile driving would introduce underwater sounds that may result in take, by Level B harassment, of marine mammals. This proposed IHA would authorize take for Year 1 of Phase 1 of the project, which is scheduled to begin in May 2024. Work would occur during daylight hours and approximately 12 hours per day during the open water season.

Dates and Duration

The proposed IHA would be effective from May 1, 2024 to April 30, 2025. Work would occur during the open water season, roughly May through October. In-water construction activities would only occur during daylight hours, and typically over a 12-hour workday. However, when needed and due to the long summer day length at Nome's latitude, 24-hour, multi-shift operations may occur. For calculations herein, USACE conservatively assumed that 24 hours of work could occur in a given day (*e.g.,* in estimating the number of piles for installation on a given day). Pile driving is expected to occur over 85 in-water work days.

Specific Geographic Region

The Port of Nome Modification Project is located in Norton Sound, just offshore of Nome, Alaska. All construction activities would occur within approximately 3,600 feet (ft; 1,097 m) of the shoreline. The seabed in this area is flat and featureless, with bottom sediments consisting of sand and silt, with scattered cobbles and boulders. The nearshore waters are shallow and deepen very gradually, reaching a depth of 60 ft (18 m) at roughly 2 nautical miles (nmi; 3.7 km) offshore. In the Nome area, sea ice formation typically occurs in early November each year with spring break-up usually occurring in late May.

Figure 1—Project Location

Detailed Description of the Specified Activity

The City of Nome and USACE are proposing to expand the Port of Nome to provide much-needed additional capacity to serve the Arctic as well as to alleviate congestion at the existing port facilities. As noted above, this proposed IHA would authorize take associated with Year 1 of Phase 1 of the project only. Please refer to USACE's application for additional information about project components planned for the period beyond Year 1.

The USACE estimates that Year 1 activities would include mobilization, removal of the breakwater spur, development of the quarry for rock and gravel (*i.e.,* fill), dredging of the causeway footprint to accommodate for armor stone installation, pile driving for the OPEN CELL SHEET PILE™ (OCSP) dock, and placement of gravel fill inside new sheet pile cells. Additionally, USACE anticipates approximately 20 round trip vessel trips (*i.e.,* barge, support tugs, fuel, *etc.*) to occur between Nome and Anchorage during Year 1. With the exception of pile driving, these activities are not anticipated to result in take. Mobilization activities would occur on land, as would development of the quarry for rock and gravel (likely to occur at Cape Nome quarry). While marine mammals may behaviorally respond in some small degree to the noise generated by dredging operations, given the slow, predictable movements of these vessels, and absent any other contextual features that would cause enhanced concern, NMFS does not expect USACE's planned dredging to result in the take of marine mammals. (Though, as noted below, USACE has conservatively proposed to implement a 300 m shutdown zone for dredging.)

Gravel fill deposition would produce a continuous sound of a relatively short duration, does not require seafloor penetration, and would not affect habitat for marine mammals and their prey beyond that already affected by installation of the OCSP, discussed below. Further, placement of gravel fill would occur in a dry area behind the sheet piles, and placement would occur in a controlled manner so as not to compromise the newly installed piles. Gravel deposition is not expected to result in marine mammal harassment and it is not discussed further.

Because vessels will be in transit, exposure to ship noise will be temporary, relatively brief and will occur in a predictable manner, and also the sounds are of relatively lower levels. Elevated background noise from multiple vessels and other sources can interfere with the detection or interpretation of acoustic cues, but the brief exposures to one or two USACE vessels at a time would be unlikely to disrupt behavioral patterns in a manner that would qualify as take.

The OCSP dock would consist of approximately 66 cells when complete. Cells are constructed utilizing flat-web sheet piles, connector x-wyes (fabricated from three one-half-width sheet pile sections), and anchor piles. After all the piles for a cell have been installed, clean gravel fill would be placed within the cell. This process would continue sequentially until all the sheet pile cells are installed and backfilled. The cells are typically constructed one at a time. The contractor may use two sets of templates to allow for completing the pile driving of one cell and starting on the next while removing and reinstalling the template from the completed cell. However, only one hammer would be used at a time.

Table 1 lists the number of each pile size and type that USACE anticipates installing and/or removing during Year 1. USACE anticipates driving piles with a vibratory hammer; however, it may use an impact hammer if hard driving conditions are encountered and use of the vibratory hammer is unsuccessful.

TABLE 1—NUMBER AND TYPE OF PILES PLANNED FOR INSTALLATION OR REMOVAL

Pile type	Installation/removal	Number of piles
Temporary template piles (Pipe piles ≤24″)	Installation and Removal	[a] 228
(Alternate) Temporary template piles (H-piles 14″) [a b]	Installation and Removal	228
Anchor piles6 (14″ HP14x89 or similar)	Installation	27
Sheet piles (20″ PS31 or similar)	Installation	1,600
Fender piles (Pipe piles 36″)	Installation	21

[a] Each of the 228 piles would be both installed and removed.
[b] H-piles may be used as an alternate in place of the pipe piles.

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

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions 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 2 lists all species or stocks for which take is expected and proposed to be authorized for this activity, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no serious injury or mortality is anticipated or proposed to be authorized here, 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 managed stocks in this region are assessed in NMFS' U.S. Alaska SARs (*e.g.,* Muto *et al.,* 2022). All values presented in Table 2 are the most recent available at the time of publication (including from the draft 2022 SARs) and are available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*).

TABLE 2—MARINE MAMMAL SPECIES [1] LIKELY TO OCCUR NEAR THE PROJECT AREA THAT MAY BE TAKEN BY USACE'S ACTIVITIES

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N) [2]	Stock abundance (CV, N_{min}, most recent abundance survey) [3]	PBR	Annual M/SI [4]
Order Artiodactyla—Cetacea—Mysticeti (baleen whales)						
Family Eschrichtiidae:						
Gray Whale	*Eschrichtius robustus*	Eastern N Pacific	-, -, N	26,960 (0.05, 25,849, 2016).	801	131
Family Balaenopteridae (rorquals):						
Minke Whale	*Balaenoptera acutorostrata*	AK	-, -, N	N/A (N/A, N/A, N/A) [5]	UND	0
Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae:						
Killer Whale	*Orcinus orca*	Eastern North Pacific Alaska Resident.	-, -, N	1,920 [6] (N/A, 1,920, 2019).	19	1.3
Killer Whale	*Orcinus orca*	Eastern North Pacific Gulf of Alaska, Aleutian Islands and Bering Sea Transient.	-, -, N	587 [6] (N/A, 587, 2012)	5.9	0.8
Family Monodontidae (white whales):						
Beluga Whale	*Delphinapterus leucas*	Eastern Bering Sea	-,-, N	12,269 (0.118, 11,112, 2017).	267	226
Family Phocoenidae (porpoises):						
Harbor Porpoise	*Phocoena phocoena*	Bering Sea	-, -, Y	UNK (UNK, N/A, 2008) [7]	UND [7]	0.4
Order Carnivora—Pinnipedia						
Family Otariidae (eared seals and sea lions):						
Steller Sea Lion	*Eumetopias jubatus*	Western	E, D, Y	52,932 [8] (N/A, 52,932, 2019).	318	254
Family Phocidae (earless seals):						
Bearded Seal	*Erignathus barbatus*	Beringia	T, D, Y	UND (UND, UND, 2013) [9].	[9] UND	6,709
Ribbon Seal	*Histriophoca fasciata*	Unidentified	-, -, N	184,697 (N/A, 163,086, 2013).	9,785	163
Ringed Seal	*Pusa hispida*	Arctic	T, D, Y	UND (UND, UND, 2013) [10].	[10] UND	6,459
Spotted Seal	*Phoca largha*	Bering	-, -, N	461,625 (N/A, 423,237, 2013).	25,394	5,254

[1] Information on the classification of marine mammal species can be found on the web page for The Society for Marine Mammalogy's Committee on Taxonomy (*https://marinemammalscience.org/science-and-publications/list-marine-mammal-species-subspecies/;* Committee on Taxonomy (2022)).

[2] 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.

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

[4] 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.

[5] Reliable population estimates are not available for this stock. Please see Friday *et al.* (2013) and Zerbini *et al.* (2006) for additional information on numbers of minke whales in Alaska.

[6] Nest is based upon counts of individuals identified from photo-ID catalogs.

[7] The best available abundance estimate and Nmin are likely an underestimate for the entire stock because it is based upon a survey that covered only a small portion of the stock's range. PBR for this stock is undetermined due to this estimate being older than 8 years.

[8] Nest is best estimate of counts, which have not been corrected for animals at sea during abundance surveys.

[9] Reliable population estimate for the entire stock not available. PBR is based upon the negatively biased Nmin for bearded seals in the U.S. portion of the stock.

[10] A reliable population estimate for the entire stock is not available. Using a sub-sample of data collected from the U.S portion of the Bering Sea, an abundance estimate of 171,418 ringed seals has been calculated, but this estimate does not account for availability bias due to seals in the water or in the shore fast ice zone at the time of the survey. The actual number of ringed seals in the U.S. portion of the Bering Sea is likely much higher. Using the Nmin based upon this negatively biased population estimate, the PBR is calculated to be 4,755 seals, although this is also a negatively biased estimate.

As indicated above, all 11 species (with 12 managed stocks) in Table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. All species that could potentially occur in the proposed survey areas are included in Table 3–1 of USACE's IHA application. While these species could occur in the

area, the temporal and/or spatial occurrence of these species is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here. Cuvier's beaked whale, Central North Pacific humpback whale, Dall's porpoise, harbor seal, Pacific white-sided dolphin, sperm whale, Stejneger's beaked whale, blue whale, Western North Pacific gray whale, bowhead whale, North Pacific right whale, sei whale, Northern fur seal could all occur in the project area. We do not anticipate take of Cuvier's beaked whale, Cook Inlet beluga whale, Dall's porpoise, Pacific white-sided dolphin, sperm whale, Stejneger's beaked whale, blue whale, and Western North Pacific gray whale as these species' and stocks' ranges generally do not extend as far north as Nome. While it is possible that beluga whales from the Eastern Chukchi Sea and Beaufort Sea stocks could occur in the project area during the winter, spring, and fall, as both stocks migrate between the Bering and Beaufort seas (Citta *et al.* 2017), animals from the Beaufort Sea stock depart the Bering Sea in early spring, migrate through the Chukchi Sea and into the Canadian waters of the Beaufort Sea where they remain in the summer and fall, and return to the Bering Sea in late fall (NMFS 2022c; *i.e.,* are generally not expected to occur in the project area during the planned work period). Animals from the Eastern Chukchi Sea stock depart the Bering Sea in late spring and early summer, migrate through the Chukchi Sea and into the western Beaufort Sea where they remain in the summer, and return to the Bering Sea in the fall (NMFS 2022c). Tagging data from Citta *et al.* (2017) found that belugas from the Eastern Chukchi Sea and Beaufort Sea stocks moved into the central and southern Bering Sea during winter months, but did not move into Norton Sound (Citta *et al.* 2017). Therefore, given that both stocks are already unlikely to occur in the project area during most or all of the work period, and the animals in Citta *et al.* (2017) did not enter Norton Sound, animals from these stocks are not anticipated to be taken by project activities. Bowhead whale, North Pacific right whale, sei whale, Northern fur seal, fin whale, Western North Pacific humpback whale, are considered rare in Nome. While some of the species or stocks listed herein could occur on the vessel transit route, as noted above, we do not anticipate take of marine mammals due to vessel transit.

In addition, the Pacific walrus may be found in Nome, AK. However, Pacific walrus (*Odobenus rosmarus divergens*) are managed by the U.S. Fish and Wildlife Service and are not considered further in this document.

Gray Whale

Eastern North Pacific gray whales occur in the project area, though they are not anticipated to occur in high numbers. Most whales in this stock spend the summer and fall months feeding in the Chukchi, Beaufort, and northwestern Bering Seas and winter in Baja California, Mexico (Carretta *et al.* 2019). Eastern North Pacific gray whales have been experiencing an Unusual Mortality Event (UME) since 2019 when large numbers of whales began stranding from Mexico to Alaska. As of March 14, 2023, approximately 307 gray whales have stranded in the U.S. and 633 total throughout the U.S., Canada, and Mexico since 2019 (NOAA 2023). Preliminary necropsy results conducted on a subset of the whales indicated that many whales showed signs of nutritional stress, however, these findings are not consistent across all of the whales examined (NOAA 2023). This UME is ongoing and similar to that of 1999 and 2000 when large numbers of gray whales stranded along the eastern Pacific coast (Moore *et al.* 2001; Gulland *et al.* 2005). Oceanographic factors limiting food availability for whales was identified as a likely cause of the prior UME and may also be influencing the current UME (LeBouef *et al.* 2000; Moore *et al.* 2001; Minobe 2002; Gulland *et al.* 2005).

Minke Whale

Minke whales occur in polar, temperate, and tropical waters worldwide in a range extending from the ice edge in the Arctic during the summer to near the equator during winter. Minke whales in Alaska are considered migratory and typically occur in the Arctic during summer months and near the equator during winter months (NMFS 2022g).

Killer Whale

Killer whales occur in every ocean in the world and are the most widely distributed of all cetaceans. Along the west coast of North America, killer whales occur along the entire Alaska coast (Braham and Dahlheim 1982). Killer whales that occur in Norton Sound are likely following seasonal movements of whales and pinnipeds.

Beluga Whale

Five beluga whale stocks occur in Alaska: The Eastern Chukchi Sea Stock, the Beaufort Sea Stock, the Eastern Bering Sea Stock, the Bristol Bay Stock, and the Cook Inlet Stock. While each stock is unique and isolated from one another genetically and/or physically, there is some crossover of the Eastern Chukchi Sea and the Eastern Bering Sea Stock during the late summer. Beluga whales in the project area are anticipated to be from the Eastern Bering Sea stock. The Eastern Bering Sea stock remains in the Bering Sea and migrates south near Bristol Bay in winter and returns north to Norton Sound and the mouth of the Yukon River in summer (Suydam 2009; Hauser *et al.* 2014; Citta *et al.* 2017; Lowry *et al.* 2019).

Beluga whales use Norton Sound during the entire open-water season, generally moving to southern Bering Sea waters during winter due to high ice concentrations in Norton Sound. During the spring and summer, beluga whales tend to concentrate in the eastern half of the Sound (Oceana and Kawerak 2014), but the whales may be seen migrating in large numbers close to the shoreline near Nome in late autumn (ADFG 2012). Jewett (1997) stated beluga whales ''appear nearshore with the onset of herring spawning in early summer and feed on these as well as a wide variety of other fish congregating or migrating nearshore.'' They are often seen passing very close to the end of the Nome causeway during the fall migration and have been occasionally spotted within the Nome Outer Basin (USACE personal communication with Charlie Lean, 2019). Large groups of beluga have been observed in fall in front of Cape Nome and near Topkok (Oceana and Kawerak 2014).

Norton Sound includes three biologically important areas (BIAs) identified as important for feeding by Eastern Bering Sea belugas (Brower *et al.* 2023). One of these BIAs overlaps the project area. The BIA that overlaps the project area is active May through November, which overlaps USACE's proposed work window (May to October). The BIA scored a 2 for importance, intensity, data support and boundary certainty scores, indicating that it is of moderate importance, has moderately certain boundaries, and moderate data to support the identification of the BIA (see Harrison *et al.* (2023) for additional information about the scoring process used to identify BIAs). The BIA was identified as having dynamic spatiotemporal variability.

Harbor Porpoise

The Bering Sea stock of harbor porpoise occurs within the project area, ranging from throughout the Aleutian Islands and into all waters north of Unimak Pass. The harbor porpoise

frequents nearshore waters and coastal embayments throughout their range, including bays, harbors, estuaries, and fjords less than 650 ft (198 m) deep (NMFS 2018g).

Bearded Seal

Bearded seals prefer moving ice and open water over relatively shallow seafloors. They are closely associated with ice, preferring to winter in the Bering Sea and summer along the pack ice edge in the Chukchi Sea, although many summer in nearshore waters of the Beaufort Sea (NMFS 2022a). Pupping occurs on ice floes primarily in May in the Bering and Chukchi seas. Bearded seals feed primarily at or near the seabed, on benthic invertebrates, and demersal fish. Spring surveys conducted in 1999 and 2000 along the Alaska coast indicate that bearded seals are typically more abundant 20–100 nmi (37—185 km) from shore, except for high nearshore concentrations to the south of Kivalina (Bengtson *et al.* 2000 and 2005; Simpkins *et al.* 2003). Many seals that winter in the Bering Sea move north through the Bering Strait from late April through June and spend the summer in the Chukchi Sea (Burns 1967, 1981).

Bearded seals congregate at the open water found near Cape Nome and Sledge Island in winter and spring (Oceana and Kawerak 2014). Juvenile bearded seals may remain in open water during the summer, feeding in lagoons and rivers, but older individuals migrate north with the retreating pack ice. Juvenile bearded seals have been observed hauled out on land along lagoons and rivers in some areas of Alaska, including in the Bering Strait region in summer to early fall (Gadamus *et al.* 2015; Huntington *et al.* 2015). In addition, satellite tracking data obtained from juvenile bearded seals tagged in Alaska during 2014 to 2018 indicate that during the open-water period (July to October), about half of the seals that hauled out used terrestrial sites located south of the ice edge in Kotzebue Sound and Norton Sound whereas other seals remained near the ice edge and hauled out on ice (Olnes *et al.* 2020).

Critical habitat for the bearded seal was designated in May 2022 and includes marine waters off the coast of Nome (87 FR 19180; April 1, 2022). Essential features established by NMFS for conservation of the bearded Beringia Distinct Population Segment (DPS) include (1) Sea ice habitat suitable for whelping and nursing, which is defined as areas with waters 200 m or less in depth containing pack ice of at least 25 percent concentration and providing bearded seals access to hose waters from the ice; (2) Sea ice habitat suitable as a platform for molting, which is defined as areas with waters 200 m or less in depth containing pack ice of at least 15 percent concentration and providing bearded seals access to those waters from the ice, and (3) Primary prey resources to support bearded seals: Waters 200 m or less in depth containing benthic organisms, including epifaunal and infaunal invertebrates, and demersal fishes.

Since June 1, 2018, elevated ice seal strandings (bearded, ringed and spotted seals) have occurred in the Bering and Chukchi seas in Alaska. This event was declared an Unusual Mortality Event (UME), but is currently considered non-active and is pending closure. Given that the UME is non-active, it is not discussed further as it relates to bearded seals.

Ringed Seal

In winter and early spring when sea ice is at its maximum coverage, ringed seals occur in the northern Bering Sea (including Norton Sound), and throughout the Chukchi and Beaufort Seas. They occur as far south as Bristol Bay in years of extensive ice coverage (Muto *et al.* 2022) but generally are not abundant south of Norton Sound except in nearshore areas (Frost 1985, 1988).

Near Nome, ringed seals often occur in the open water offshore from Cape Nome and Safety Sound (Oceana and Kawerak 2014). Surveys conducted in the Bering Sea in the spring of 2012 and 2013 documented numerous ringed seals in both nearshore and offshore habitat extending south of Norton Sound (79 FR 73010, December 9, 2014; Muto *et al.* 2022).

Critical habitat for the ringed seal was designated in May 2022 and include marine waters within one specific area in the Bering, Chukchi, and Beaufort seas including waters off the coast of Nome (87 FR 19232; April 1, 2022). Essential features established by NMFS for conservation of the ringed seal are (1) snow-covered sea ice habitat suitable for the formation and maintenance of subnivean birth lairs used for sheltering pups during whelping and nursing, which is defined as waters 3 m or more in depth (relative to Mean Lower Low Water (MLLW)) containing areas of seasonal landfast (shorefast) ice or dense, stable pack ice, which have undergone deformation and contain snowdrifts of sufficient depth to form and maintain birth lairs (typically at least 54 cm deep); (2) sea ice habitat suitable as a platform for basking and molting, which is defined as areas containing sea ice of 15 percent or more concentration in waters 3 m or more in depth (relative to MLLW); and (3) primary prey resources to support Arctic ringed seals, which are defined to be small, often schooling, fishes, in particular, Arctic cod (*Boreogadus saida*), saffron cod (*Eleginus gracilis*), and rainbow smelt (*Osmerus dentex*), and small crustaceans, in particular, shrimps and amphipods.

Since June 1, 2018, elevated ice seal strandings (bearded, ringed and spotted seals) have occurred in the Bering and Chukchi seas in Alaska. This event was declared an Unusual Mortality Event (UME), but is currently considered non-active and is pending closure. Given that the UME is non-active, it is not discussed further as it relates to ringed seals.

Spotted Seal

From late fall through spring, spotted seal habitat use is primarily associated with seasonal sea ice. Most spotted seals spend the rest of the year making periodic foraging trips from haulout sites onshore or on sea ice (NMFS 2022b).

Most summer and fall concentrations of Norton Sound spotted seals are in the eastern portion of the Sound, where herring and small cod are more abundant. Spotted seals are reportedly more sensitive to human disturbances than other seals and have been displaced from some haulout and feeding areas due to such disturbance. However, spotted seals are regularly seen at the Port of Nome and within the harbor area, especially before or after the busy summer season, sometimes hauled out on the beach or breakwater (USACE personal communication with Charlie Lean, 2019). The existing Outer Basin at the Port of Nome, since the construction of the new entrance channel and east breakwater in 2006, has become the new river mouth and a sort of artificial lagoon of the Snake River. Seals and other marine mammals tend to congregate there, especially in the autumn (Oceana and Kawerak 2014). Spotted seals are an important subsistence species for Alaska Native hunters.

Since June 1, 2018, elevated ice seal strandings (bearded, ringed and spotted seals) have occurred in the Bering and Chukchi seas in Alaska. This event was declared an Unusual Mortality Event (UME), but is currently considered non-active and is pending closure. Given that the UME is non-active, it is not discussed further.

Steller Sea Lion

Steller sea lions in the project area are anticipated to be from the Western stock, which includes all Steller sea

lions originating from rookeries west of Cape Suckling (144° West longitude). The centers of abundance and distribution for western DPS Steller sea lions are located in the Gulf of Alaska and Aleutian Islands. At sea, Steller sea lions commonly occur near the 656-foot (200-meter) depth contour but have been found from nearshore to well beyond the continental shelf (Kajimura and Loughlin 1988). Sea lions move offshore to pelagic waters for feeding excursions.

Observations suggest that Steller sea lions are becoming common in the northern Bering Sea, including Norton Sound. Sea lions have been spotted hauling out in small numbers at Sledge Island, about 22 miles (mi; 35.4 km) west of Nome. Their change in range is perhaps attributed to climate-change-driven, northward movement of pelagic fish prey species, such as Pacific cod (USACE personal communication with Gay Sheffield, 2018).

The nearest Steller sea lion critical habitat to the Port of Nome is on the east shore of St. Lawrence Island, about 140 mi (225.3 km) to the southwest. However, Steller sea lions, especially juveniles and non-breeding males, can range through waters far beyond their primary use areas.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.* 1995; Wartzok and Ketten 1999; Au and Hastings 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.,* low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

TABLE 3—MARINE MAMMAL HEARING GROUPS (NMFS 2018)

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

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

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

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

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

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

Acoustic effects on marine mammals during the specified activities can occur from vibratory and impact pile driving. The effects of underwater noise from USACE's proposed activities have the potential to result in Level B harassment only of marine mammals.

Description of Sound Sources

The marine soundscape is comprised of both ambient and anthropogenic sounds. Ambient sound is defined as the all-encompassing sound in a given place and is usually a composite of sound from many sources both near and far (ANSI 1995). The sound level of an area is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.,* waves, wind, precipitation, earthquakes, ice, atmospheric sound), biological (*e.g.,* sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (*e.g.,* vessels, dredging, aircraft, construction).

The sum of the various natural and anthropogenic sound sources at any given location and time—which comprise ''ambient'' or ''background'' sound—depends not only on the source levels (as determined by current weather conditions and levels of biological and shipping activity) but also on the ability of sound to propagate through the environment. In turn, sound propagation is dependent on the spatially and temporally varying properties of the water column and sea floor, and is frequency-dependent. As a result of the dependence on a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10–20 decibels (dB) from day to day

(Richardson *et al.* 1995). The result is that, depending on the source type and its intensity, sound from the specified activities may be a negligible addition to the local environment or could form a distinctive signal that may affect marine mammals.

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

USACE plans to use two types of hammers, impact, and vibratory. Impact hammers operate by repeatedly dropping and/or pushing a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is considered impulsive. Vibratory hammers install piles by vibrating them and allowing the weight of the hammer to push them into the sediment. Vibratory hammers produce non-impulsive, continuous sounds. Vibratory hammering generally produces sounds pressure levels (SPLs) 10 to 20 dB lower than impact pile driving of the same-sized pile (Oestman *et al.* 2009). Rise time is slower, reducing the probability and severity of injury, and sound energy is distributed over a greater amount of time (Nedwell and Edwards 2002; Carlson *et al.* 2005).

The likely or possible impacts of USACE's proposed activities on marine mammals could be generated from both non-acoustic and acoustic stressors. Potential non-acoustic stressors include the physical presence of the equipment, vessels, and personnel; however, we expect that any animals that approach the project site(s) close enough to be harassed due to the presence of equipment or personnel would be within the Level A or Level B harassment zones from pile driving/removal and would already be subject to harassment from the in-water activities. Therefore, any impacts to marine mammals are expected to primarily be acoustic in nature. Acoustic stressors include heavy equipment operation during pile installation and removal.

Acoustic Impacts

The introduction of anthropogenic noise into the aquatic environment from pile driving and removal equipment is the primary means by which marine mammals may be harassed from USACE's specified activities. In general, animals exposed to natural or anthropogenic sound may experience physical and psychological effects, ranging in magnitude from none to severe (Southall *et al.* 2007). Generally, exposure to pile driving and removal and other construction noise has the potential to result in auditory threshold shifts and behavioral reactions (*e.g.,* avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior). Exposure to anthropogenic noise can also lead to non-observable physiological responses such as an increase in stress hormones. Additional noise in a marine mammal's habitat can mask acoustic cues used by marine mammals to carry out daily functions such as communication and predator and prey detection. The effects of pile driving and demolition noise on marine mammals are dependent on several factors, including, but not limited to, sound type (*e.g.,* impulsive vs. non-impulsive), the species, age and sex class (*e.g.,* adult male vs. mother with calf), duration of exposure, the distance between the pile and the animal, received levels, behavior at time of exposure, and previous history with exposure (Wartzok *et al.* 2003; Southall *et al.* 2007). Here we discuss physical auditory effects (threshold shifts) followed by behavioral effects and potential impacts on habitat.

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

Permanent Threshold Shift (PTS)—NMFS defines PTS as a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Available data from humans and other terrestrial mammals indicate that a 40 dB threshold shift approximates PTS onset (see Ward *et al.* 1958, 1959; Ward 1960; Kryter *et al.* 1966; Miller 1974; Henderson *et al.* 2008). PTS levels for marine mammals are estimates, because there are limited empirical data measuring PTS in marine mammals (*e.g.,* Kastak *et al.* 2008), largely due to the fact that, for various ethical reasons, experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS 2018).

Temporary Threshold Shift (TTS)—TTS is a temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Based on data from cetacean TTS measurements (see Southall *et al.* 2007), a TTS of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability (Schlundt *et al.* 2000; Finneran *et al.* 2000, 2002). As described in Finneran (2016), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level (SEL_{cum}) in an accelerating fashion: At low exposures with lower $SEL_{cum,}$ the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher $SEL_{cum,}$ the growth curves become steeper and approach linear relationships with the noise SEL.

Depending on the degree (elevation of threshold in dB), duration (*i.e.,* recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in *Masking,* below). For example, a marine

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

Many studies have examined noise-induced hearing loss in marine mammals (see Finneran (2015) and Southall *et al.* (2019) for summaries). For cetaceans, published data on the onset of TTS are limited to the captive bottlenose dolphin (*Tursiops truncatus*), beluga whale, harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*), and for pinnipeds in water, measurements of TTS are limited to harbor seals (*Phoca vitulina*), elephant seals (*Mirounga angustirostris*), and California sea lions (*Zalophus californianus*). These studies examine hearing thresholds measured in marine mammals before and after exposure to intense sounds. The difference between the pre-exposure and post-exposure thresholds can be used to determine the amount of threshold shift at various post-exposure times. The amount and onset of TTS depends on the exposure frequency. Sounds at low frequencies, well below the region of best sensitivity, are less hazardous than those at higher frequencies, near the region of best sensitivity (Finneran and Schlundt 2013). At low frequencies, onset-TTS exposure levels are higher compared to those in the region of best sensitivity (*i.e.,* a low frequency noise would need to be louder to cause TTS onset when TTS exposure level is higher), as shown for harbor porpoises and harbor seals (Kastelein *et al.* 2019a, 2019b, 2020a, 2020b). In addition, TTS can accumulate across multiple exposures, but the resulting TTS will be less than the TTS from a single, continuous exposure with the same SEL (Finneran *et al.* 2010; Kastelein *et al.* 2014; Kastelein *et al.* 2015a; Mooney *et al.* 2009). This means that TTS predictions based on the total, cumulative SEL will overestimate the amount of TTS from intermittent exposures such as sonars and impulsive sources. Nachtigall *et al.* (2018) and Finneran (2018) describe the measurements of hearing sensitivity of multiple odontocete species (bottlenose dolphin, harbor porpoise, beluga, and false killer whale (*Pseudorca crassidens*)) when a relatively loud sound was preceded by a warning sound. These captive animals were shown to reduce hearing sensitivity when warned of an impending intense sound. Based on these experimental observations of captive animals, the authors suggest that wild animals may dampen their hearing during prolonged exposures or if conditioned to anticipate intense sounds. Another study showed that echolocating animals (including odontocetes) might have anatomical specializations that might allow for conditioned hearing reduction and filtering of low-frequency ambient noise, including increased stiffness and control of middle ear structures and placement of inner ear structures (Ketten *et al.* 2021). Data available on noise-induced hearing loss for mysticetes are currently lacking (NMFS 2018).

Activities for this project include impact and vibratory pile driving and vibratory pile removal. There would likely be pauses in activities producing the sound during each day. Given these pauses and the fact that many marine mammals are likely moving through the project areas and not remaining for extended periods of time, the potential for threshold shift declines.

Behavioral harassment—Exposure to noise from pile driving and removal also has the potential to behaviorally disturb marine mammals. Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.,* species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.,* Richardson *et al.* 1995; Wartzok *et al.* 2003; Southall *et al.* 2007; Weilgart 2007; Archer *et al.* 2010; Southall *et al.* 2021). If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.,* Lusseau and Bejder 2007; Weilgart 2007; NRC 2005).

The following subsections provide examples of behavioral responses that provide an idea of the variability in behavioral responses that would be expected given the differential sensitivities of marine mammal species to sound and the wide range of potential acoustic sources to which a marine mammal may be exposed. Behavioral responses that could occur for a given sound exposure should be determined from the literature that is available for each species, or extrapolated from closely related species when no information exists, along with contextual factors. Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. There are broad categories of potential response, which we describe in greater detail here, that include alteration of dive behavior, alteration of foraging behavior, effects to respiration, interference with or alteration of vocalization, avoidance, and flight.

Pinnipeds may increase their haul out time, possibly to avoid in-water disturbance (Thorson and Reyff 2006). Behavioral reactions can vary not only among individuals but also within an individual, depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al.* 2012), and can vary depending on characteristics associated with the sound source (*e.g.,* whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans.

Alteration of Feeding Behavior—Disruption of feeding behavior can be difficult to correlate with anthropogenic sound exposure, so it is usually inferred by observed displacement from known foraging areas, the appearance of secondary indicators (*e.g.,* bubble nets or sediment plumes), or changes in dive behavior. As for other types of behavioral response, the frequency, duration, and temporal pattern of signal presentation, as well as differences in species sensitivity, are likely contributing factors to differences in response in any given circumstance (*e.g.,* Croll *et al.* 2001; Nowacek *et al.* 2004; Madsen *et al.* 2006; Yazvenko *et al.* 2007; Melcón *et al.* 2012). In addition, behavioral state of the animal plays a role in the type and severity of a behavioral response, such as disruption to foraging (*e.g.,* Silve *et al.* 2016; Wensveen *et al.* 2017). A determination of whether foraging

disruptions incur fitness consequences would require information on or estimates of the energetic requirements of the affected individuals and the relationship between prey availability, foraging effort and success, and the life history stage of the animal. Goldbogen *et al.* (2013) indicate that disruption of feeding and displacement could impact individual fitness and health. However, for this to be true, we would have to assume that an individual could not compensate for this lost feeding opportunity by either immediately feeding at another location, by feeding shortly after cessation of acoustic exposure, or by feeding at a later time. There is no indication this is the case, particularly since unconsumed prey would likely still be available in the environment in most cases following the cessation of acoustic exposure. Information on or estimates of the energetic requirements of the individuals and the relationship between prey availability, foraging effort and success, and the life history stage of the animal will help better inform a determination of whether foraging disruptions incur fitness consequences.

Avoidance—Avoidance is the displacement of an individual from an area or migration path as a result of the presence of a sound or other stressors, and is one of the most obvious manifestations of disturbance in marine mammals (Richardson *et al.* 1995). Avoidance is qualitatively different from the flight response, but also differs in the magnitude of the response (*i.e.,* directed movement, rate of travel, *etc.*). Often avoidance is temporary, and animals return to the area once the noise has ceased. Acute avoidance responses have been observed in captive porpoises and pinnipeds exposed to a number of different sound sources (Kastelein *et al.* 2001; Finneran *et al.* 2003; Kastelein *et al.* 2006a; Kastelein *et al.* 2006b; Kastelein *et al.* 2015b; Kastelein *et al.* 2015c; Kastelein *et al.* 2018). Short-term avoidance of seismic surveys, low frequency emissions, and acoustic deterrents have also been noted in wild populations of odontocetes (Bowles *et al.* 1994; Goold 1996; Goold and Fish 1998; Morton and Symonds 2002; Hiley *et al.* 2021) and to some extent in mysticetes (Malme *et al.* 1984; McCauley *et al.* 2000; Gailey *et al.* 2007). Longer-term displacement is possible, however, which may lead to changes in abundance or distribution patterns of the affected species in the affected region if habituation to the presence of the sound does not occur (*e.g.,* Blackwell *et al.* 2004; Bejder *et al.* 2006; Teilmann *et al.* 2006).

Forney *et al.* (2017) described the potential effects of noise on marine mammal populations with high site fidelity, including displacement and auditory masking. In cases of Western gray whales (*Eschrichtius robustus*) (Weller *et al.* 2006) and beaked whales (*Ziphius cavirostris*), anthropogenic effects in areas where they are resident or exhibit site fidelity could cause severe biological consequences, in part because displacement may adversely affect foraging rates, reproduction, or health, while an overriding instinct to remain in the area could lead to more severe acute effects. Avoidance of overlap between disturbing noise and areas and/or times of particular importance for sensitive species may be critical to avoiding population-level impacts because (particularly for animals with high site fidelity) there may be a strong motivation to remain in the area despite negative impacts.

Flight Response—A flight response is a dramatic change in normal movement to a directed and rapid movement away from the perceived location of a sound source. The flight response differs from other avoidance responses in the intensity of the response (*e.g.,* directed movement, rate of travel). Relatively little information on flight responses of marine mammals to anthropogenic signals exist, although observations of flight responses to the presence of predators have occurred (Connor and Heithaus 1996). The result of a flight response could range from brief, temporary exertion and displacement from the area where the signal provokes flight to, in extreme cases, marine mammal strandings (Evans and England 2001). There are limited data on flight response for marine mammals in water; however, there are examples of this response in species on land. For instance, the probability of flight responses in Dall's sheep *Ovis dalli dalli* (Frid, 2003), hauled out ringed seals (Born *et al.* 1999), Pacific brant (*Branta bernicla nigricans*), and Canada geese (*B. canadensis*) increased as a helicopter or fixed-wing aircraft more directly approached groups of these animals (Ward *et al.* 1999). However, it should be noted that response to a perceived predator does not necessarily invoke flight (Ford and Reeves 2008), and whether individuals are solitary or in groups may influence the response.

Behavioral disturbance can also impact marine mammals in more subtle ways. Increased vigilance may result in costs related to diversion of focus and attention (*i.e.,* when a response consists of increased vigilance, it may come at the cost of decreased attention to other critical behaviors such as foraging or resting). These effects have generally not been observed in marine mammals, but studies involving fish and terrestrial animals have shown that increased vigilance may substantially reduce feeding rates and efficiency (*e.g.,* Beauchamp and Livoreil 1997; Fritz *et al.* 2002; Purser and Radford 2011). In addition, chronic disturbance can cause population declines through reduction of fitness (*e.g.,* decline in body condition) and subsequent reduction in reproductive success, survival, or both (*e.g.,* Harrington and Veitch 1992; Daan *et al.* 1996; Bradshaw *et al.* 1998).

Many animals perform vital functions, such as feeding, resting, traveling, and socializing, on a diel cycle (24-hour cycle). Disruption of such functions resulting from reactions to stressors such as sound exposure are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall *et al.* 2007). Consequently, a behavioral response lasting less than 1 day and not recurring on subsequent days is not considered particularly severe unless it could directly affect reproduction or survival (Southall *et al.* 2007). Note that there is a difference between multi-day substantive behavioral reactions and multi-day anthropogenic activities. For example, just because an activity lasts for multiple days does not necessarily mean that individual animals are either exposed to activity-related stressors for multiple days or, further, exposed in a manner resulting in sustained multi-day substantive behavioral responses.

To assess the strength of behavioral changes and responses to external sounds and SPLs associated with changes in behavior, Southall *et al.* (2007) developed and utilized a severity scale, which is a 10 point scale ranging from no effect (labeled 0), effects not likely to influence vital rates (low; labeled from 1 to 3), effects that could affect vital rates (moderate; labeled 4 to 6), to effects that were thought likely to influence vital rates (high; labeled 7 to 9). Southall *et al.* (2021) updated the severity scale by integrating behavioral context (*i.e.,* survival, reproduction, and foraging) into severity assessment. For non-impulsive sounds (*i.e.,* similar to the sources used during the proposed action), data suggest that exposures of pinnipeds to sources between 90 and 140 dB re 1 µPa do not elicit strong behavioral responses; no data were available for exposures at higher received levels for Southall *et al.* (2007) to include in the severity scale analysis. Reactions of harbor seals were the only available data for which the responses could be ranked on the severity scale. For reactions that were recorded, the

majority (17 of 18 individuals/groups) were ranked on the severity scale as a 4 (defined as moderate change in movement, brief shift in group distribution, or moderate change in vocal behavior) or lower; the remaining response was ranked as a 6 (defined as minor or moderate avoidance of the sound source).

Stress responses—An animal's perception of a threat may be sufficient to trigger stress responses consisting of some combination of behavioral responses, autonomic nervous system responses, neuroendocrine responses, or immune responses (*e.g.,* Seyle 1950; Moberg 2000). In many cases, an animal's first and sometimes most economical (in terms of energetic costs) response is behavioral avoidance of the potential stressor. Autonomic nervous system responses to stress typically involve changes in heart rate, blood pressure, and gastrointestinal activity. These responses have a relatively short duration and may or may not have a significant long-term effect on an animal's fitness. Neuroendocrine stress responses often involve the hypothalamus-pituitary-adrenal system. Virtually all neuroendocrine functions that are affected by stress—including immune competence, reproduction, metabolism, and behavior—are regulated by pituitary hormones. Stress-induced changes in the secretion of pituitary hormones have been implicated in failed reproduction, altered metabolism, reduced immune competence, and behavioral disturbance (*e.g.,* Moberg 1987; Blecha 2000). Increases in the circulation of glucocorticoids are also equated with stress (Romano *et al.* 2004).

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

Relationships between these physiological mechanisms, animal behavior, and the costs of stress responses are well-studied through controlled experiments and for both laboratory and free-ranging animals (*e.g.,* Holberton *et al.* 1996; Hood *et al.* 1998; Jessop *et al.* 2003; Krausman *et al.* 2004; Lankford *et al.* 2005). Stress responses due to exposure to anthropogenic sounds or other stressors and their effects on marine mammals have also been reviewed (Fair and Becker 2000; Romano *et al.* 2002b) and, more rarely, studied in wild populations (*e.g.,* Romano *et al.* 2002a). For example, Rolland *et al.* (2012) found that noise reduction from reduced ship traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales. These and other studies lead to a reasonable expectation that some marine mammals will experience physiological stress responses upon exposure to acoustic stressors and that it is possible that some of these would be classified as ''distress.'' In addition, any animal experiencing TTS would likely also experience stress responses (NRC 2003), however distress is an unlikely result of these projects based on observations of marine mammals during previous, similar projects.

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

Airborne Acoustic Effects—Pinnipeds that occur near the project site could be exposed to airborne sounds associated with pile driving and removal that have the potential to cause behavioral harassment, depending on their distance from pile driving activities. Cetaceans are not expected to be exposed to airborne sounds that would result in harassment as defined under the MMPA.

Airborne noise would primarily be an issue for pinnipeds that are swimming or hauled out near the project site within the range of noise levels elevated above the acoustic criteria. We recognize that pinnipeds in the water could be exposed to airborne sound that may result in behavioral harassment when looking with their heads above water. Most likely, airborne sound would cause behavioral responses similar to those discussed above in relation to underwater sound. For instance, anthropogenic sound could cause hauled out pinnipeds to exhibit changes in their normal behavior, such as reduction in vocalizations, or cause them to temporarily abandon the area and move further from the source. However, these animals would likely previously have been 'taken' because of exposure to underwater sound above the behavioral harassment thresholds, which are generally larger than those associated with airborne sound. Thus, the behavioral harassment of these animals is already accounted for in these estimates of potential take. Therefore, we do not believe that authorization of incidental take resulting from airborne sound for pinnipeds is warranted, and airborne sound is not discussed further.

Marine Mammal Habitat Effects

USACE's proposed construction activities could have localized, temporary impacts on marine mammal habitat, including prey, by increasing in-water sound pressure levels and slightly decreasing water quality. Increased noise levels may affect acoustic habitat (see *Masking* discussion above) and adversely affect marine mammal prey in the vicinity of the project areas (see discussion below). Elevated levels of underwater noise would ensonify the project areas where both fishes and mammals occur and could affect foraging success. Additionally, marine mammals may avoid the area during construction; however, displacement due to noise is expected to be temporary and is not expected to result in long-term effects to the individuals or populations.

In-Water Construction Effects on Potential Foraging Habitat

The total seafloor area likely impacted by the project is relatively small compared to the available habitat in Norton Sound and nearby areas in the Bering Sea. Avoidance by potential prey (*i.e.,* fish) of the immediate area due to the temporary loss of this foraging habitat is possible. The duration of fish and marine mammal avoidance of this area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution, and behavior is anticipated. Any behavioral avoidance by fish or marine mammals of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity.

A temporary and localized increase in turbidity near the seafloor would occur in the immediate area surrounding the area where piles are installed or removed. In general, turbidity associated with pile installation is localized to about a 25-ft (7.6 m) radius around the pile (Everitt *et al.* 1980). Turbidity and sedimentation effects are expected to be short-term, minor, and localized. Cetaceans are not expected to be close enough to the pile driving areas to experience effects of turbidity, and any pinnipeds could avoid localized areas of turbidity. Therefore, we expect the impact from increased turbidity levels to be discountable to marine mammals. Furthermore, pile driving and removal at the project site would not obstruct movements or migration of marine mammals.

Effects on Potential Prey

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

Fish utilize the soundscape and components of sound in their environment to perform important functions such as foraging, predator avoidance, mating, and spawning (*e.g.,* Zelick and Mann 1999; Fay 2009). Depending on their hearing anatomy and peripheral sensory structures, which vary among species, fishes hear sounds using pressure and particle motion sensitivity capabilities and detect the motion of surrounding water (Fay *et al.* 2008). The potential effects of noise on fishes depends on the overlapping frequency range, distance from the sound source, water depth of exposure, and species-specific hearing sensitivity, anatomy, and physiology. Key impacts to fishes may include behavioral responses, hearing damage, barotrauma (pressure-related injuries), and mortality.

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

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

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

Construction activities have the potential to have adverse impacts on forage fish in the project area in the form of increased turbidity. Forage fish form a significant prey base for many marine mammal species that occur in the project area. Turbidity within the water column has the potential to reduce the level of oxygen in the water and irritate the gills of prey fish in the proposed project area. However, fish in the proposed project area would be able to move away from and avoid the areas where increase turbidity may occur. Given the limited area affected and ability of fish to move to other areas, any effects on forage fish are expected to be minor or negligible.

In summary, given the short daily duration of sound associated with individual pile driving and removal events and the relatively small areas being affected, pile driving and removal activities associated with the proposed actions are not likely to have a permanent, adverse effect on any fish habitat, or populations of fish species. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity. Thus, we conclude that impacts of the specified activities are not likely to have more than short-term adverse effects on any prey habitat or populations of prey species. Further, any impacts to marine mammal habitat are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations.

Estimated Take of Marine Mammals

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

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

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns and/or

TTS for individual marine mammals resulting from exposure to construction activities. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.,* implementation of shutdown zones) discussed in detail below in the Proposed Mitigation section, Level A harassment is neither anticipated nor proposed to be authorized.

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

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

Acoustic Thresholds

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

Level B Harassment—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.,* frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.,* bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.,* Southall *et al.* 2007, 2021; Ellison *et al.* 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1 μPa)) for continuous (*e.g.,* vibratory pile-driving) 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.

USACE's activity includes the use of continuous (vibratory pile driving) and impulsive (impact pile driving) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1 μPa are applicable.

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

These thresholds are provided in the Table 4. 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 4—THRESHOLDS IDENTIFYING THE ONSET OF PERMANENT THRESHOLD SHIFT

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

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

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

Ensonified Area

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

The sound field in the project area is the existing background noise plus additional construction noise from the proposed project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.,* pile driving and removal). The maximum (underwater) area ensonified above the thresholds for behavioral harassment referenced above is 752 km^2 (290 mi^2), and the calculated distance to the farthest behavioral harassment isopleth is approximately 21.5 km (13.4 mi).

The project includes vibratory pile installation and removal and impact pile driving. Source levels for these activities are based on reviews of measurements of the same or similar types and dimensions of piles available in the literature. Source levels for each pile size and activity are presented in Table 5. Source levels for vibratory installation and removal of piles of the same diameter are assumed to be the same.

TABLE 5—SOUND SOURCE LEVELS FOR PILE DRIVING ACTIVITIES

Pile type	Vibratory sound source levels				Impact sound source levels [1]			
	SPL_{RMS}	SEL	Peak	Literature source	SPL_{RMS}	SEL	Peak	Literature source
Temporary template piles (Pipe piles ≤24″).	154.0	144.0	N/A	Caltrans (2020) ..	189.0	178.0	203.0	Caltrans (2015).
Alternate Temporary template piles (H-piles 14″).	*150.0*	*147.0*	*165.0*	*Caltrans (2020) ..*	*178.0*	*166.0*	*200.0*	*Caltrans (2020).*
Anchor piles (14″ HP14x89 or similar).	150.0	147.0	165.0	Caltrans (2020) ..	178.0	166.0	200.0	Caltrans (2020).
Sheet piles (20″ PS31 or similar)	160.7	161.1	171.5	PND (2016, 2020).	189.0	179.0	205.0	Caltrans (2015).
Fender piles (Pipe piles 36″)	170.0	159.0	191.0	Caltrans (2015) ..	193.0	183.0	210.0	Caltrans (2015).

[1] USACE anticipates that all piles would be installed/removed using a vibratory hammer. However, if conditions prevent successful installation with a vibratory hammer, USACE would use an impact hammer to complete installation.

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

TL = transmission loss in dB

B = transmission loss coefficient

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

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

Absent site-specific acoustical monitoring with differing measured transmission loss, a practical spreading value of 15 is used as the transmission loss coefficient in the above formula. Site-specific transmission loss data for the Port of Nome are not available; therefore, the default coefficient of 15 is used to determine the distances to the Level A harassment and Level B harassment thresholds.

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

TABLE 6—USER SPREADSHEET INPUTS (SOURCE LEVELS PROVIDED IN TABLE 5)

Pile type	Installation/removal	Minutes per pile (vibratory) [1]	Strikes per pile (impact) [1]	Piles per day
Temporary template piles (Pipe piles ≤24″)	Installation	10	20	20.
	Removal	10	.....	20.
(Alternate) Temporary template piles (H-piles 14″).	Installation	10	20	(20).
	Removal	(10)	.....	(20).
Anchor piles (14″ HP14x89 or similar)	Installation	10	20	20.
Sheet piles (20″ PS31 or similar)	Installation	10 (20 per pair)	10	28 (14 pairs).
Fender piles (Pipe piles 36″)	Installation	10	20	12.

[1] USACE anticipates that all piles would be installed/removed using a vibratory hammer. However, if conditions prevent successful installation with a vibratory hammer, USACE would use an impact hammer to complete installation.

TABLE 7—LEVEL A HARASSMENT AND LEVEL B HARASSMENT ISOPLETHS FROM VIBRATORY AND IMPACT PILE DRIVING

Pile type	Level A harassment isopleths (m)					Level B harassment isopleth (m)
	LF	MF	HF	PW	OW	
VIBRATORY						
Temporary template piles (Pipe piles ≤24″)	5	<1	7	3	<1	1,848
(Alternate) Temporary template piles (H-piles 14″)	3	<1	4	2	<1	1,000
Anchor piles (14″ HP14x89 or similar)	3	<1	4	2	<1	1,000
Sheet piles (20″ PS31 or similar)	18	2	27	11	<1	5,168
Fender piles (Pipe piles 36″)	43	4	64	26	2	21,544
IMPACT						
Temporary template piles (Pipe piles ≤24″)	252	9	300	135	10	858
(Alternate) Temporary template piles (H-piles 14″)	40	1	48	21	2	159
Anchor piles (14″ HP14x89 or similar)	40	1	48	21	2	159
Sheet piles (20″ PS31 or similar)	231	8	276	124	9	858
Fender piles (Pipe piles 36″)	386	14	459	206	15	1,585

Marine Mammal Occurrence and Take Calculation and Estimation

In this section we provide information about the occurrence of marine mammals, including density or other relevant information that will inform the take calculations. We describe how the information provided is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and proposed for authorization. A summary of proposed take, including as a percentage of population for each of the species, is shown in Table 9.

Gray Whale

Various gray whale density and occurrence information is available for the Bering, Chukchi, and Beaufort Seas (*e.g.,* Clarke *et al.* 2020; Ferguson *et al.* 2018a). Ljungblad *et al.* (1982) and Ljungblad and Moore (1983) summarized aerial surveys conducted in the Bering Sea including the waters of Norton Sound in the early 1980s. Both reported gray whales feeding in large numbers in Norton Sound and waters near St. Lawrence Island. During the Chukchi Sea Environmental Studies Program (CSESP) a large number of gray whales (n = 55, including 2 calves) were observed feeding in late July approximately 130 km from the Port of Nome (Lomac-MacNair *et al.* 2022). During the Quintillion subsea fiber optic cable project three sightings of eight total gray whales were detected within 60 km of Nome, four during July and four during November 2016 (Blees *et al.* 2017).

However, NMFS was unable to locate data describing frequency of gray whale occurrence or density within the project area or in Norton Sound more generally. USACE conducted monitoring at the project site on 19 calendar days during 2019 and 2021. USACE did not detect gray whales during that monitoring, but they are known to occur in Norton Sound and have been sighted during previous aerial line-transect surveys in Norton Sound (personal communication; Megan Ferguson, February 21, 2023).

NMFS estimates that a gray whale or group of gray whales may enter the project area periodically throughout the duration of the construction period, averaging one gray whale per week. Therefore, given the limited information in the project area to otherwise inform a take estimate, NMFS proposes to authorize 12 takes by Level B harassment of gray whale.

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, especially in combination with the already low frequency of gray whales entering the area, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level A harassment of gray whale. Therefore, USACE did not request take by Level A harassment of gray whale, nor is NMFS is proposing to authorize any.

Minke Whale

Various minke whale density and occurrence information is available for the Bering, Chukchi, and Beaufort Seas (*e.g.,* Clarke *et al.* 2020; Moore *et al.* 2002). During CSESP surveys (2008–2014), minke whales were observed near the Port of Nome (Lomac-MacNair *et al.* 2022). No minke whales were seen during monitoring efforts at Nome during the 2016 Quintillion subsea fiber optic cable project (Blees *et al.* 2017). NMFS was unable to locate data describing frequency of minke whale occurrence, group size, or density within the project area or in Norton Sound more generally. USACE did not detect minke whales during its 2019 and 2021 monitoring, but they are known to occur in Norton Sound and have been sighted during previous aerial line-transect surveys in Norton Sound (personal communication; Megan Ferguson, February 21, 2023).

NMFS estimates that a minke whale may enter the project area periodically throughout the duration of the construction period, averaging one minke whale per week. Therefore, given the limited information in the project area to otherwise inform a take estimate, NMFS proposes to authorize 12 takes by Level B harassment of minke whale.

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, especially in combination with the already low frequency of minke whales entering the area, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level A harassment of minke whale. Therefore, USACE did not request take by Level A harassment of minke whale, nor is NMFS is proposing to authorize any.

Killer Whale

Limited information regarding killer whale occurrence in the Nome area is available. Waite *et al.* (2002) estimated 391 (95 percent CI = 171–894) killer whales of all types in the southeastern Bering Sea using line-transect methods and indicates that density of killer whales is also high in this area (.0025 whales per km^2). During the Quintillion subsea fiber optic cable project, a single killer whale was recorded within 60 km of Nome during July 2016 (Blees *et al.* 2017). USACE did not detect killer

whales during its 2019 and 2021 monitoring.

NMFS estimates that 2 groups of 15 killer whales may enter the project area over the duration of the construction period. Therefore, given the limited information in the project area to otherwise inform a take estimate, NMFS conservatively proposes to authorize 30 takes by Level B harassment of killer whale (2 groups of 15 animals). NMFS anticipates that these takes could occur to the Eastern North Pacific Alaska Resident stock, the Eastern North Pacific Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock, or some combination of the two.

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, especially in combination with the already low occurrence of killer whales in the area, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level A harassment of killer whale. Therefore, USACE did not request take by Level A harassment of killer whale, nor is NMFS is proposing to authorize any.

Harbor Porpoise

Moore *et al.* (2002) reported density estimates for harbor porpoise derived from vessel survey data collected on visual line transect surveys for cetaceans in the central–eastern Bering Sea (CEBS) in July and August 1999 and in the southeastern Bering Sea (SEBS) in June and July 2000. Harbor porpoise were seen throughout the coastal (shore to 50 m) and middle shelf (50–100 m) zones in the SEBS with sighting in the coastal zone over four times that of the middle shelf zone. Relatively few harbor porpoise were reported in the CEBS. Density for harbor porpoise in the CEBS was 0.0035 porpoise/km^2 and in the SEBS was 0.012 animals/km^2. During the Quintillion subsea fiber optic cable project four sightings of 8 total harbor porpoise were recorded within 60 km of Nome, four each during July and August 2016 (Blees *et al.* 2017). USACE detected one harbor porpoise during its 2019 and 2021 monitoring.

Clarke *et al.* (2019) indicated a maximum group size of four harbor porpoise in the Distribution and Relative Abundance of Marine Mammals in the Eastern Chukchi and Western Beaufort Seas, 2018 Annual Report (Clarke *et al.* 2019). NMFS estimates that one group of four harbor porpoise may enter the project area every other week during the construction period. Therefore, given the limited information in the project area to otherwise inform a take estimate, NMFS conservatively proposes to authorize 24 takes by Level B harassment of harbor porpoise (1 groups of 4 animals × 6 weeks).

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities, and it did not request take by Level A harassment of harbor porpoise. For some activities (*i.e.,* impact driving of fender piles), the shutdown zones extends farther than Protected Species Observers (PSO) may be able to reliably detect harbor porpoise. However, given the portion of the zone within which PSOs could reliably detect a harbor porpoise, the infrequency of harbor porpoise observations during USACE's 2019 and 2021 monitoring, and harbor porpoise sensitivity to noise, NMFS does not anticipate take by Level A harassment of harbor porpoise, nor is NMFS is proposing to authorize any.

Beluga Whale

Beluga whales use Norton Sound during the entire open-water season, generally moving to southern Bering Sea waters during winter due to high ice concentrations in Norton Sound. During the spring and summer, beluga whales tend to concentrate in the eastern half of the Sound (Oceana and Kawerak 2014), but the whales may be seen migrating in large numbers close to the shoreline near Nome in late autumn (ADFG 2012). Jewett (1997) stated beluga whales ''appear nearshore with the onset of herring spawning in early summer and feed on these as well as a wide variety of other fish congregating or migrating nearshore.'' They are often seen passing very close to the end of the Nome causeway during the fall migration and have been occasionally spotted within the Nome Outer Basin (USACE personal communication with Charlie Lean, 2019). Large groups of beluga have been observed in fall in front of Cape Nome and near Topkok (Oceana and Kawerak 2014). In 2012, two beluga whales from the Eastern Bering Sea stock were tagged near Nome. Prior to being tagged both were known to range throughout Norton Sound. The first of the two tagged belugas left Norton Sound in early November and the second departed in mid-November (Citta *et al.* 2017). No beluga whales were seen during monitoring efforts at Nome during the 2016 Quintillion subsea fiber optic cable project (Blees *et al.* 2017).

USACE detected 129 beluga whales (n = 75 during September 2019, n = 45 during September 2021, and n = 12 during October 2021) over 154 hours of monitoring on 19 days in 2019 and 2021, making beluga whales the most frequently detected species during that monitoring period. Assuming that USACE would conduct a 12-hour work day on average, the pre-activity monitoring suggests a detection rate of approximately 10 beluga whales per day.

NMFS conservatively estimates that 15 beluga whales may enter the project area per day throughout the construction period. While 15 is higher than the detection rate reported from USACE's 2019 and 2021 monitoring, the monitoring was conducted by one or two PSOs, and therefore, only a fraction of the area that would comprise the Level B harassment zones for this project was observed. Therefore, NMFS conservatively proposes to authorize 1,275 takes by Level B harassment of beluga whale (15 animals × 85 days).

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level A harassment of beluga whale. Therefore, USACE did not request take by Level A harassment of beluga whale, nor is NMFS is proposing to authorize any.

Steller Sea Lion

USACE did not observe any Steller sea lions during the 2019 and 2021 monitoring. Additional data regarding Steller sea lion occurrence in the Nome area is very limited. However, Steller sea lions are known to occur in the area, and observations suggest that Steller sea lions are becoming common in the northern Bering Sea, including Norton Sound. Sea lions have been detected hauling out in small numbers at Sledge Island, about 22 mi (35.4 km) west of Nome. Their change in range is perhaps attributed to climate-change-driven, northward movement of pelagic fish prey species, such as Pacific cod (USACE personal communication with Gay Sheffield, 2018). Further, during the Quintillion subsea fiber optic cable project in August 2016, a Steller sea lion was detected within 60 km of Nome (Blees *et al.* 2017).

NMFS conservatively estimates that one Steller sea lion may enter the project area per day during the construction period. Therefore, given the limited information in the project area to otherwise inform a take estimate, NMFS conservatively proposes to authorize 85 takes by Level B harassment of Steller sea lion (1 animal × 85 days).

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, especially in combination with the already low occurrence of Steller sea lion in the area, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level A harassment of Steller sea lion. Therefore, USACE did not request take by Level A harassment of Steller sea lion, nor is NMFS is proposing to authorize any.

Spotted Seal

Most summer and fall concentrations of Norton Sound spotted seals are in the eastern portion of the Sound, where herring and small cod are more abundant. However, spotted seals are regularly seen at the Port of Nome and within the harbor area, especially before or after the busy summer season, sometimes hauled out on the beach or breakwater (USACE personal communication with Charlie Lean, 2019). Since the construction of the new entrance channel and east breakwater in 2006, the existing Outer Basin at the Port of Nome has become the new river mouth and a sort of artificial lagoon of the Snake River. Seals and other marine mammals tend to congregate there, especially in the autumn (Oceana and Kawerak 2014). During the Quintillion subsea fiber optic cable project, a total of 10 spotted seals were recorded within 60 km of Nome during July and August 2016 (Blees *et al.* 2017).

USACE detected 23 spotted seals during its 2019 and 2021 monitoring, making spotted seals the second most frequently detected species during that monitoring. Assuming that USACE would conduct a 12-hour work day on average, the pre-activity monitoring suggests a detection rate of approximately two spotted seals per day.

NMFS conservatively estimates that 20 spotted seals may enter the project area per day throughout the construction period. While 20 is higher than the detection rate reported from USACE's 2019 and 2021 monitoring, the monitoring was conducted by one or two PSOs, and therefore, only a fraction of the area that would comprise the Level B harassment zones for this project was observed. Therefore, NMFS conservatively proposes to authorize 1,700 takes by Level B harassment of spotted seals (20 animals × 85 days).

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level A harassment of spotted seal. Therefore, USACE did not request take by Level A harassment of spotted seal, nor is NMFS is proposing to authorize any.

Ringed Seal

Near Nome, ringed seals often occur in the open water offshore from Cape Nome and Safety Sound (Oceana and Kawerak 2014). Surveys conducted in the Bering Sea in the spring of 2012 and 2013 documented numerous ringed seals in both nearshore and offshore habitat extending south of Norton Sound (79 FR 73010, December 9, 2014; Muto *et al.* 2022). During the Quintillion subsea fiber optic cable project two ringed seals were recorded within 60 kilometers (km) of Nome during July 2016 (Blees *et al.* 2017). Braham *et al.* (1984) reported ringed seal densities ranging from 0.005 to 0.017 in the Bering Sea. Bengtson *et al.* (2005) reported ringed seal densities ranging from 1.62 to 1.91 in the Alaskan Chukchi Sea. Aerts *et al.* (2013) report combined ringed and spotted seal densities of 0.011 to 0.091 in the Northeastern Chukchi Sea. USACE did not detect ringed seals during its 2019 and 2021 monitoring.

Neither USACE nor NMFS were able to locate more recent occurrence or density information for ringed seals in or near Norton Sound, beyond that described above. Therefore, USACE estimated the density of ringed seals in the project area to be 0.02 seals/km^2, slightly higher than the dated, but most local, Braham *et al.* (1984) Bering Sea densities. Unable to locate more recent data for the area, NMFS concurs with this estimate.

To calculate take by Level B harassment of ringed seal, USACE multiplied the estimated density (0.02 animals/km^2) by the area of the Level B harassment zone for a given activity by the number of days that activity would occur (Table 8). NMFS concurs with this method and is conservatively proposing to authorize 92 takes by Level B harassment of ringed seal.

TABLE 8—AREA OF LEVEL B HARASSMENT ZONES AND NUMBER OF DAYS ON WHICH EACH ACTIVITY WOULD OCCUR

	Temporary template piles	Anchor piles	Sheet piles	Fender piles
Number of Days of Activity	[a] 24	2	57	2
Level B Harassment Zone (km^2)	8.41	2.96	50.46	751.9

[a] Installation and removal.

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level A harassment of ringed seal. Therefore, USACE did not request take by Level A harassment of ringed seal, nor is NMFS is proposing to authorize any.

Ribbon Seal

Ribbon seals occur in the Bering Sea from late March to early May. From May to mid-July the ice recedes, and ribbon seals move further north into the Bering Strait and the southern part of the Chukchi Sea (Muto *et al.* 2022). An estimated 6,000–25,000 ribbon seals from the eastern Bering Sea occur in the Chukchi Sea during the spring open-water period (Boveng *et al.* 2017). Braham *et al.* (1984) reported a maximum density of 0.002 seals/km^2 from 1976 aerial surveys of ribbon seals in the Bering Sea. USACE did not detect ribbon seals during its 2019 and 2021 monitoring.

To calculate take by Level B harassment of ribbon seal, USACE multiplied the estimated density (0.002 animals/km^2) by the area of the Level B harassment zone for a given activity by the number of days that activity would occur (Table 8). NMFS concurs with this method and is conservatively proposing to authorize 9 takes by Level B harassment of ribbon seal.

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, especially in combination with the already low occurrence of ribbon seals in the area, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level

A harassment of ribbon seal. Therefore, USACE did not request take by Level A harassment of ribbon seal, nor is NMFS is proposing to authorize any.

Bearded Seal

Braham *et al.* (1984) reported bearded seal densities ranging from 0.006 and 0.782 seals per km² in the Bering Sea. Bengtson *et al.* (2005) reported bearded seal densities ranging from 0.07 to 0.14 seals/km² in the Alaskan Chukchi Sea. In the spring of 2012 and 2013, U.S. and Russian researchers conducted aerial abundance and distribution surveys over the entire ice-covered portions of the Bering Sea (Moreland *et al.* 2013). Conn *et al.* (2014), using a sub-sample of the data collected from the U.S. portion of the Bering Sea in 2012, calculated a posterior mean density estimate using an effective study area of 767,114 km² of 0.39 bearded seals/km² (95 percent CI 0.32–0.47). Results from 2006 helicopter transect surveys over a 279,880 km² subset of the study area calculated density estimates of 0.22 bearded seals/km² (95 percent CI 0.12–0.61; Ver Hoef *et al.* 2013). USACE detected one bearded seal during its 2019 and 2021 monitoring.

To calculate take by Level B harassment of bearded seal, USACE multiplied the estimated density (0.39 animals/km²) by the area of the Level B harassment zone for a given activity by the number of days that activity would occur (Table 8). NMFS concurs with this method and is proposing to conservatively authorize 2,554 takes by Level B harassment of bearded seal.

USACE is planning to implement shutdown zones that extend to or exceed the Level A harassment isopleth for all activities. Therefore, implementation of the proposed shutdown zones is expected to eliminate the potential for take by Level A harassment of bearded seal. Therefore, USACE did not request take by Level A harassment of bearded seal, nor is NMFS is proposing to authorize any.

TABLE 9—PROPOSED TAKE AND PROPOSED TAKE AS A PERCENTAGE OF STOCK ABUNDANCE

Species	Stock	Proposed take (Level B harassment only)	Stock abundance	Proposed take as a percentage of stock abundance
Bearded Seal	Beringia	2,554	N/A	N/A
Ribbon Seal	Unidentified	9	184,697	<1
Ringed Seal	Arctic	92	N/A	N/A
Spotted Seal	Bering	1,700	461,625	<1
Steller sea lion	Western	85	[b] 52,932	<1
Beluga whale	Eastern Bering Sea	1,275	12,269	10
Harbor Porpoise	Bering Sea	24	N/A	N/A
Killer Whale	Eastern North Pacific Alaska Resident	30	[a] 1,920	2
	Eastern North Pacific Gulf of Alaska, Aleutian Islands and Bering Sea Transient.		[a] 587	5
Minke Whale	Alaska	12	N/A	N/A
Gray Whale	Eastern North Pacific	12	26,960	<1

N/A = Not applicable.
[a] Nest is based upon counts of individuals identified from photo-ID catalogs.
[b] Nest is best estimate of counts, which have not been corrected for animals at sea during abundance surveys.

Effects of Specified Activities on Subsistence Uses of Marine Mammals

The availability of the affected marine mammal stocks or species for subsistence uses may be impacted by this activity. The subsistence uses that may be affected and the potential impacts of the activity on those uses are described below. Measures included in this IHA to reduce the impacts of the activity on subsistence uses are described in the Proposed Mitigation section. Last, the information from this section and the Proposed Mitigation section is analyzed to determine whether the necessary findings may be made in the Unmitigable Adverse Impact Analysis and Determination section.

During open-water months (May through October) species in the area harvested for subsistence uses include beluga whale, ice seals (ringed seal, bearded seal, ribbon seal, and spotted seal), and Steller sea lion.

Eastern Bering Sea belugas are an important nutritional and cultural resource to Alaska Natives and are harvested by more than 20 communities in Norton Sound and the Yukon (Ferguson *et al.* 2018b). The Eastern Bering Sea stock of beluga whales are harvested by nine Norton Sound communities (Elim, Golovin, Koyuk, Nome/Council, Saint Michael, Shaktoolik, Stebbins, Unalakleet, and White Mountain; NSB 2022). Frost and Suydam (2010) reported that of the nine communities, the highest annual harvest is at Koyuk (n=55) and an annual average of 0.6 belugas are harvested by Nome. Nome hunters harvest beluga on the west side of Cape Nome, all the way from Cape Nome to Nome, and from Nome west to Sledge Island (Oceana and Kawerak 2014). Beluga subsistence areas between spring and fall are documented between Cape Nome to Cape Darby and around the east coastline of Norton Sound to Stewart Island (Oceana and Kawerak 2014). Beluga whales have been traditionally hunted in Norton Sound; however, project impacts are not expected to reach traditional harvest areas.

Ice seals are also hunted within the Norton Sound region. Georgette *et al.* (1998) summarizes a subsistence survey of six Norton Sound-Bering Strait communities (Mainland coastal: Brevig Mission, Golovin, Shaktoolik, and Stebbins; Offshore: Savoonga and Gambell) between 1996 and 1997 and reports seals taken for subsistence in all months, with seasonal peaks in spring (May–June) and fall (September–October). Bearded seals, preferred for their large size and quality of meat, were harvested by all communities, but Gambell had the highest harvest rate of any community. Bearded seals are typically harvested in early summer as they migrate northward. Spotted seals, valued for their skins, are reported in large numbers during ice-free months (Georgette *et al.* 1998). Spotted seals occur closer to shore, allowing for easier harvesting than bearded seals or walrus, which occur further from shore and for a shorter window as they migrate north

more quickly (Oceana and Kawerak 2014). Ringed seals, the most abundant and accessible, were harvested in all months and taken in higher numbers than other species from the mainland coastal communities. Ribbon seals are harvested less often than other seals because their distribution does not overlap with most hunting areas and their taste is not preferred (Oceana and Kawerak 2014).

Steller sea lions are rarely harvested in Norton Sound. During the 1996–1997 survey, no Steller sea lion harvest was reported, however, hunters in Gambell, Savoonga, and Brevig Mission reported they do hunt for them occasionally (Georgette *et al.* 1998). Additionally, only 20 Steller sea lions were reported taken between 1992 and 1998 (NMFS 2008; Wolf and Mishler 1999; Wolf and Hutchinson-Scarbrough 1999).

Project activities mostly avoid traditional ice seal harvest windows (noted above) and are generally not expected to negatively impact hunting of seals. However, as noted above, some seal hunting does occur throughout the project period. The project could deter target species and their prey from the project area, increasing effort required for a successful hunt in that area. Construction may also disturb beluga whales, potentially causing them to avoid the project area and reducing their availability to subsistence hunters as well. Additionally, once the project is complete, the increased length and infrastructure at the Port of Nome could impact hunters' ability to access subsistence areas by increasing the time and fuel needed to exit the harbor, and increased vessel traffic at the Port following construction may introduce larger obstacles for subsistence vessels to maneuver and may affect marine mammals and their movements.

Proposed Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses. 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, as well as subsistence uses. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

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

Mitigation for Marine Mammals and Their Habitat

Shutdown Zones—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). Construction supervisors and crews, PSOs, and relevant USACE staff must avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 meters of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions, as necessary to avoid direct physical interaction. Further, USACE must implement activity-specific shutdown zones as described in Table 10.

TABLE 10—REQUIRED SHUTDOWN ZONES

Pile type	Pile driving method	Shutdown zone (m)	
		Cetaceans	Pinnipeds
Temporary template piles (Pipe piles ≤24″)	Vibratory	10	10
	Impact	300	150
(Alternate) Temporary template piles (H-piles 14″)	Vibratory	10	10
	Impact	300	150
Anchor piles (14″ HP14x89 or similar)	Vibratory	10	10
	Impact	300	150
Sheet piles (20″ PS31 or similar)	Vibratory	30	30
	Impact	300	150
Fender piles (Pipe piles 36″)	Vibratory	70	30
	Impact	500	210
Dredging [a]		300	300

[a] As noted previous, take of marine mammals is not anticipated to occur due to dredging. However, USACE will implement a shutdown zone of 300 m for all marine mammals during dredging.

Protected Species Observers—The placement of PSOs during all construction activities (described in the Proposed Monitoring and Reporting section) would ensure that the entire shutdown zone is visible. USACE would employ three PSOs for vibratory driving of temporary template pipe piles, sheet piles, and fender pipe piles. For all other activities, USACE would employ one PSO.

Pre and Post-Activity Monitoring—Monitoring must take place from 30 minutes prior to initiation of pile driving activity (*i.e.,* pre-start clearance monitoring) through 30 minutes post-completion of pile driving activity. Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in Table 10 are clear of marine mammals.

Pile driving may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals. If a marine mammal is observed entering or within the shutdown zones, pile driving activity must be delayed or halted. If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal. If a marine mammal for which take by Level B harassment is authorized is present in the Level B harassment zone, activities would begin and Level B harassment take would be recorded.

Monitoring for Level B Harassment—PSOs would monitor the shutdown zones and beyond to the extent that PSOs can see. Monitoring beyond the shutdown zones enables observers to be aware of and communicate the presence of marine mammals in the project areas outside the shutdown zones and thus prepare for a potential cessation of activity should the animal enter the shutdown zone.

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

Mitigation for Subsistence Uses of Marine Mammals or Plan of Cooperation

Regulations at 50 CFR 216.104(a)(12) further require IHA applicants conducting activities in or near a traditional Arctic subsistence hunting area and/or that may affect the availability of a species or stock of marine mammals for Arctic subsistence uses to provide a Plan of Cooperation or information that identifies what measures have been taken and/or will be taken to minimize adverse effects on the availability of marine mammals for subsistence purposes. A plan must include the following:

- A statement that the applicant has notified and provided the affected subsistence community with a draft plan of cooperation;
- A schedule for meeting with the affected subsistence communities to discuss proposed activities and to resolve potential conflicts regarding any aspects of either the operation or the plan of cooperation;
- A description of what measures the applicant has taken and/or will take to ensure that proposed activities will not interfere with subsistence whaling or sealing; and
- What plans the applicant has to continue to meet with the affected communities, both prior to and while conducting the activity, to resolve conflicts and to notify the communities of any changes in the operation.

USACE provided a draft Plan of Cooperation (POC) to affected parties in October 2022. It includes a description of the project, community outreach that has already been conducted, and project mitigation measures for subsistence uses of marine mammals. USACE will continue to meet with the potentially affected communities and subsistence groups to discuss the project, its potential effects on subsistence, and proposed mitigation measures. Prior to the start of construction, USACE will provide notice to the communities of upcoming construction and timing updates using local radio stations, posted flyers, or other appropriate methods to ensure communities are aware of the construction activities. During construction, USACE will host a weekly call with subsistence leaders, construction leads, and the monitoring team lead(s) to discuss the items listed below, and it will distribute a one-page flyer via email to subsistence groups and construction teams.

- Planned construction activities occurring that day;
- Anticipated construction activities over the next day/days;
- Any reported subsistence activities to be aware of (*e.g.,* planned seal hunting and locations);
- Any other notable or pertinent project of subsistence information; and
- Project contact information (phone/email) for real-time communication.

USACE will monitor this information consistently during the construction season and maintain communication with subsistence leaders to employ adaptive measures to mitigate any conflict with subsistence activities.

The POC is a live document and will be updated throughout the project review and permitting process.

In addition to the coordination described above to avoid or mitigate impacts to subsistence harvests of beluga whale and Steller sea lion, much of the project season avoids traditional ice seal harvest windows, which would be expected to avoid impacts to hunting of ice seals during much of the project season. USACE will coordinate with local communities and subsistence groups throughout construction to avoid or mitigate impacts to ice seal harvests.

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

Proposed Monitoring and Reporting

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

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

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

cumulative impacts from multiple stressors;

- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.,* marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and,
- Mitigation and monitoring effectiveness.

Visual Monitoring

Marine mammal monitoring must be conducted in accordance with the Marine Mammal Monitoring Plan, dated February 2023. Marine mammal monitoring during pile driving and removal must be conducted by NMFS-approved PSOs in a manner consistent with the following:

- PSOs must be independent of the activity contractor (for example, employed by a subcontractor) and have no other assigned tasks during monitoring periods;
- At least one PSO must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- Other PSOs may substitute other relevant experience, education (degree in biological science or related field) or training for experience performing the duties of a PSO during construction activities pursuant to a NMFS-issued incidental take authorization. PSOs may also substitute Alaska native traditional knowledge for experience. (NMFS recognizes that PSOs with traditional knowledge may also have prior experience, and therefore be eligible to serve as the lead PSO.);
- Where a team of three or more PSOs is required, a lead observer or monitoring coordinator must be designated. The lead observer must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization; and
- PSOs must be approved by NMFS prior to beginning any activity subject to this IHA.

PSOs must have the following additional qualifications:

- Ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

USACE would employ three PSOs for vibratory driving of temporary template pipe piles, sheet piles, and fender pipe piles. For all other activities, USACE would employ one PSO. One PSO will be have an unobstructed view of all water within the shutdown zone and will be stationed at or near the project activity. Remaining PSOs, when applicable, will observe as much of the Level B harassment zone as possible. The second and third PSOs, when applicable, will monitor from the shoreline approximately 3.5 km to the east and west of the Port of Nome. While the exact monitoring stations have not yet been determined, USACE provided potential locations in Figure A–1 (Appendix A) of its Marine Mammal Monitoring and Mitigation Plan.

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

Reporting

USACE would submit a draft report to NMFS within 90 calendar days of the completion of monitoring or 60 calendar days prior to the requested issuance of any subsequent IHA for construction activity at the same location, whichever comes first. The marine mammal monitoring report would include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets. Specifically, the report would include:

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including: (1) The number and type of piles that were driven and the method (*e.g.,* impact, vibratory, down-the-hole); and (2) Total duration of driving time for each pile (vibratory driving) and number of strikes for each pile (impact driving).
- 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: (1) Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting; (2) Time of sighting; (3) Identification of the animal(s) (*e.g.,* genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species; (4) Distance and location of each observed marine mammal relative to the pile being driven for each sighting; (5) Estimated number of animals (min/max/best estimate); (6) Estimated number of animals by cohort (adults, juveniles, neonates, group composition, *etc.*); (7) Animal's closest point of approach and estimated time spent within the harassment zone; (8) Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from 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; and
- 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(s), if any.

A final report must be prepared and submitted within 30 calendar days following receipt of any NMFS comments on the draft report. If no comments are received from NMFS within 30 calendar days of receipt of the draft report, the report shall be considered final.

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the

Holder must report the incident to the Office of Protected Resources (OPR), NMFS (*PR.ITP.MonitoringReports@noaa.gov* and *itp.davis@noaa.gov*) and to the Alaska regional stranding network (877–925–7773) as soon as feasible. If the death or injury was clearly caused by the specified activity, the Holder must immediately cease the 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 IHA. The Holder must not resume their activities until notified by NMFS.

The report must include the following information:

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

Monitoring Plan Peer Review

The MMPA requires that monitoring plans be independently peer reviewed where the proposed activity may affect the availability of a species or stock for taking for subsistence uses (16 U.S.C. 1371(a)(5)(D)(ii)(III)). Regarding this requirement, NMFS' implementing regulations state that upon receipt of a complete monitoring plan, and at its discretion, NMFS will either submit the plan to members of a peer review panel for review or within 60 days of receipt of the proposed monitoring plan, schedule a workshop to review the plan (50 CFR 216.108(d)).

NMFS established an independent peer review panel to review USACE's Monitoring Plan for the Port of Nome Modification Project. NMFS provided the panel with a copy of USACE's monitoring plan and provided them with a list of considerations to guide their discussion of the monitoring plan. The panel met in March 2023 and provided a final report to NMFS containing recommendations for USACE's monitoring plan on April 5, 2023. The Peer Review Panel's full report is posted on NMFS' website at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities.* NMFS is considering all of the recommendations made by the Peer Review panel and will incorporate appropriate changes in the monitoring requirements of the IHA, if issued. Additionally, NMFS will describe how the Peer Review Panel's findings and recommendations have been addressed in the **Federal Register** notice announcing the final IHA, if issued.

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, the majority of our analysis applies to all the species listed in Table 9, 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.

Pile driving and removal 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 B harassment, from underwater sounds generated from pile driving and removal. Potential takes could occur if individuals of these species are present in zones ensonified above the thresholds for Level B harassment, identified above, when these activities are underway.

The takes by Level B harassment would be due to potential behavioral disturbance. No mortality or serious injury is anticipated given the nature of the activity, and no Level A harassment is anticipated due to USACE's construction method and planned mitigation measures (see Proposed Mitigation section).

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, would 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; HDR, Inc. 2012; Lerma 2014; ABR 2016). Most likely, individuals would simply move away from the sound source and be temporarily displaced from the areas of pile driving and removal, although even this reaction has been observed primarily only in association with impact pile driving, which USACE does not plan to conduct expect in scenarios where it is required to successfully advance a pile. If sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the area while the activity is occurring, particularly as the project is expected to occur over just 85 in-water pile driving days.

The project is also not expected to have significant adverse effects on affected marine mammals' habitats. The project activities would not modify existing marine mammal habitat for a significant amount of time. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range. We do not expect pile driving activities to have significant consequences to marine invertebrate populations. Given the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat, including fish and invertebrates, are not expected to cause significant or long-term negative consequences.

The project area overlaps a BIA identified as important for feeding by Eastern Bering Sea belugas (Brower *et al.* 2023). The BIA that overlaps the project area is active May through November, which overlaps USACE's proposed work period (May to October). The BIA is considered to be of moderate importance, has moderately certain boundaries, and moderate data to support the identification of the BIA. The BIA was identified as having dynamic spatiotemporal variability. Regardless of the exact boundary of the BIA, the portion of the BIA that overlaps the project area would be extremely small in comparison to the full BIA. Further, the majority of the southeastern half of Norton Sound is separately identified as a ''child'' of the BIA that overlaps the project area. The child encompasses an especially high-density area where belugas congregate to feed and is considered to be of higher importance than the parent BIA. The child BIA does not overlap the project area, indicating that animals in the Nome area would have available, high quality feeding habitat during the project period without necessarily being disturbed by the construction. Therefore, take of beluga whales using the parent BIA, given both the scope and nature of the anticipate impacts of pile driving exposure, is not anticipated to impact reproduction or survivorship of any individuals.

The project area also overlaps ESA-designated critical habitat for both ringed seals and bearded seals. As described in the Description of Marine Mammals in the Area of Specified Activities section above, for both ringed seals and bearded seals, two of the three essential features identified for conservation of the species are related to sea ice. Given that USACE's project is anticipated to occur in the open water season, impacts from the project on sea ice habitat are not anticipated. The third essential feature for both ringed and bearded seals is primary prey sources to support the species. While the project activities could impact ringed seal and bearded seal foraging activities in critical habitat that overlaps the project area, the overlap between these areas is extremely small in comparison to the full ESA-designated critical habitat for each species, which includes most of the waters within the U.S. EEZ.

As previously described, a UME has been declared for gray whales. However, we do not expect the takes proposed for authorization herein to exacerbate the ongoing UME. No injury, serious injury, or mortality of gray whales is expected or proposed for authorization, and take by Level B harassment is limited (14 takes over the duration of the authorization). As such, the proposed take by Level B harassment of gray whale would not exacerbate or compound upon the ongoing UME.

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

- No injury, serious injury, or mortality is anticipated or authorized;
- The anticipated incidents of Level B harassment would consist of, at worst, temporary modifications in behavior that would not result in fitness impacts to individuals;
- The area impacted by the specified activity is very small relative to the overall habitat ranges of all species;
- While impacts would occur within areas that are important for feeding for multiple stocks, because of the small footprint of the activity relative to the area of these important use areas, and the scope and nature of the anticipated impacts of pile driving exposure, we do not expect impacts to the reproduction or survival of any individuals.

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

Small Numbers

As noted previously, only take of small numbers of marine mammals 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 number of instances of take for each species or stock proposed to be taken as a result of this project is included in Table 9. Our analysis shows that less than one-third of the best available population abundance estimate of each stock could be taken by harassment. The number of animals proposed to be taken for all stocks would be considered small relative to the relevant stock's abundances even if each estimated taking occurred to a new individual, which is an unlikely scenario.

A lack of an accepted stock abundance value for the Alaska stock of minke whale did not allow for the calculation of an expected percentage of the population that would be affected. The most relevant estimate of partial stock abundance is 1,233 minke whales in coastal waters of the Alaska Peninsula and Aleutian Islands (Zerbini *et al.* 2006). Given 12 proposed takes by Level B harassment for the stock, comparison to the best estimate of stock abundance shows, at most, 1 percent of the stock would be expected to be impacted.

For the Bering Sea stock of harbor porpoise, the most reliable abundance estimate is 5,713, a corrected estimate from a 2008 survey. However, this survey covered only a small portion of the stock's range, and therefore, is considered to be an underestimate for the entire stock (Muto *et al.* 2022). Given the proposed 24 takes by Level B harassment for the stock, comparison to the abundance estimate, which is only a portion of the Bering Sea Stock, shows that, at most, less than one percent of the stock would be expected to be impacted.

For the Alaska stock of bearded seals, a lack of an accepted stock abundance value did not allow for the calculation of an expected percentage of the population that would be affected. As noted in the 2021 Alaska SAR (Muto *et al.* 2022), an abundance estimate is currently only available for the portion of bearded seals in the Bering Sea (Conn *et al.* 2014). The current abundance estimate for the Bering Sea is 301,836 bearded seals. Given the proposed 2,554 takes by Level B harassment for the stock, comparison to the Bering Sea estimate, which is only a portion of the Alaska Stock (also includes animals in the Chukchi and Beaufort Seas), shows that, at most, less than one percent of the stock would be expected to be impacted.

The Alaska stock of ringed seals also lack an accepted stock abundance value, and therefore, we were not able to calculate an expected percentage of the population that may be affected by USACE's project. As noted in the 2021 Alaska SAR (Muto *et al.* 2022), the

abundance estimate available, 171,418 animals, is only a partial estimate of the Bering Sea portion of the population (Conn *et al.* 2014). As noted in the SAR, this estimate does not include animals in the shorefast ice zone, and the authors did not account for availability bias. Muto *et al.* (2022) expect that the Bering Sea portion of the population is actually much higher. Given the proposed 92 takes by Level B harassment for the stock, comparison to the Bering Sea partial estimate, which is only a portion of the Alaska Stock (also includes animals in the Chukchi and Beaufort Seas), shows that, at most, less than one percent of the stock would be expected to be impacted.

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

Unmitigable Adverse Impact Analysis and Determination

In order to issue an IHA, NMFS must find that the specified activity will not have an ''unmitigable adverse impact'' on the subsistence uses of the affected marine mammal species or stocks by Alaskan natives. NMFS has defined ''unmitigable adverse impact'' in 50 CFR 216.103 as an impact resulting from the specified activity: (1) That is likely to reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by: (i) Causing the marine mammals to abandon or avoid hunting areas; (ii) Directly displacing subsistence users; or (iii) Placing physical barriers between the marine mammals and the subsistence hunters; and (2) That cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met.

Project impacts are generally not expected to reach traditional beluga harvest areas, and much of the project season avoids traditional ice seal harvest windows. While some hunting continues throughout the summer, we do not anticipate that there would be impacts to seals that would make them unavailable for subsistence hunters. Further, USACE will coordinate with local communities and subsistence groups throughout construction and avoid or mitigate impacts to marine mammal harvests by adaptively managing the project.

Based on the description of the specified activity, the measures described to minimize adverse effects on the availability of marine mammals for subsistence purposes, and the proposed mitigation and monitoring measures, NMFS has preliminarily determined that there will not be an unmitigable adverse impact on subsistence uses from USACE's proposed activities.

Endangered Species Act

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

NMFS is proposing to authorize take of Western DPS Steller sea lion, ringed seal (Arctic subspecies), and bearded seal (Beringia DPS), which are listed under the ESA. The Permits and Conservation Division has requested initiation of section 7 consultation with the Alaska Regional Office for the issuance of this IHA. NMFS will conclude the ESA consultation prior to reaching a determination regarding the proposed issuance of the authorization.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to USACE for conducting the Port of Nome Modification Project in Nome, Alaska, during the open water season in 2024, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the proposed IHA can be found at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities*

Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this notice of proposed IHA for the proposed construction project. We also request comment on the potential renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for this IHA or a subsequent renewal IHA.

On a case-by-case basis, NMFS may issue a one-time, 1-year renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical or nearly identical activities as described in the Description of Proposed Activity section of this notice is planned or (2) the activities as described in the Description of Proposed Activity section of this notice would not be completed by the time the IHA expires and a renewal would allow for completion of the activities beyond that described in the *Dates and Duration* section of this notice, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to the needed renewal IHA effective date (recognizing that the renewal IHA expiration date cannot extend beyond 1 year from expiration of the initial IHA).
- The request for renewal must include the following:

(1) An explanation that the activities to be conducted under the requested renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (*e.g.,* reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).

(2) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

Upon review of the request for renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Dated: April 21, 2023.

Kimberly Damon-Randall,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2023–09041 Filed 5–1–23; 8:45 am]

BILLING CODE 3510–22–P