cannot guarantee that we will be able to do so.

Sheleen Dumas,

Department PRA Clearance Officer, Office of the Under Secretary for Economic Affairs, Commerce Department.

[FR Doc. 2024–16306 Filed 7–24–24; 8:45 am]

BILLING CODE 3510–HR–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XD989]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to U.S. Coast Guard Fast Response Cutter Homeporting in Seward and Sitka, Alaska

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

ACTION: Notice; proposed incidental harassment authorizations; request for comments on proposed authorizations and possible renewals.

SUMMARY: NMFS has received a request from the United States Coast Guard (USCG) for authorization to take marine mammals incidental to fast response cutter (FRC) homeporting in Seward and Sitka, Alaska. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue two incidental harassment authorizations (IHAs) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on possible one-time, 1-year renewals 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 authorizations and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than August 26, 2024.

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.clevenstine@noaa.gov*. 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 below.

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 *https://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: Alyssa Clevenstine, Office of Protected Resources, NMFS, (301) 427–8401.

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 monitoring and reporting of the takings. 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 NAO 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 IHAs qualify 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 requests.

Summary of Request

On January 19, 2024, NMFS received a request from the USCG for two IHAs to take marine mammals incidental to pile driving (installation and removal) associated with construction of two FRC homeporting docks in Seward and Sitka, Alaska. Following NMFS' review of the application, the USCG submitted revised versions on April 3, 2024, June 6, 2024, and June 11, 2024. The application was deemed adequate and complete on June 11, 2024. The USCG's request is for take of 11 species (18 stocks) of marine mammals by Level B harassment and, for a subset of five these species, Level A harassment. Neither the USCG nor NMFS expect serious injury or mortality to result from this activity and, therefore, IHAs are appropriate.

Description of Proposed Activity

Overview

The USCG proposes to construct shore-side facilities and associated infrastructure at Moorings Seward to homeport one FRC located in the Seward Marine Industrial Center (SMIC) boat basin, and demolishing and constructing shore side facilities at Moorings Sitka in Sitka Harbor to support a second FRC. The shore-side facilities and associated infrastructure for Moorings Seward would be constructed parallel to the existing SMIC dock. Construction of a new floating dock at Moorings Sitka would be attached to the existing pier. The projects are needed to provide adequate vessel berthing capability to support modern USCG cutters and ultimately, readiness as part of the USCG's overall mission. The USCG would use a variety of methods, including impact, down-the-hole (DTH), and vibratory pile driving, to install and remove piles, including concrete, steel, plastic, and timber piles. These methods of pile driving would introduce underwater sounds that may result in take, by Level A and Level B harassment, of marine mammals. Pile removal may occur by vibratory, cutting, or clipping methods. Cutting and clipping are not anticipated to have the potential to result in incidental take of marine mammals because they are either above water, do not last for sufficient duration to present the reasonable potential for disruption of behavioral patterns, do not produce sound levels with likely potential to result in marine mammal harassment, or some combination of the above.

Dates and Duration

Each IHA would be effective for 1 year from the date of issuance. Pile extraction and installation activities at Moorings Seward would occur for a total of 22 non-consecutive days, of which pile removal is anticipated to take 2 days and pile installation is anticipated to take a maximum of 20 days (15 days to complete installation plus 5 additional days to account for potential weather-related delays). Pile removal and installation activities at Moorings Sitka would occur for a total of 117 non-consecutive days, of which pile removal is anticipated to take 3 days and pile installation is anticipated to take a maximum of 114 days (89 days to complete installation plus 25 additional days to account for potential weather-related delays).

Specific Geographic Region

The current USCG Moorings Seward is located within the City of Seward Harbor while the SMIC (where the new Moorings will be constructed) is located approximately 3.5 miles southeast of Seward Harbor on the east side of Resurrection Bay (figure 1). The SMIC currently occupies approximately 200 acres (0.809 square kilometer (km^2)) on the eastern shore of Resurrection Bay and maintains an enclosed basin protected by rip-rap seawall with a floating dock. Depths in the vicinity of the SMIC are dredged to an approximate depth of −21 feet (ft; −6.4 meters (m)) below mean lower low water (MLLW) in the boat basin and up to −25 ft (−7.6 m) MLLW at the North Dock.

USCG Moorings Sitka is located on the northeast side of Japonski Island within Sitka Harbor on the Sitka Channel separating Japonski Island from the larger Baranof Island (figure 2). The shore side and in-water cutter facilities at Moorings Sitka currently occupy a 1.13-acre (0.005 km^2) upland site with adjacent waterside structures on the southeastern shore of Japonski Island. Currently, only one dock is present at Moorings Sitka and supports USCG Cutter Kukui. The bathymetry of the narrow Sitka Channel, less than 1,000 ft (304.8 m) wide at points, is steep at the sides and reaches approximately 30 ft (9.1 m) MLLW at the end of the pier where the moorings facility is located.

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Figure 1 – Seward Project Area Map

Figure 2 – Sitka Project Area Map

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Detailed Description of the Specified Activity

At Moorings Seward, reconfiguration of the SMIC floating dock would be required to allow for construction of a new FRC floating dock. Extraction of 10 existing 14-inch (35.56 centimeter (cm)) steel piles would occur over 2 days at a rate of five piles per day, potentially using vibratory methods (table 1), pile cutting, or diamond wire sawing. Pile cutting and diamond wire sawing are not expected to cause take of marine mammals because they occur either above water, do not last for sufficient duration to present the reasonable potential for disruption of behavioral patterns, do not produce sound levels with likely potential to result in marine mammal harassment, or some combination of the above, and are thus not addressed further. Installation of 30 30-inch (76.2 cm) concrete piles would occur over a maximum of 20 days using DTH, vibratory, and impact driving. Installation of a single concrete pile would require the following sequence: up to 3 hours of DTH (rock socketing) drilling to create a socket in the bedrock, followed by 10 minutes using a vibratory pile driver to settle the pile into its socket, and finally proofing the pile using 5 strikes from an impact driver to ensure the pile is fully embedded at an expected rate of two piles per day, plus 5 days of buffer (table 2).

At Moorings Sitka, removal of existing mooring dolphins and float, owned by the City of Sitka, would be required to allow for construction of a new sea-going buoy tender pier and FRC floating dock. Extraction of 10 piles (four 24-inch (60.96 cm) concrete piles and six 14-inch timber piles) would occur over a maximum of 3 days, with vibratory extraction of the timber piles requiring 2 days and 1 day to remove the concrete piles, potentially using vibratory methods (table 3), pile cutting, or diamond wire sawing. Installation of 178 piles (118 30-inch concrete piles, 54 13-inch (33.02 cm) plastic piles, and six 14-inch timber piles) would occur over a maximum of 117 days using DTH, vibratory, and impact driving. Installation of plastic piles and timber piles would only require impact hammers. Installation of a single concrete pile would require the same sequence described above for Moorings Seward: up to 3 hours of DTH drilling to create a socket in the bedrock, followed by 10 minutes using a vibratory pile driver to settle the pile into its socket, and finally proofing the pile using 5 strikes from an impact drive to ensure the pile is fully embedded at an expected rate of two piles per day, plus 25 days of buffer (table 4).

TABLE 1—PILE REMOVAL METHODS AND DURATIONS AT USCG MOORINGS SEWARD

Removal method and pile type	Number of piles	Duration per pile	Piles removed per day	Estimated duration (days)
Vibratory extraction of 14-in steel piles	10	30 min	5	2

Note: A total of 10 steel piles will be removed over a total of 2 days (rate 5 piles/day). Pile cutting and diamond wire sawing may also be used but these methods are not expected to cause take of marine mammals.

TABLE 2—PILE INSTALLATION METHODS AND DURATIONS AT USCG MOORINGS SEWARD

Installation method and pile type	Number of piles	Duration or strikes per pile	Piles driven per day	Estimated duration (days)
DTH drilling of 30-in concrete piles	30	180 min	2	20
Vibratory driving of 30-in concrete piles	30	10 min	2	
Impact driving of 30-in concrete piles	30	5 strikes per pile	2	

Note: A total of 30 concrete guide piles will be installed via all methods listed above. Installation of a single concrete pile would require the following sequence: up to 3 hours of DTH, followed by 10 minutes using a vibratory pile driver, and proofing the pile using 5 strikes from an impact hammer (rate 2 piles per day plus 5 days of buffer).

TABLE 3—PILE REMOVAL METHODS AND DURATIONS AT USCG MOORINGS SITKA

Removal method and pile type	Number of piles	Duration per pile	Piles removed per day	Estimated duration (days)
Vibratory extraction concrete and timber piles	10	30 min	5	3

Note: A total of 10 piles (four concrete piles and six timber piles) will be removed over a total of 3 days (rate 5 piles per day). The applicant expects it will require 2 days to remove the six timber piles and 1 day to remove the four concrete piles. Pile cutting and diamond wire sawing may also be used but these methods are not expected to cause take of marine mammals.

TABLE 4—PILE INSTALLATION METHODS AND DURATIONS AT USCG MOORINGS SITKA

Installation method and pile type	Number of piles	Duration or strikes per pile	Piles driven per day	Estimated duration (days)
Impact driving plastic fender piles	54	100 strikes per pile	2	27
Impact driving timber guide piles	6	160 strikes per pile	2	3
DTH drilling concrete piles	118	180 min	2	84
Vibratory driving concrete piles	118	10 min	2	
Impact pile driving concrete piles	118	5 strikes per pile	2	

Note: A total of 178 piles (118 concrete piles, 54 plastic piles, and six timber piles) will be installed via all methods listed above. Installation of plastic and timber piles will require impact driving only. Installation of a single concrete pile would require the following sequence: up to 3 hours of DTH, followed by 10 minutes using a vibratory pile driver, and proofing the pile using 5 strikes from an impact hammer (rate 2 piles per day plus 25 days of buffer).

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; *https://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 5 lists all species or stocks for which take is expected and proposed to be authorized for the activities at Seward and Sitka, 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 either NMFS' U.S. Alaska SARs or U.S. Pacific SARs. All values presented in table 5 are the most recent available at the time of publication (including from the draft 2023 SARs) and are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*.

TABLE 5—MARINE MAMMAL SPECIES [1] LIKELY IMPACTED BY THE SPECIFIED 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]
Family Eschrichtiidae						
Gray Whale	*Eschrichtius robustus*	Eastern North Pacific	-, -, N	26,960 (0.05, 25,849, 2016)	801	131
Family Balaenopteridae (rorquals)						
Fin Whale	*Balaenoptera physalus*	Northeast Pacific	E, D, Y	UND (UND, UND, 2013)	UND	0.6
Humpback Whale	*Megaptera novaeangliae*	Hawai'i	-, -, N	11,278 (0.56, 7,265, 2020)	127	27.09
Humpback Whale	*Megaptera novaeangliae*	Mexico-North Pacific	T, D, Y	N/A (N/A, N/A, 2006)	UND	0.57
Minke Whale [5]	*Balaenoptera acutorostrata*	Alaska	-, -, N	N/A (N/A, N/A, N/A)	UND	0
Family Delphinidae						
Killer Whale	*Orcinus orca*	Eastern North Pacific Alaska Resident.	-, -, N	1,920 (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 (N/A, 587, 2012)	5.9	0.8
Killer Whale	*Orcinus orca*	Eastern Northern Pacific Northern Resident.	-, -, N	302 (N/A, 302, 2018)	2.2	0.2
Killer Whale	*Orcinus orca*	West Coast Transient	-, -, N	349 (N/A, 349, 2018)	3.5	0.4
Pacific White-Sided Dolphin	*Lagenorhynchus obliquidens*	North Pacific	-, -, N	26,880 (N/A, N/A, 1990)	UND	0
Family Phocoenidae (porpoises)						
Dall's Porpoise [6]	*Phocoenoides dalli*	Alaska	-, -, N	UND (UND, UND, 2015)	UND	37
Harbor Porpoise	*Phocoena phocoena*	Gulf of Alaska	-, -, Y	31,046 (0.21, N/A, 1998)	UND	72
Harbor Porpoise [7]	*Phocoena phocoena*	Yakutat/Southeast Alaska Offshore Waters.	-, -, N	N/A (N/A, N/A, 1997)	UND	22.2
Family Otariidae (eared seals and sea lions).						
Northern Fur Seal	*Callorhinus ursinus*	Eastern Pacific	-, D, Y	626,618 (0.2, 530, 376, 2019)	11,403	373
Steller Sea Lion	*Eumetopias jubatus*	Western	E, D, Y	49,837 (N/A, 49,837, 2022)	299	267
Steller Sea Lion	*Eumetopias jubatus*	Eastern	-, -, N	36,308 (N/A, 36,308, 2022)	2,178	93.2
Family Phocidae (earless seals)						
Harbor Seal	*Phoca vitulina*	Prince William Sound	-, -, N	44,756 (N/A, 41,776, 2015)	1,253	413
Harbor Seal	*Phoca vitulina*	Sitka/Chatham Strait	-, -, N	13,289 (N/A, 11,883, 2015)	356	77

[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/*).

[2] 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; N_{min} 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, vessel 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] No population estimates have been made for the number of minke whales in the entire North Pacific. Some information is available on the numbers of minke whales in some areas of Alaska, but in the 2009, 2013, and 2015 offshore surveys, so few minke whales were seen during the surveys that a population estimate for the species in this area could not be determined (Rone *et al.,* 2017). Therefore, this information is N/A (not available).

[6] Previous abundance estimates covering the entire stock's range are no longer considered reliable and the current estimates presented in the SARs and reported here only cover a portion of the stock's range. Therefore, the calculated Nmin and PBR is based on the 2015 survey of only a small portion of the stock's range. PBR is considered to be biased low since it is based on the whole stock whereas the estimate of mortality and serious injury is for the entire stock's range.

[7] Abundance estimates assumed that detection probability on the trackline was perfect; work is underway on a corrected estimate. Additionally, preliminary data results based on environmental DNA analysis show genetic differentiation between harbor porpoise in the northern and southern regions on the inland waters of southeast Alaska. Geographic delineation is not yet known. Data to evaluate population structure for harbor porpoise in Southeast Alaska have been collected and are currently being analyzed. Should the analysis identify different population structure than is currently reflected in the Alaska SARs, NMFS will consider how to best revise stock designations in the future.

As indicated above, all 11 species (with 18 managed stocks) in table 5 temporally and spatially co-occur with the activities to the degree that take is reasonably likely to occur at either location. All species that could potentially occur in the proposed project areas are included in section 4 and tables 3–1 and 3–2 of the USCG's IHA application. While the AT1 Transient stock of killer whales has been reported in the area of Moorings Seward, the stock consists of only 7 individuals, and the temporal and/or spatial occurrence of this species in the project area during the short proposed project timeframe is such that take is not expected to occur. Therefore, they are not discussed further in this notice. In addition, the southcentral and southeastern stocks of northern sea otter (*Enhydra lutris kenyoni*) may be found in Seward and Sitka, respectively. However, this species is managed by the U.S. Fish and Wildlife Service and is not considered further in this document.

Gray whale—Two populations of gray whales are recognized, the eastern and a western North Pacific (ENP and WNP). Whales from the WNP are known to feed in the Okhotsk Sea and off of Kamchatka before migrating south to poorly known wintering grounds, possibly in the South China Sea. The ENP stock of gray whales inhabit California and Mexico in the winter months, and the Chukchi, Beaufort, and Bering Seas in northern Alaska in the summer and fall. The migration pattern of gray whales appears to follow a route along the western coast of Southeast Alaska, traveling northward from British Columbia through Hecate Strait and Dixon Entrance, passing the west coast of Baranof Island from late March to May and then return south in October and November (Jones *et al.,* 1984; Ford *et al.,* 2013). The two populations have historically been considered geographically isolated from each other; however, data from satellite-tracked whales indicate that there is some overlap between the stocks. Two WNP whales were tracked from Russian foraging areas along the Pacific rim to Baja California (Mate *et al.,* 2011). Between 22–24 WNP whales are known to have occurred in the eastern Pacific through comparisons of ENP and WNP photo-identification catalogs (Weller *et al.,* 2011). Therefore, a portion of the WNP population is assumed to migrate, at least in some years, to the eastern Pacific during the winter breeding season. However, it is extremely unlikely that a gray whale in close proximity to the proposed project areas would be one of the few WNP whales that have been documented in the eastern Pacific. The likelihood that a WNP whale would be present in the vicinity of Moorings Seward or Moorings Sitka is insignificant and discountable, and WNP gray whales are omitted from further analysis. Sitka Sound is within a gray whale migratory Biologically Important Area (BIA) (March–May; November–January) and a feeding BIA (March–June)(Wild *et al.,* 2023).

Fin whale—The fin whale is widely distributed in all the world's oceans (Gambell, 1985), but typically occurs in coastal, shelf, and oceanic waters in temperate and polar regions from 20–70 degrees north and south of the Equator. Stafford *et al.* (2009) noted that sea-surface temperature is a suitable predictor for fin whale call detections in the North Pacific. Fin whales appear to have complex seasonal movements and are seasonal migrants; they mate and calve in temperate waters during the winter and migrate to feed at northern latitudes during the summer (Gambell, 1985). The North Pacific population summers from the Chukchi Sea to California and winters from California southwards (Gambell, 1985). Fin whales are generally solitary but can also occur in groups of two to seven individuals.

Humpback whale—Humpback whales are the most commonly observed baleen whale in Alaska and have been observed in Southeast Alaska in all months of the year (Baker *et al.,* 1986). They undergo seasonal migrations in Alaska from spring until fall with other whale species present. There are two potential stocks of humpback whales that may occur in the project area: the Hawai'i stock and the Mexico-North Pacific stock (ESA-threatened). The Hawai'i stock consists of the Southeast Alaska/Northern British Columbia demographically independent population (DIP) and the North Pacific unit. The Southeast Alaska/Northern British Columbia DIP spends the winter months offshore of Hawai'i and the summer months in Southeast Alaska and Northern British Columbia (Wade *et al.,* 2021). The North Pacific unit migrates between Russia and western and Central Alaska to Hawai'i. The Mexico-North Pacific stock is likely made up of multiple DIPs, though there is insufficient data to delineate or assess DIPs at this time, and spend winter months off Mexico and the Revillagigedo Islands, while spending summer months primarily in Alaska (Martien *et al.,* 2021). Moorings Sitka is within a seasonal humpback whale feeding BIAs (March-May, September-December)(Wild *et al.,* 2023).

Minke whale—Minke whales are found throughout the northern hemisphere in polar, temperate, and tropical waters. The International Whaling Commission has identified three minke whale stocks in the North Pacific: one near the Sea of Japan, a second in the rest of the western Pacific (west of 180 degrees W), and a third less concentrated stock throughout the eastern Pacific. NMFS further splits this third stock between Alaska whales and resident whales of California, Oregon, and Washington (Muto *et al.,* 2018). Minke whales are found in all Alaska waters, however no population estimates are currently available for the Alaska stock.

Minke whales are generally found in shallow, coastal waters within 200 m (656 ft) of shore (Zerbini *et al.,* 2006). Dedicated surveys for cetaceans in southeast Alaska found that minke whales were scattered throughout inland waters from Glacier Bay and Icy Strait to Clarence Strait, with small concentrations near the entrance of Glacier Bay. Surveys took place in spring, summer, and fall, and minke whales were present in low numbers in all seasons and years (Dahlheim *et al.,* 2009). Additionally, minke whales were observed during the Biorka Island Dock Replacement Project at the mouth of Sitka Sound (Turnagain Marine Construction, 2018).

Killer whale—Killer whales have been observed in all oceans, but the highest densities occur in colder, more productive waters found at high latitudes. Killer whales occur along the entire coast of Alaska (Consiglieri *et al.,* 1982), inland waterways of British Columbia and Washington (Bigg *et al.,* 1990), and along the outer coasts of Washington, Oregon, and California (Forney and Barlow, 1998). Transient killer whales hunt and feed primarily on marine mammals, including harbor seals, Dall's porpoises, harbor porpoises, and sea lions. Resident killer whale populations in the eastern North Pacific feed mainly on salmonids, showing a strong preference for Chinook salmon (*Oncorhynchus tshawytscha*) (Muto *et al.,* 2020). Both resident and transient killer whales were observed in southeast Alaska during all seasons during surveys between 1991 and 2007, in a variety of habitats and in all major waterways, including Lynn Canal, Icy Strait, Stephens Passage, Frederick Sound, and upper Chatham Strait (Dahlheim *et al.,* 2009). There does not appear to be strong seasonal variation in abundance or distribution of killer whales, but Dahlheim *et al.* (2009) observed substantial variability across different years.

Eight stocks of killer whales are recognized within the Pacific U.S. Exclusive Economic Zone (Young *et al.,* 2023). Of those, five stocks may be present in the project areas: Alaska Resident stock; AT1 Transient stock; Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock; Northern Resident stock; and West Coast Transient stock. The AT1 Transient stock is small and unlikely to occur in the proposed project area at Moorings Seward during the 22 days of proposed in-water work; only the Alaska Resident and Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stocks are expected at Moorings Seward. At Moorings Sitka, the four stocks likely to be present are: Alaska Resident stock; Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock; Northern Resident stock; and West Coast Transient stock.

Pacific white-sided dolphin—The Pacific white-sided dolphin is found in temperate waters of the North Pacific from the southern Gulf of California to Alaska. Across the North Pacific, it appears to occur between 33 and 47 degrees N (Young *et al.,* 2023; Waite and Shelden, 2018). In the eastern north Pacific Ocean, the Pacific white-sided dolphin is one of the most common cetacean species, occurring primarily in shelf and slope waters (Green *et al.,* 1993). During winter, this species is most abundant in California slope and offshore areas, and as northern waters begin to warm in the spring, individuals move north to slope and offshore waters off Oregon and Washington (Green *et al.,* 1993; Barlow, 2003).

Dall's porpoise—Dall's porpoise is found in temperate to subarctic waters of the North Pacific and adjacent seas. It is widely distributed across the North Pacific over the continental shelf and slope waters, and over deep (greater than 2,500 m) oceanic waters (Friday *et al.,* 2012; Friday *et al.,* 2013). It may be the most abundant small cetacean in the North Pacific Ocean, and its abundance changes seasonally, likely in relation to water temperature.

Harbor porpoise—The harbor porpoise is common in coastal waters. Individuals frequently occur in coastal waters of southeast Alaska and are observed most frequently in waters less than 107 m deep (Dahlheim *et al.,* 2009). There are six harbor porpoise stocks in Alaska: the Bering Sea stock occurs throughout the Aleutian Islands and all waters north of Unimak Pass; the Gulf of Alaska stock occurs from Cape Suckling to Unimak Pass; the Northern Southeast Alaska Inland Waters stock includes Cross Sound, Glacier Bay, Icy Strait, Chatham Strait, Frederick Sound, Stephens Passage, Lynn Canal, and adjacent inlets; the Southern Southeast Alaska Inland Waters stock encompasses Sumner Strait, including areas around Wrangell and Zarembo Islands, Clarence Strait, and adjacent inlets and channels within the inland waters of Southeast Alaska north-northeast of Dixon Entrance; and the Yakutat/Southeast Alaska Offshore Waters stock includes offshore habitats in the Gulf of Alaska west of the Southeast Alaska inland waters and the areas around Yakutat Bay (Young *et al.,* 2023). Only the Yakutat/Southeast Alaska Offshore Waters stock and the Gulf of Alaska stocks are expected in the proposed project areas. The Yakutat/Southeast Alaska Offshore Waters stock's range includes Moorings Sitka, while the Gulf of Alaska stock range includes Moorings Seward.

Northern fur seal—The northern fur seal is endemic to the North Pacific Ocean and occurs from southern California to the Bering Sea, Sea of Okhotsk, and Sea of Japan. The worldwide population of northern fur seals has declined substantially from 1.8 million animals in the 1950s due to large-scale fur seal harvests on the Pribilof Islands to supply the fur trade (Muto *et al.,* 2020). Two stocks are recognized in U.S. waters: The Eastern Pacific and the California stocks. The Eastern Pacific stock ranges from southern California during winter to the Pribilof Islands and Bogoslof Island in the Bering Sea during summer (Muto *et al.,* 2020; Carretta *et al.,* 2020). The northern fur seal population appears to be greatly affected by El Niño events and most northern fur seals are highly migratory. The northern fur seal spends approximately 90 percent of its time at sea, typically in areas of upwelling along the continental slopes and over seamounts. The remainder of its life is spent on or near rookery islands or haulouts. During the breeding season, most of the world's population of northern fur seals occurs on the Pribilof and Bogoslof Islands, with the main breeding season occurring in July (Gentry, 2009).

Steller sea lion—The Steller sea lion's range extends from northern Japan to California, with areas of abundance in the Gulf of Alaska and Aleutian Islands (Muto *et al.,* 2020). In 1997, based on demographic and genetic dissimilarities, NMFS identified two distinct population segments (DPSs) of Steller sea lions under the ESA: a western DPS (Western stock) and an eastern DPS (Eastern stock). The western DPS breeds on rookeries located west of 144 degrees W in Alaska and Russia, whereas the eastern DPS breeds on rookeries in southeast Alaska through California. Movement occurs between the western and eastern DPSs of Steller sea lions, and increasing numbers of individuals from the western DPS have been seen in southeast Alaska in recent years (Muto *et al.,* 2020; Fritz *et al.,* 2016). This DPS-exchange is especially evident in the outer southeast coast of Alaska, including Sitka Sound. Hastings *et al.* (2020) indicates that the Eastern stock is increasing while the Western stock is decreasing, influencing mixing of both populations at new rookeries in northern southeast Alaska.

Steller sea lion critical habitat has been defined in Alaska at major haulouts and major rookeries (50 CFR 226.202) but the project action areas do not overlap with this critical habitat. Designated critical habitat for the Western DPS of Steller sea lions includes two major haulouts south of Moorings Seward at the mouth of Resurrection Bay, one on Resurrection Peninsula and the other at Hive Island.

Harbor seal—Harbor seals are common in the coastal and inside waters of the project areas. Harbor seals in Alaska are typically non-migratory with local movements attributed to factors such as prey availability, weather, and reproduction (Scheffer and Slipp, 1944; Bigg, 1969; Hastings *et al.,* 2004). Harbor seals haul out of the water periodically to rest, give birth, and nurse their pups.

There are 12 stocks of harbor seals in Alaska, two of which occur in the project areas: (1) the Prince William Sound stock ranges from Elizabeth Island off the southwest tip of the Kenai Peninsula to Cape Fairweather, including Moorings Seward; and (2) the Sitka/Chatham Strait stock ranges from Cape Bingham south to Cape Ommaney, extending inland to Table Bay on the west side of Kuiu Island and north through Chatham Strait to Cube Point off the west coast of Admiralty Island, and as far east as Cape Bendel on the northeast tip of Kupreanof Island, which includes Moorings Sitka.

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.*). 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 6.

TABLE 6—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 approximately 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 *et al.,* 2013). This division between phocid and otariid pinnipeds is now reflected in the updated hearing groups proposed in Southall *et al.* (2019).

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.

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 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 pile driving, vibratory pile driving, DTH, pile cutting, and diamond wire sawing. The sounds produced by these activities fall into one of two general sound types: impulsive and non-impulsive. Impulsive sounds (*e.g.,* explosions, gunshots, sonic booms, impact pile driving) are typically transient, brief (less than 1 second), broadband, and consist of high peak sound pressure with rapid rise time and rapid decay (ANSI, 1986; NIOSH, 1998; NMFS, 2018). Non-impulsive sounds (*e.g.,* aircraft, machinery operations such as drilling or dredging, vibratory pile driving, pile cutting, diamond wire sawing, 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, 1986; NIOSH, 1998; NMFS, 2018). The distinction between these two sound types is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.,* Ward, 1997; Southall *et al.,* 2007).

Three types of hammers would be used on this project: impact, vibratory, and DTH. Impact hammers operate by repeatedly dropping a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is characterized by rapid rise times and high peak levels, a potentially injurious combination (Hastings and Popper, 2005b). Vibratory hammers install piles by vibrating them and allowing the weight of the hammer to push them into the sediment. Vibratory hammers produce significantly less sound than impact hammers. Peak sound pressure levels (SPLs) may be 180 dB or greater, but are generally 10–20 dB lower than SPLs generated during impact pile driving of the same-sized pile (Oestman *et al.,* 2009). Rise time is slower, reducing the probability and severity of injury, and sound energy is distributed over a greater amount of time (Nedwell and Edwards, 2002; Carlson *et al.,* 2005).

A DTH hammer is essentially a drill bit that drills through the bedrock using a rotating function like a normal drill, in concert with a hammering mechanism operated by a pneumatic (or sometimes hydraulic) component integrated into the DTH hammer to increase speed of progress through the substrate (*i.e.,* it is similar to a ''hammer drill'' hand tool). The sounds produced by the DTH method contain both a continuous non-impulsive component from the drilling action and an impulsive component from the hammering effect. Therefore, we treat DTH systems as both impulsive and non-impulsive sound source types simultaneously.

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

Acoustic Impacts

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

NMFS defines a noise-induced 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 TS is customarily expressed in dB and 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) (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 TS approximates PTS onset (see Ward *et al.,* 1958; Ward *et al.,* 1959; Ward, 1960; Kryter *et al.,* 1966; Miller, 1974; Ahroon *et al.,* 1996; Henderson *et al.,* 2008). PTS levels for marine mammals are estimates as, with the exception of a single study unintentionally inducing PTS in a harbor seal (*e.g.,* Kastak *et al.,* 2008), there are no empirical data measuring PTS in marine mammals largely due to the fact that, for various ethical reasons, experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS, 2018).

Temporary Threshold Shift (TTS)—TTS is a temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS, 2018). Based on data from cetacean TTS measurements (see Southall *et al.,* 2007), a TTS of 6 dB is considered the minimum TS clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability (Finneran *et al.,* 2000; Schlundt *et al.,* 2000, Finneran *et al.,* 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*). 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; Southall *et al.,* 2019 for summaries). TTS is the mildest form of hearing impairment that can occur during exposure to sound (Kryter *et al.,* 1966). While experiencing TTS, the hearing threshold rises, and a sound must be at a higher level in order to be heard. In terrestrial and marine mammals, TTS can last from minutes or hours to days (in cases of strong TTS). In many cases, hearing sensitivity recovers rapidly after exposure to the sound ends. For cetaceans, published data on the onset of TTS are limited to captive bottlenose dolphin (*Tursiops truncatus*), beluga whale (*Delphinapterus leucas*), harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*) (Southall *et al.,* 2019). For pinnipeds in water, measurements of TTS are limited to harbor seals, elephant seals (*Mirounga angustirostris*), bearded seals (*Erignathus barbatus*), and California sea lions (*Zalophus californianus*) (Kastak *et al.,* 1999; Kastak *et al.,* 2008; Kastelein *et al.,* 2020b; Reichmuth *et al.,* 2013; Sills *et al.,* 2020). TTS was not observed in spotted (*Phoca largha*) and ringed (*Pusa hispida*) seals exposed to single airgun impulse sounds at levels matching previous predictions of TTS onset (Reichmuth *et al.,* 2016). These studies examine hearing thresholds measured in marine mammals before and after exposure to intense or long-duration sound exposure. 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 for a species or hearing group, 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; Kastelein *et al.,* 2019b; Kastelein *et al.,* 2020a; Kastelein *et al.,* 2020b). Note that in general, harbor seals and harbor porpoises have a lower TTS onset than other measured pinniped or cetacean species (Finneran, 2015). 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 (Mooney *et al.,* 2009; Finneran *et al.,* 2010; Kastelein *et al.,* 2014; Kastelein *et al.,* 2015). This means that TTS predictions based on the total SEL_{cum} will overestimate the amount of TTS from intermittent exposures, such as sonars and impulsive sources. Nachtigall *et al.* (2018) describe measurements of hearing sensitivity of multiple odontocete species (bottlenose dolphin, harbor porpoise, beluga whale, 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). Additionally, the existing marine mammal TTS data come from a limited number of individuals within these species.

Relationships between TTS and PTS thresholds have not been studied in marine mammals and there is no PTS data for cetaceans, but such relationships are assumed to be similar to those in humans and other terrestrial mammals. PTS typically occurs at exposure levels at least several decibels above that inducing mild TTS (*e.g.,* a 40-dB threshold shift approximates PTS onset (Kryter *et al.,* 1966; Miller, 1974), while a 6-dB threshold shift approximates TTS onset (Southall *et al.,* 2007; Southall *et al.,* 2019). Based on data from terrestrial mammals, a precautionary assumption is that the PTS thresholds for impulsive sounds (such as impact pile driving pulses as received close to the source) are at least 6 dB higher than the TTS threshold on a peak-pressure basis and PTS cumulative sound exposure level thresholds are 15 to 20 dB higher than TTS cumulative sound exposure level thresholds (Southall *et al.,* 2007; Southall *et al.,* 2019). Given the higher level of sound or longer exposure duration necessary to cause PTS as compared with TTS, it is considerably less likely that PTS could occur.

Activities for this project include impact and vibratory pile driving and removal. Installing piles requires a combination of impact pile driving, vibratory pile driving, and DTH. For the proposed project, these activities would not occur at the same time and there would likely be pauses in activities producing the sound during each day. Given these pauses and that many marine mammals are likely moving through the project areas and not remaining for extended periods of time, the potential for TS declines.

Behavioral Harassment—Exposure to noise from pile driving and drilling also has the potential to behaviorally disturb marine mammals. Generally speaking, NMFS considers a behavioral disturbance that rises to the level of harassment under the MMPA a non-minor response—in other words, not every response qualifies as behavioral disturbance, and for responses that do, those of a higher level, or accrued across a longer duration, have the potential to affect foraging, reproduction, or survival. Behavioral disturbance may include a variety of effects, including subtle changes in behavior (*e.g.,* minor or brief avoidance of an area or changes in vocalizations), more conspicuous changes in similar behavioral activities, and more sustained and/or potentially severe reactions, such as displacement from or abandonment of high-quality habitat. Behavioral responses may include changing durations of surfacing and dives, changing direction and/or speed; reducing/increasing vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); eliciting a visible startle response or aggressive behavior (such as tail/fin slapping or jaw clapping); avoidance of areas where sound sources are located. Pinnipeds may increase their haul out time, possibly to avoid in-water disturbance (Thorson and Reyff, 2006). Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.,* species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.,* Richardson *et al.,* 1995; Wartzok *et al.,* 2004; Southall *et al.,* 2007; Southall *et al.,* 2019; Weilgart, 2007; Archer *et al.,* 2010). Behavioral reactions can vary not only among individuals but also within an individual, depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al.,* 2012), and can vary depending on characteristics associated with the sound source (*e.g.,* whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. Please see Appendices B and C of Southall *et al.* (2007) and Gomez *et al.* (2016) for reviews of studies involving marine mammal behavioral responses to sound.

Habituation can occur when an animal's response to a stimulus wanes with repeated exposure, usually in the absence of unpleasant associated events (Wartzok *et al.,* 2004). Animals are most likely to habituate to sounds that are predictable and unvarying. It is important to note that habituation is appropriately considered as a "progressive reduction in response to stimuli that are perceived as neither aversive nor beneficial," rather than as, more generally, moderation in response to human disturbance (Bejder *et al.,* 2009). The opposite process is sensitization, when an unpleasant experience leads to subsequent responses, often in the form of avoidance, at a lower level of exposure.

As noted above, behavioral state may affect the type of response. For example, animals that are resting may show greater behavioral change in response to disturbing sound levels than animals that are highly motivated to remain in an area for feeding (Richardson *et al.,* 1995; Wartzok *et al.,* 2004; NRC, 2005). Controlled experiments with captive marine mammals have showed pronounced behavioral reactions, including avoidance of loud sound sources (Ridgway *et al.,* 1997; Finneran *et al.,* 2003). Observed responses of wild marine mammals to loud pulsed sound sources (*e.g.,* seismic airguns) have been varied but often consist of avoidance behavior or other behavioral changes (Richardson *et al.,* 1995; Morton and Symonds, 2002; Nowacek *et al.,* 2007).

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

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

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

Variations in respiration naturally vary with different behaviors and alterations to breathing rate as a function of acoustic exposure can be expected to co-occur with other behavioral reactions, such as a flight response or an alteration in diving. However, respiration rates in and of themselves may be representative of annoyance or an acute stress response. Various studies have shown that respiration rates may either be unaffected or could increase, depending on the species and signal characteristics, again highlighting the importance in understanding species differences in the tolerance of underwater noise when determining the potential for impacts resulting from anthropogenic sound exposure (*e.g.,* Kastelein *et al.,* 2005; Kastelein *et al.,* 2006). For example, harbor porpoise' respiration rate increased in response to pile driving sounds at and above a received broadband SPL of 136 dB (zero-peak SPL: 151 dB re 1 μPa; SEL of a single strike: 127 dB re 1 μPa^2-s) (Kastelein *et al.,* 2013).

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

Avoidance is the displacement of an individual from an area or migration path as a result of the presence of a sound or other stressors, and is one of the most obvious manifestations of disturbance in marine mammals (Richardson *et al.,* 1995). Avoidance may be short-term, with animals returning to the area once the noise has ceased (*e.g.,* Bowles *et al.,* 1994; Morton and Symonds, 2002). 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).

A flight response is a dramatic change in normal movement to a directed and rapid movement away from the perceived location of a sound source. The flight response differs from other avoidance responses in the intensity of the response (*e.g.,* directed movement, rate of travel). Relatively little information on flight responses of marine mammals to anthropogenic signals exist, although observations of flight responses to the presence of predators have occurred (Connor and Heithaus, 1996; Bowers *et al.,* 2018).

The result of a flight response could range from brief, temporary exertion and displacement from the area where the signal provokes flight to, in extreme cases, marine mammal strandings (Evans and England, 2001). However, it should be noted that response to a perceived predator does not necessarily invoke flight (Ford and Reeves, 2008), and whether individuals are solitary or in groups may influence the response.

Behavioral disturbance can also impact marine mammals in more subtle ways. Increased vigilance may result in costs related to diversion of focus and attention (*i.e.,* when a response consists of increased vigilance, it may come at the cost of decreased attention to other critical behaviors such as foraging or resting). These effects have generally not been demonstrated for marine mammals, but studies involving fishes and terrestrial animals have shown that increased vigilance may substantially reduce feeding rates (*e.g.,* Beauchamp and Livoreil, 1997; Purser and Radford, 2011; Fritz *et al.,* 2002). 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.,* Daan *et al.,* 1996; Bradshaw *et al.,* 1998). However, Ridgway *et al.* (2006) reported that increased vigilance in bottlenose dolphins exposed to sound over a 5-day period did not cause any sleep deprivation or stress effects.

Many animals perform vital functions, such as feeding, resting, traveling, and socializing, on a diel cycle (24-hour cycle). Disruption of such functions resulting from reactions to stressors such as sound exposure are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall *et al.,* 2007). Consequently, a behavioral response lasting less than 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 (*i.e.,* meaningful) 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.

In 2016, the Alaska Department of Transportation and Public Facilities documented observations of marine mammals during construction activities (*i.e.,* pile driving and DTH) at the Kodiak Ferry Dock (see 80 FR 60636, October 7, 2015). In the marine mammal monitoring report for that project, 1,281 Steller sea lions were observed within the estimated Level B harassment zone during pile driving or drilling. Of these, 19 individuals demonstrated an alert behavior, seven were fleeing, and 19 swam away from the project site. All other animals (98 percent) were engaged in activities such as milling, foraging, or fighting and did not change their behavior. In addition, two sea lions approached within 20 m of active vibratory pile driving activities. Three harbor seals were observed within the disturbance zone during pile driving activities; none of them displayed disturbance behaviors. Fifteen killer whales and three harbor porpoises were also observed within the estimated Level B harassment zone during pile driving. The killer whales were travelling or milling while all harbor porpoises were travelling. No signs of disturbance were noted for either of these species. Given the similarities in activities and habitat and the fact the same species are involved, we expect similar behavioral responses of marine mammals to the USCG's specified activity. That is, disturbance, if any, is likely to be temporary and localized (*e.g.,* small area movements). Monitoring reports from other recent pile driving and DTH projects in Alaska have observed similar behaviors (*e.g.,* the Biorka Island Dock Replacement Project *https://www.fisheries.noaa.gov/action/incidental-take-authorization-faa-biorka-island-dock-replacement-project-sitka-ak*).

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.,* Selye, 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 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 vessel traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales (*Eubalaena glacialis*). 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 the proposed project based on observations of marine mammals during previous, similar projects in the region.

Auditory Masking—Since many marine mammals rely on sound to find prey, moderate social interactions, and facilitate mating (Tyack, 2008), noise from anthropogenic sound sources can interfere with these functions, but only if the noise spectrum overlaps with the hearing sensitivity of the receiving marine mammal (Southall *et al.,* 2007; Clark *et al.,* 2009; Hatch *et al.,* 2012). Chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions (Clark *et al.,* 2009). Acoustic masking is when other noises such as from human sources interfere 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; Erbe *et al.,* 2016). Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired from maximizing their performance fitness in survival and reproduction. 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 (Hotchkin and Parks, 2013).

Under certain circumstances, marine mammals experiencing significant masking could also be impaired from maximizing their performance fitness in survival and reproduction. Therefore, when the coincident (masking) sound is human-made, it may be considered harassment when disrupting or altering critical behaviors. It is important to distinguish TTS and PTS, which persist after the sound exposure, from masking, which occurs during the sound exposure. Because masking (without resulting in TS) is not associated with abnormal physiological function, it is not considered a physiological effect, but rather a potential behavioral effect (though not necessarily one that would be associated with harassment).

The frequency range of the potentially masking sound is important in determining any potential behavioral impacts. For example, low-frequency signals may have less effect on high-frequency echolocation sounds produced by odontocetes but are more likely to affect detection of mysticete communication calls and other potentially important natural sounds such as those produced by surf and some prey species. The masking of communication signals by anthropogenic noise may be considered as a reduction in the communication space of animals (*e.g.,* Clark *et al.,* 2009) and may result in energetic or other costs as animals change their vocalization behavior (*e.g.,* Miller *et al.,* 2000; Foote *et al.,* 2004; Parks *et al.,* 2007; Di Iorio and Clark, 2010; Holt *et al.,* 2009). Masking can be reduced in situations where the signal and noise come from different directions (Richardson *et al.,* 1995), through amplitude modulation of the signal, or through other compensatory behaviors (Hotchkin and Parks, 2013). Masking can be tested directly in captive species (*e.g.,* Erbe, 2008), but in wild populations it must be either modeled or inferred from evidence of masking compensation. There are few studies addressing real-world masking sounds likely to be experienced by marine mammals in the wild (*e.g.,* Branstetter *et al.,* 2013).

Marine mammals at or near the proposed project sites may be exposed to anthropogenic noise which may be a source of masking. Vocalization changes may result from a need to compete with an increase in background noise and include increasing the source level, modifying the frequency, increasing the call repetition rate of vocalizations, or ceasing to vocalize in the presence of increased noise (Hotchkin and Parks, 2013). For example, in response to loud noise, beluga whales may shift the frequency of their echolocation clicks to prevent masking by anthropogenic noise (Eickmeier and Vallarta, 2023).

Masking is more likely to occur in the presence of broadband, relatively continuous noise sources such as vibratory pile driving. Energy distribution of pile driving covers a broad frequency spectrum, and sound from pile driving would be within the audible range of pinnipeds and cetaceans present in the proposed action area. While some construction during the USCG's activities may mask some acoustic signals that are relevant to the daily behavior of marine mammals, the short-term duration and limited areas affected make it very unlikely that the fitness of individual marine mammals would be impacted.

Airborne Acoustic Effects—Airborne noise would primarily be an issue for pinnipeds that are swimming or hauled out near the project areas 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 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. Cetaceans are not expected to be exposed to airborne sounds that would result in harassment as defined under the MMPA.

Marine Mammal Habitat Effects

The USCG's proposed construction activities could have localized, temporary impacts on marine mammal habitat, including prey, by increasing in-water SPLs and slightly decreasing water quality. Increased noise levels may affect acoustic habitat (see *Masking*) and adversely affect marine mammal prey in the vicinity of the project area (see discussion below). During DTH, impact, and vibratory pile driving, elevated levels of underwater noise would ensonify the project area where both fish 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 pile driving activities would also cause short-term effects on water quality due to increased turbidity. 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). The sediments of the project site would settle out rapidly when disturbed. 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. The USCG would employ other standard construction best management practices (see section 11 in the USCG's application), thereby reducing any impacts. Therefore, we expect the impact from increased turbidity levels to be discountable to marine mammals and do not discuss it further.

In-Water Construction Effects on Potential Foraging Habitat—The proposed activities would not result in permanent impacts to habitats used directly by marine mammals and no increases in vessel traffic are expected in either location as a result of the specified activities. The areas likely impacted by the proposed action are relatively small compared to the total available habitat in the Gulf of Alaska and Southeast Alaska. The proposed project areas are highly influenced by anthropogenic activities and provides limited foraging habitat for marine mammals. The total seafloor area affected by piling activities is small compared to the vast foraging areas available to marine mammals at either location. At best, the areas impacted provide marginal foraging habitat for marine mammals and fishes. Furthermore, pile driving at the project locations would not obstruct movements or migration of marine mammals.

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

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

Fish react to sounds which are especially strong and/or intermittent low-frequency sounds, and behavioral responses such as flight or avoidance are the most likely effects. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. The reaction of fish to noise depends on the physiological state of the fish, past exposures, motivation (*e.g.,* feeding, spawning, migration), and other environmental factors. Hastings and Popper (2005a) 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 of which are based on studies in support of large, multiyear bridge construction projects (*e.g.,* Scholik and Yan, 2001; Popper and Hastings, 2009). Many 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.,* Pearson *et al.,* 1992; Skalski *et al.,* 1992; Santulli *et al.,* 1999; Fewtrell and McCauley, 2012; Paxton *et al.,* 2017). In response to pile driving, Pacific sardines (*Sardinops sagax*) and northern anchovies (*Engraulis mordax*) may exhibit an immediate startle response to individual strikes but return to ''normal'' pre-strike behavior following the conclusion of pile driving with no evidence of injury as a result (see NAVFAC, 2014). However, some studies have shown no or slight reaction to impulse sounds (*e.g.,* Wardle *et al.,* 2001; Popper *et al.,* 2005; Jorgenson and Gyselman, 2009; Peña *et al.,* 2013).

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.* (2012b) 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.,* 2012a; Casper *et al.,* 2013) and the greatest potential effect on fish during the proposed project would occur during impact pile driving, if it is required. However, the duration of impact pile driving would be limited to a contingency in the event that vibratory driving does not satisfactorily install the pile depending on observed soil resistance. In-water construction activities would only occur during daylight hours allowing fish to forage and transit the project area at night. Vibratory pile driving may elicit behavioral reactions from fish such as temporary avoidance of the area but is unlikely to cause injuries to fish or have persistent effects on local fish populations. In addition, it should be noted that the area in question is low-quality habitat since it is already developed and experiences anthropogenic noise from vessel traffic.

The most likely impact to fishes from pile driving and DTH activities in the project areas would be temporary behavioral avoidance of the area. The duration of fish avoidance of the area after pile driving stops is unknown but a rapid return to normal recruitment, distribution, and behavior is anticipated. There are times of known seasonal marine mammal foraging when fish are aggregating but the impacted areas are small portions of the total foraging habitats available in the regions. In general, impacts to marine mammal prey species are expected to be minor and temporary. Further, it is anticipated that preparation activities for pile driving and DTH (*i.e.,* positioning of the hammer) and upon initial startup of devices would cause fish to move away from the affected area where injuries may occur. Therefore, relatively small portions of the proposed project area would be affected for short periods of time, and the potential for effects on fish to occur would be temporary and limited to the duration of sound-generating activities.

Construction activities, in the form of increased turbidity, also have the potential to adversely affect forage fish in the project area. Pacific herring (*Clupea pallasii*) is a primary prey species of Steller sea lions, humpback whales, and many other marine mammal species that occur in the project areas. As discussed earlier, increased turbidity is expected to occur in the immediate vicinity (approximately 25 ft (7.6 m) or less) of construction activities (Everitt *et al.,* 1980). However, suspended sediments and particulates are expected to dissipate quickly within a single tidal cycle. Given the limited area affected and high tidal dilution rates any effects on forage fish are expected to be minor or negligible. In addition, best management practices would be in effect to limit the extent of turbidity to the immediate project areas. Finally, exposure to turbid waters from construction activities is not expected to be different from the current exposure; fish and marine mammals in the regions are routinely exposed to substantial levels of suspended sediment from glacial sources.

In summary, given the short daily duration of sound associated with pile driving and DTH, and the relatively small areas being affected, pile driving and DTH activities associated with the proposed action are not likely to have a permanent adverse effect on any fish habitat, or populations of fish species. Thus, we conclude that impacts of the specified activity 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 the IHA, which will inform NMFS' consideration of ''small numbers,'' the negligible impact determinations, and impacts on subsistence uses.

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

Authorized takes would primarily be by Level B harassment, as use of the acoustic sources (*i.e.,* vibratory and impact pile driving, DTH) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for high-frequency species and phocids, because predicted auditory injury zones are large and these species could enter the Level A harassment zones and remain undetected for a sufficient duration to incur auditory injury due to their small size and inconspicuous nature. Although auditory injury could occur for low-frequency species due to large predicted auditory injury zones associated with DTH, due to their large size, conspicuous nature, and proposed mitigation (*i.e.,* large shutdown zones, boat-based protected species observers (PSOs)), it is assumed that all low-frequency species would be visually detected and, therefore, taking by Level A harassment would be eliminated. The proposed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

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

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

Acoustic Thresholds

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

Level B Harassment—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.,* frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.,* bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.,* Southall *et al.,* 2007; Southall *et al.,* 2021; Ellison *et al.,* 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 microPascal (re 1 μPa)) for continuous (*e.g.,* vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 μPa for non-explosive impulsive (*e.g.,* seismic airguns) or intermittent (*e.g.,* scientific sonar) sources. Generally speaking, Level B harassment take estimates based on these behavioral harassment thresholds are expected to include any likely takes by TTS as, in most cases, the likelihood of TTS occurs at distances from the source less than those at which behavioral harassment is likely. TTS of a sufficient degree can manifest as behavioral harassment, as reduced hearing sensitivity and the potential reduced opportunities to detect important signals (conspecific communication, predators, prey) may result in changes in behavior patterns that would not otherwise occur.

The USCG's proposed activity includes the use of continuous (vibratory and DTH) and impulsive (impact driving and DTH) sources, and therefore the 120 and 160 dB re 1 μPa (RMS) thresholds, respectively, are applicable.

Level A Harassment—NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (NMFS, 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). The USCG's proposed activity includes the use of impulsive (impact driving and DTH) and non-impulsive (vibratory and DTH) sources.

These thresholds are provided in table 7 below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance.*

TABLE 7—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 SPL thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (L_E) has a reference value of 1μPa²s. In this table, thresholds are abbreviated to reflect American National Standards Institute (ANSI) 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 (TL) 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.,* impact pile driving, vibratory pile driving, vibratory pile removal, and DTH).

In order to calculate distances to the Level A harassment and Level B harassment thresholds for the methods and piles proposed for this project, NMFS used acoustic monitoring data from other locations to develop source levels for the various pile types, sizes and methods (tables 8–11). This analysis uses practical spreading loss, a standard assumption regarding sound propagation for similar environments, to estimate transmission of sound through water. For this analysis, the TL factor of 15 (4.5 dB per doubling of distance) is used. A weighting adjustment factor of 2.5 or 2, a standard default value for vibratory pile driving and removal or impact driving and DTH respectively, were used to calculate Level A harassment areas.

NMFS recommends treating DTH systems as both impulsive and continuous, non-impulsive sound source types simultaneously. Thus, impulsive thresholds are used to evaluate Level A harassment, and continuous thresholds are used to evaluate Level B harassment. With regards to DTH mono-hammers, NMFS recommends proxy levels for Level A harassment based on available data regarding DTH systems of similar sized piles and holes (Denes *et al.,* 2019; Guan and Miner, 2020; Heyvaert and Reyff, 2021; Reyff, 2020; Reyff and Heyvaert, 2019).

TABLE 8—OBSERVED NON-IMPULSIVE SOUND LEVELS AND DURATIONS FOR IN-WATER ACTIVITIES LIKELY TO OCCUR AT MOORINGS SEWARD

In-water activity	Pile size and type	RMS SPL (dB re 1 μPa) at 10 m	Average duration per pile (seconds)	Piles per day
Vibratory Pile Extraction [a]	14-inch steel guide pile	160.0	1,800	5
Vibratory Pile Settling [a]	30-inch concrete guide pile	163.0	600	2
Rock socket drill [b] (non-impulsive component)	30-inch concrete guide pile	174	[c] 10,800	2

Abbreviations: dB re 1 μPa = decibels referenced to a pressure of 1 microPascal, m = meters.
[a] NMFS 2024.
[b] NMFS 2022.
[c] Rock socket drilling is a DTH activity with multiple strikes per second. DTH activities produce sounds that simultaneously contain both non-impulsive and impulsive components.

TABLE 9—OBSERVED IMPULSIVE SOUND LEVELS AND DURATIONS FOR PILE INSTALLATION ACTIVITIES LIKELY TO OCCUR AT MOORINGS SEWARD

Installation method	Pile size and type	Peak (dB re 1 μPa) at 10 m	RMS (dB re 1 μPa) at 10 m	$SEL_{single-strike}$ (dB re 1 μPa) at 10 m	Strikes per day	Maximum strikes per pile	Piles per day
Rock socket drill [a]	30-inch concrete guide pile	194	174	164	[c] 216,000	108,000	2
Impact hammer proofing [b]	30-inch concrete guide pile	198	186	173	10	5	2

Abbreviations: dB re 1 μPa = decibels referenced to a pressure of 1 microPascal, m = meters.
[a] NMFS 2022.
[b] NMFS 2024.
[c] Rock socket drilling is a DTH activity with multiple strikes per second. DTH activities produce sounds that simultaneously contain both non-impulsive and impulsive components.

TABLE 10—OBSERVED NON-IMPULSIVE SOUND LEVELS AND DURATIONS FOR IN-WATER ACTIVITIES LIKELY TO OCCUR AT MOORINGS SITKA

In-water activity	Pile size and type	RMS SPL (dB re 1 μPa) at 10 m	Average duration per pile (seconds)	Piles per day
Vibratory Pile Extraction [a]	12-inch timber piles	162.0	1,800	5
Vibratory Pile Settling [b]	30-inch concrete guide and structure pile	163.0	600	2
Rock socket drill [c] (non-impulsive component)	30-inch concrete guide and structure pile	174	10,800	2

Abbreviations: dB re 1 μPa = decibels referenced to a pressure of 1 microPascal, m = meters.
[a] NMFS 2024.
[b] NMFS 2022.
[c] Rock socket drilling is a DTH activity with multiple strikes per second. DTH activities produce sounds that simultaneously contain both non-impulsive and impulsive components.

TABLE 11—OBSERVED IMPULSIVE SOUND LEVELS AND DURATIONS FOR PILE INSTALLATION ACTIVITIES LIKELY TO OCCUR AT MOORINGS SITKA

Installation method	Pile size and type	Peak (re 1 μPa) at 10 m	RMS (dB re 1 μPa) at 10 m	$SEL_{single\text{-}strike}$ (dB re 1 μPa) at 10 m	Strikes per day
Impact drive [a]	13-inch plastic fender pile	177	153	NA	200 (up to 100 strikes per pile and 2 piles per day).
Impact drive [a]	14-inch timber guide pile	180	170	160	320 (up to 160 strikes per pile and 2 piles per day).
Rock socket drill [b]	30-inch concrete guide pile	194	174	164	216,000 (up to 108,000 strikes per pile and 2 piles per day).[d]
Impact hammer proofing [c]	30-inch concrete guide pile	198	186	173	10 (up to 5 strikes per pile and 2 piles per day).

Abbreviations: dB re 1 μPa = decibels referenced to a pressure of 1 microPascal, m = meters.
[a] Caltrans 2020.
[b] NMFS 2022.
[c] NMFS 2024.
[d] Rock socket drilling is a DTH activity with multiple strikes per second. DTH activities produce sounds that simultaneously contain both non-impulsive and impulsive components.

Level B Harassment Zones—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:

$$TL = B * \log_{10} (R_1/R_2),$$

Where:

TL = transmission loss in dB
B = transmission loss coefficient; for practical spreading equals 15
R_1 = the distance of the modeled SPL from the driven pile, and
R_2 = the distance from the driven pile of the initial measurement.

The recommended TL coefficient for most nearshore environments is the practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, which is the most appropriate assumption for the USCG's proposed activities. The Level B harassment zones and approximate amount of area ensonified for the proposed underwater activities are shown in tables 12 and 13.

Level A Harassment Zones—The ensonified area associated with Level A harassment is more technically challenging to predict due to the need to account for a duration component. Therefore, NMFS developed an optional User Spreadsheet tool to accompany the Technical Guidance 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 and DTH, 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 (*e.g.,* number of piles per day, duration and/or strikes per pile) are presented in tables 8–11, and the resulting estimated isopleths and total ensonified areas are reported below in tables 12 and 13.

TABLE 12—PROJECTED DISTANCES TO LEVEL A AND LEVEL B HARASSMENT ISOPLETHS BY MARINE MAMMAL HEARING GROUP AT MOORINGS SEWARD

Activity	Distance to Level A (m) for LF	Distance to Level A (m) for MF	Distance to Level A (m) for HF	Distance to Level A (m) for PW	Distance to Level A (m) for OW	Level B distance (m)	Total ensonified area (km^2)
Vibratory pile extraction	10.8	1.0	16.0	6.6	0.5	4,641.6	1.94
DTH (Impulsive component) concrete	1,945.5	69.2	2,317.4	1,041.2	75.8	39,810.7	*2.26
Vibratory settling concrete	4.5	0.4	6.6	2.7	0.2	7,356.4	*2.26

TABLE 12—PROJECTED DISTANCES TO LEVEL A AND LEVEL B HARASSMENT ISOPLETHS BY MARINE MAMMAL HEARING GROUP AT MOORINGS SEWARD—Continued

Activity	Distance to Level A (m) for LF	Distance to Level A (m) for MF	Distance to Level A (m) for HF	Distance to Level A (m) for PW	Distance to Level A (m) for OW	Level B distance (m)	Total ensonified area (km²)
Impact driver proofing concrete	10.0	0.4	11.9	5.3	0.4	541.2	0.11

Abbreviations: LF = low-frequency cetaceans, MF = mid-frequency cetaceans, HF = high-frequency cetaceans, PW = phocid pinnipeds in water, OW = otariid pinnipeds in water.
* Total harassment areas are the same despite having varying radii because the maximum distance intersects with the other side of Resurrection Bay near Seward resulting in the same areal extent.

TABLE 13—PROJECTED DISTANCES TO LEVEL A AND LEVEL B HARASSMENT ISOPLETHS BY MARINE MAMMAL HEARING GROUP AT MOORINGS SITKA

Activity	Distance to Level A (m) for LF	Distance to Level A (m) for MF	Distance to Level A (m) for HF	Distance to Level A (m) for PW	Distance to Level A (m) for OW	Level B distance (m)	Total ensonified area (km²)
Vibratory pile extraction	14.7	1.3	21.7	6.9	0.6	6,309.6	4.17
Impact drive plastic	13.6	0.5	16.2	7.3	0.5	3.4	0.0
Impact drive timber	13.7	0.5	16.3	7.3	0.5	46.4	0.01
DTH (Impulsive component)	1,945.5	69.2	2,317.4	1,041.2	75.8	39,810.7	6.31
Vibratory settling concrete	4.5	0.4	6.6	2.7	0.2	7,356.4	4.89
Impact driver proofing concrete	10.0	0.4	11.9	5.3	0.4	541.2	0.33

Abbreviations: LF = low-frequency cetaceans, MF = mid-frequency cetaceans, HF = high-frequency cetaceans, PW = phocid pinnipeds in water, OW = otariid pinnipeds in water.

Marine Mammal Occurrence

In this section we provide information about the occurrence of marine mammals, including density or other relevant information which will inform the take calculations. Available information regarding marine mammal occurrence and density in the project areas includes monitoring data, prior incidental take authorizations, and ESA consultations on previous projects. When local density information is not available, data aggregated in the Navy's Marine Mammal Species Density Database (Navy, 2019; Navy, 2020) for the Northwest or Gulf of Alaska Testing and Training areas or nearby proxies from the monitoring data are used; whichever gives the most precautionary take estimate was chosen. Daily occurrence probability of each marine mammal species is based on consultation with previous monitoring reports, local researchers and marine professionals. Occurrence probability estimates at Moorings Sitka are based on conservative density approximations for each species and factor in historic data of occurrence, seasonality, and group size in Sitka Sound and Sitka Channel. A summary of proposed occurrence is shown in table 14. Group size is based on the best available published research for these species and their presence in the project areas.

TABLE 14—ESTIMATED SPECIES OCCURRENCE OR DENSITY VALUES

Species	Stock	Moorings Seward	Moorings Sitka
Steller sea lion [a b]	Western	2 individuals/day	1–2 groups of 2 individuals/day of either stock.
Steller sea lion [a b]	Eastern	0	1–2 groups of 2 individuals/day of either stock.
Northern fur seal	Eastern Pacific	0	1 individual/month.
Harbor seal	Prince William Sound	48.95 individuals/day	0.
Harbor seal [a]	Sitka/Chatham Strait	0	1–2 groups of 2.1 individuals/day.
Killer whale	Alaska Resident	1 group of 7 individuals/week of either stock.	1 group of 6.6 individuals/week of any stock.
Killer whale	Gulf of Alaska, Aleutian Islands, and Bering Sea Transient.	1 group of 7 individuals/week of either stock.	1 group of 6.6 individuals/week of any stock.
Killer whale	Northern Resident	0	1 group of 6.6 individuals/week of any stock.
Killer whale	West Coast Transient	0	1 group of 6.6 individuals/week of any stock.
Pacific white-sided dolphin	North Pacific	3 individuals/day	0.
Harbor porpoise	Gulf of Alaska	0.4547 individuals/km²	0.
Harbor porpoise	Yakutat/Southeast Alaska Offshore Waters.	0	1 group of 5 individuals/2 weeks.
Dall's porpoise	Alaska	0.25 individuals/day	0.121 individuals/km².
Sperm whale	North Pacific	0	0.002 individuals/km².
Humpback whale [c]	Hawai'i	1 individual/day of either stock	1 group of 3.4 individuals/week of either stock.
Humpback whale [c]	Mexico-North Pacific	1 individual/day of either stock	1 group of 3.4 individuals/week of either stock.
Gray whale	Eastern North Pacific	0.0155 individuals/km²	1 group of 3.5 individuals/2 weeks.

TABLE 14—ESTIMATED SPECIES OCCURRENCE OR DENSITY VALUES—Continued

Species	Stock	Moorings Seward	Moorings Sitka
Fin whale	Northeast Pacific	0.068 individuals/km²	0.0001 individuals/km².
Minke whale	Alaska	0.006 individuals/km²	1 group of 3.5 individuals/2 weeks.

Note: Occurrence value presented as individuals per unit time; density value presented as individuals per square kilometer.
[a] Likelihood of one group per day in the Level A harassment zone and likelihood of two groups per day in the Level B harassment zone.
[b] Steller sea lion stock attribution is 100% Western DPS at Moorings Seward; 97.8% Eastern DPS and 2.2% Western DPS at Moorings Sitka.
[c] Humpback whale stock attribution is 89% Hawai'i and 11% Mexico-North Pacific at Moorings Seward; 98% Hawai'i and 2% Mexico-North Pacific at Moorings Sitka.

Gray whale—Members of the ENP stock have a small chance to occur at the northern end of Resurrection Bay near Moorings Seward, with an estimated density of 0.0155 individuals/km².

During 190 hours of observation from 1994 to 2002 from Sitka's Whale Park, only three gray whales were observed (Straley *et al.,* 2017). However, Straley and Wild (unpublished data) note that since 2014, the number of gray whale sightings in Sitka Sound has increased to an estimated 150–200 individuals in 2021 and 2022. Based on this and recent monitoring data collected near Sitka, the estimated occurrence of gray whales at Moorings Sitka is one group of 3.5 individuals every 2 weeks.

Fin whale—Fin whales have the potential to occur at both Moorings Seward and Moorings Sitka. Based on survey data, fin whales in the vicinity of Moorings Seward are anticipated to occur at a density of 0.068/km² and fin whales in the vicinity of Moorings Sitka are anticipated to occur at a density of 0.0001/km².

Humpback whale—Humpback whales found in the project areas are predominantly members of the Hawai'i DPS (89 percent at Moorings Seward, 98 percent probability at Moorings Sitka), which is not listed under the ESA. However, based on a comprehensive photo-identification study, members of the Mexico DPS, which is listed as threatened, have a small potential to occur in all project locations (11 percent at Moorings Seward, 2 percent at Moorings Sitka) (Wade, 2016), and it is estimated that one individual per day of either stock may occur at Moorings Seward while one group of 3.5 individuals per 2 weeks of either stock may occur at Moorings Sitka.

Minke whale—Minke whales are generally found in shallow, coastal waters within 200 m (656 ft) of shore (Zerbini *et al.,* 2006). Dedicated surveys for cetaceans in southeast Alaska found that minke whales were scattered throughout inland waters from Glacier Bay and Icy Strait to Clarence Strait, with small concentrations near the entrance of Glacier Bay. Surveys took place in spring, summer, and fall, and minke whales were present in low numbers in all seasons and years (Dahlheim *et al.,* 2009). Additionally, minke whales were observed during the Biorka Island Dock Replacement Project at the mouth of Sitka Sound (Turnagain Marine Construction, 2018). Minke whale density at Moorings Seward is estimated as 0.006 individuals/km² while estimated occurrence at Moorings Sitka is one group of 3.5 individuals every 2 weeks.

Killer whale—Killer whales occur along the entire coast of Alaska (Braham and Dahlheim, 1982) and four stocks may be present in the project areas as follows: (1) Alaska Resident stock—both locations; (2) Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock—both locations; (3) Northern Resident—Sitka only; and (4) West Coast Transient stock—Sitka only.

The Alaska Resident stock occurs from southeast Alaska to the Aleutian Islands and Bering Sea. The Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock occurs from the northern British Columbia coast to the Aleutian Islands and Bering Sea. The Northern Resident stock occurs from Washington north through part of southeast Alaska. The West Coast Transient stock occurs from California north through southeast Alaska (Muto *et al.,* 2020). One group of seven individuals per week from either the Alaska Resident stock or the Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock are estimated to occur at Moorings Seward. One group of 6.6 individuals per week from any of the four stocks are estimated to occur at Moorings Sitka.

Pacific white-sided dolphin—Pacific white-sided dolphins are anticipated to occur in the vicinity of Moorings Seward only. Previous construction monitoring reported by NOAA as an appropriate proxy for Moorings Seward is three individuals per day. During 8 years of surveys near Sitka, Straley *et al.* (2017) only documented seven Pacific white-sided dolphins, therefore, we do not reasonably expect the species to occur in the vicinity of Moorings Sitka.

Dall's porpoise—Dall's porpoise are anticipated to occur in the vicinity of both locations. At Moorings Seward, the expected occurrence rate is approximately 0.25 animals per day, and the average group size throughout Alaskan waters is estimated to be between 2–12 individuals. We therefore estimate that approximately one group of up to six individuals could occur over 22 non-consecutive days of in-water work. At Moorings Sitka, the estimated density of Dall's porpoise is 0.121 individuals/km².

Harbor porpoise—Only the Yakutat/Southeast Alaska Offshore Waters stock and the Gulf of Alaska stock are expected to be encountered in the project areas. The Gulf of Alaska stock range includes Moorings Seward while the Yakutat/Southeast Alaska Offshore Waters stock's range includes Moorings Sitka. The estimated density of harbor porpoises at Moorings Seward is 0.4547/km² and the estimated occurrence at Moorings Sitka is one group of five individuals every 2 weeks.

Northern fur seal—Northern fur seals are not expected near Moorings Seward and one individual per month is estimated to occur at Moorings Sitka.

Steller sea lion—Only the Western stock of Steller sea lion is expected to occur at Moorings Seward with an estimated occurrence of two individuals per day. Both the Western and Eastern stocks may occur at Moorings Sitka, which is located in the Central Outer Coast population mixing zone delineated by Hastings *et al.* (2020). Based on these data, 2.2 percent of Steller sea lions near Sitka are expected to be from the Western stock while 97.8 percent are expected to be from the Eastern stock (Hastings *et al.,* 2020), and it is estimated that one to two groups of two individuals per day may occur at Moorings Sitka, with a likelihood of no more than one group per day in the Level A harassment zone and likelihood of up to one additional (for a total of two) group per day in the level B harassment zone.

Harbor seal—There are 12 stocks of harbor seals in Alaska, 2 of which occur in the project areas: (1) the Prince

William Sound stock ranges from Elizabeth Island off the southwest tip of the Kenai Peninsula to Cape Fairweather, including Moorings Seward; and (2) the Sitka/Chatham Strait stock ranges from Cape Bingham south to Cape Ommaney, extending inland to Table Bay on the west side of Kuiu Island and north through Chatham Strait to Cube Point off the west coast of Admiralty Island, and as far east as Cape Bendel on the northeast tip of Kupreanof Island, which includes Moorings Sitka. Daily occurrence of harbor seals at Moorings Sitka is estimated as 48.95 individuals/day and at Moorings Sitka one to two groups of 2.1 individuals/day are estimated based on previous monitoring in the vicinity, with a likelihood of no more than one group per day in the Level A harassment zone and likelihood of up to one additional (for a total of two) group per day in the level B harassment zone.

Take Estimation

Here we describe how the information provided above is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and proposed for authorization.

Neither the applicant nor NMFS have fine-scale data to quantitatively assess the number of animals in the relatively small predicted Level A harassment zones at either location. Therefore, we assumed that, for cryptic species (*e.g.,* Steller sea lion, Pacific white-sided dolphin (Moorings Seward only), harbor seal, harbor porpoise), up to 10 percent of the animals that entered the Level B harassment zone could enter the Level A harassment zone undetected, potentially accumulating sound exposure that rises to the level of Level A harassment.

For species with observational data, the following equation was used to estimate take by Level B harassment, where daily occurrence is measured as individuals per day:

Estimated take = (daily occurrence × number of days) − Level A harassment takes

For species with observational data, the following equation was used to estimate take by Level A harassment, where daily occurrence is multiplied by the number of days of work, which is then multiplied by 10 percent:

Estimated take = (daily occurrence × number of days) × 10 percent

For species with density data, the following equation was used to estimate take by Level B harassment, where ensonified area is measured as km²:

Estimated take = (species density × daily ensonified Level B harassment area × number of days) − Level A harassment takes

For species with density data, the following equation was used to estimate take by Level A harassment, where species density is multiplied by the daily ensonified Level A harassment area multiplied by the number of days of work:

Estimated take = (species density × daily ensonified Level A harassment area × number of days)

Table 15 summarizes proposed amounts of take by both Level A and Level B harassment, as well as the percentage of each stock expected to be taken, at Moorings Seward.

TABLE 15—PROPOSED TAKE OF MARINE MAMMALS BY LEVEL A AND LEVEL B HARASSMENT AND PERCENT OF STOCK PROPOSED TO BE TAKEN AT MOORINGS SEWARD

Species	Stock	Level A	Level B	Total	SAR abundance	Percentage of population
Steller sea lion	Western	4	40	44	49,837	0.09
Harbor seal	Prince William Sound	98	980	1,078	44,756	2.41
Killer whale *	Alaska Resident	0	21	21	1,920	1.09
Killer whale *	Eastern North Pacific Gulf of Alaska, Aleutian Islands and Bering Sea Transient.	0	7	7	587	1.19
Pacific white-sided dolphin	North Pacific	6	60	66	26,880	0.25
Harbor porpoise	Gulf of Alaska	5	18	23	31,046	0.07
Dall's porpoise	Alaska	1	5	6	UND	UND
Humpback whale	Hawaiʻi	0	20	20	11,278	0.18
Humpback whale	Mexico-North Pacific	0	2	2	N/A	N/A
Gray whale	Eastern North Pacific	0	1	1	26,960	0.00
Fin whale	Northeast Pacific	0	3	3	UND	UND

Note: Humpback whale stock attribution: 89% Hawaiʻi and 11% Mexico-North Pacific.

* Percent of stock impacted for killer whales was estimated assuming each stock is taken in proportion to its population size at each location from the total take. At Moorings Seward, the Alaska Resident and Gulf of Alaska stocks are the only stocks present. Of these, the Alaska Resident stock represents approximately 76 percent of the available animals, while the Gulf of Alaska stock represents approximately 23 percent. This division was replicated for Moorings Sitka for all present stocks. Takes were then calculated for each site based on the proportional representation of available stocks, so for Moorings Seward, this results in 21 Level B harassment takes of the Alaska Resident stock of killer whale and seven Level B harassment takes of the Gulf of Alaska stock of killer whale. Total takes for each stock are shown as a percentage of the stock size.

Table 16 summarizes amount of take proposed to be authorized by both Level A and Level B harassment, as well as the percentage of each stock expected to be taken, at Moorings Sitka.

TABLE 16—PROPOSED TAKE OF MARINE MAMMALS BY LEVEL A AND LEVEL B HARASSMENT AND PERCENT OF STOCK PROPOSED TO BE TAKEN AT MOORINGS SITKA

Species	Stock	Level A	Level B	Total	SAR abundance	Percentage of population
Steller sea lion	Western	1	7	8	49,837	0.02
Steller sea lion	Eastern	16	336	352	36,308	0.97
Northern fur seal	Eastern Pacific	0	3	3	626,618	0.00

TABLE 16—PROPOSED TAKE OF MARINE MAMMALS BY LEVEL A AND LEVEL B HARASSMENT AND PERCENT OF STOCK PROPOSED TO BE TAKEN AT MOORINGS SITKA—Continued

Species	Stock	Level A	Level B	Total	SAR abundance	Percentage of population
Harbor seal	Sitka/Chatham Strait	18	342	360	13,289	2.71
Killer whale *	Alaska Resident	0	55	55	1,920	2.86
Killer whale *	Eastern North Pacific Gulf of Alaska, Aleutian Islands and Bering Sea Transient.	0	17	17	587	2.90
Killer whale *	Northern Resident	0	8	8	302	2.65
Killer whale×*	West Coast Transient	0	10	10	349	2.87
Harbor porpoise	Yakutat/Southeast Alaska Offshore Waters.	3	32	35	N/A	N/A
Dall's porpoise	Alaska	14	52	66	UND	UND
Humpback whale	Hawai'i	0	43	43	11,278	0.38
Humpback whale	Mexico-North Pacific	0	1	1	N/A	N/A
Gray whale	Eastern North Pacific	0	22	22	26,960	0.08
Minke whale	Alaska	0	22	22	N/A	N/A

Note: Steller sea lion stock attribution: 97.8% Eastern DPS and 2.2% Western DPS at Moorings Sitka. Humpback whale stock attribution: 98% Hawai'i and 2% Mexico-North Pacific.

* Percent of stock impacted for killer whales was estimated assuming each stock is taken in proportion to its population size at each location from the total take. At Moorings Sitka, the Alaska Resident, Gulf of Alaska, Northern Resident, and West Coast Transient stocks are expected, and the Alaska Resident stock represents approximately 60 percent of the available animals, the Gulf of Alaska stock represents approximately 19 percent, the Northern Resident stock represents approximately 10 percent, and the West Coast Transient represents approximately 11 percent. Takes were then calculated based on the proportional representation of available stocks, which results in 55 Level B harassment takes of the Alaska Resident stock, 17 Level B harassment takes of the Gulf of Alaska stock, 8 Level B harassment takes of the Northern Resident stock, and 10 Level B harassment takes of the West Coast Transient stock. Total takes for each stock are shown as a percentage of the stock size.

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.

For each IHA, the USCG must:

- Ensure that construction supervisors and crews, the monitoring team, and relevant USCG staff are trained prior to the start of all pile driving and DTH activity, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work;
- Employ PSOs and establish monitoring locations as described in the application and the IHA. The USCG must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions. For all pile driving and removal at least one PSO must be used. The PSO will be stationed as close to the activity as possible;
- The placement of the PSOs during all pile driving and removal and DTH activities will ensure that the entire shutdown zone is visible during pile installation;
- Monitoring must take place from 30 minutes prior to initiation of pile driving or DTH activity (*i.e.,* pre-activity monitoring) through 30 minutes post-activity of pile driving or DTH activity;
- Pre-activity monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in table 17 are clear of marine mammals. Pile driving and DTH may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals;
- The USCG must use soft start techniques when 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; and
- If a marine mammal is observed entering or within the shutdown zones indicated in table 17, pile driving and DTH 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 (table 17) or 15 minutes have passed without re-detection of the animal.

As proposed by the applicant, in-water activities will take place only between civil dawn and civil dusk (generally 30 minutes after sunrise and up to 45 minutes before sunset), and work may not begin without sufficient daylight to conduct pre-activity monitoring, and may extend up to 3 hours past sunset, as needed to either completely remove an in-process pile or to embed a new pile far enough to safely leave piles in place until work can resume the next day; during conditions with a Beaufort Sea State of four or less; and when the entire shutdown zones are visible.

Protected Species Observers

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

PSOs would monitor the full shutdown zones and the Level B harassment zones to the extent practicable. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones enable observers to be aware of and communicate the presence of marine mammals in the project areas outside the shutdown zones and thus prepare for a potential cessation of activity should the animal enter the shutdown zone.

Pre- and Post-Activity Monitoring

Monitoring must take place from 30 minutes prior to initiation of pile driving activities (*i.e.,* pre-clearance monitoring) through 30 minutes post-completion of pile driving. Prior to the start of daily in-water construction activity, or whenever a break in pile driving of 30 minutes or longer occurs, PSOs would observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone would be considered cleared when a marine mammal has not been observed within the zone for a 30-minute period. If a marine mammal is observed within the shutdown zones listed in table 9, pile driving activity would be delayed or halted. If work ceases for more than 30 minutes, the pre-activity monitoring of the shutdown zones would commence. A determination that the shutdown zone is clear must be made during a period of good visibility (*i.e.,* the entire shutdown zone and surrounding waters must be visible to the naked eye).

Soft-Start Procedures for Impact Driving

Soft-start procedures 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. If impact pile driving is necessary to achieve required tip elevation, the USCG would be required to provide an initial set of three strikes from the hammer at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. Soft-start would 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.

Shutdown Zones

The USCG must establish shutdown zones for all pile driving activities. The purpose of a shutdown zone is generally to define an area within which shutdown of the activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones would be based upon the Level A harassment thresholds for each pile size/type and driving method where applicable, as shown in table 17. During all in-water piling activities, the USCG has proposed to implement a minimum 30 m shutdown zone, larger than NMFS' typical requirement of a minimum 10 m shutdown zone, with the addition of larger zones during DTH. These distances exceed the estimated Level A harassment isopleths described in tables 12 and 13. Adherence to this expanded shutdown zone will reduce the potential for the take of marine mammals by Level A harassment but, due to the large zone sizes and small, inconspicuous nature of five species (Steller sea lion, Pacific white-sided dolphin (Moorings Seward only), harbor seal, harbor porpoise, Dall's porpoise), the potential for Level A harassment cannot be completely avoided. If a marine mammal is observed entering, or detected within, a shutdown zone during pile driving activity, the activity must be stopped until there is visual confirmation that the animal has left the zone or the animal is not sighted for a period of 15 minutes. Proposed shutdown zones for each activity type are shown in table 17.

All marine mammals would be monitored in the Level B harassment zones and throughout the area as far as visual monitoring can take place. If a marine mammal enters the Level B harassment zone, in-water activities would continue and PSOs would document the animal's presence within the estimated harassment zone.

TABLE 17—PROPOSED SHUTDOWN ZONES AND HARASSMENT ZONES

Activity	Shutdown zone (m) for LF	Shutdown zone (m) for MF	Shutdown zone (m) for HF	Shutdown zone (m) for PW	Shutdown zone (m) for OW	Harassment zone (m) at Seward	Harassment zone (m) at Sitka
Vibratory pile extraction	30	30	30	30	30	4,645	6,310
Impact drive plastic pile	30	30	30	30	30	N/A	5
Impact drive timber pile	30	30	30	30	30	N/A	50
DTH (Impulsive component) concrete pile	1,955	85	2,325	1,050	85	39,815	39,815
Vibratory concrete pile settling	30	30	30	30	30	7,360	7,360
Impact drive concrete pile proofing	30	30	30	30	30	545	545

Note: Level A (PTS onset) harassment would only potentially result from DTH rock socket drilling activities that would generate underwater noise in exceedance of Level A harassment thresholds for all marine mammal hearing groups beyond the 30-m shutdown zone that will be implemented for all in-water activities. Therefore, larger shutdown zones will be implemented during DTH activities and at least two additional PSOs will be assigned to a captained vessel at one or more monitoring locations that provide full views of the shutdown zones and as much of the monitoring zones as possible.

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

Proposed Monitoring and Reporting

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

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

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.,* presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.,* source characterization, propagation, ambient noise); (2) affected species (*e.g.,* life history, dive patterns); (3) co-occurrence of marine mammal species with the activity; or (4) biological or behavioral context of exposure (*e.g.,* age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.,* marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Visual Monitoring

Marine mammal monitoring must be conducted in accordance with the conditions in this section and this IHA. Marine mammal monitoring during pile driving activities would be conducted by up to five PSOs meeting NMFS' standards and 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 would have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- Other PSOs may substitute other relevant experience, education (degree in biological science or related field), or training for prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- A team of three PSOs (up to five PSOs) at up to three locations (including two PSOs on a captained vessel in the case of a five-member team) will conduct the marine protected species monitoring depending on the activity and size of the relevant shutdown and monitoring zones;
- 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;
- For activities with monitoring zones beyond the visual range of a single PSO (*i.e.,* DTH), additional monitoring locations or the use of a vessel with captain and up to three other PSOs (depending on size of the monitoring zones) will conduct monitoring; and
- PSOs must be approved by NMFS prior to beginning any activity subject to the IHA.

PSOs should 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.

For all pile driving activities, at least one PSO (up to five PSOs) must be stationed at the best possible vantage point to monitor the shutdown zones and as much of the Level B harassment zones as possible. A team of three PSOs (up to five PSOs) at up to three locations (including two PSOs on a captained vessel in the case of a five-member team) would conduct marine mammal monitoring depending on the activity and size of monitoring zones. PSOs would be equipped with high quality binoculars for monitoring and radios or cells phones for maintaining contact with work crews. 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

A draft marine mammal monitoring report will be submitted to NMFS within 90 days after the completion of pile driving and removal activities for each IHA, or 60 days prior to a requested date of issuance from any future IHAs for projects at the same location, whichever comes first. The report will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets. Specifically, the report must include:

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including the number and type of piles driven or removed and by what method (*i.e.,* impact, vibratory, DTH) and the total equipment duration for vibratory removal for each pile or total 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:
    - Name of PSO who sighted the animal(s) and PSO location and activity at the time of sighting;
    - Time of sighting;
    - Identification of the animal(s) (*e.g.,* genus/species, lowest possible

taxonomic level, or unidentifiable), PSO confidence in identification, and the composition of the group if there is a mix of species;

○ Distance and bearing of each marine mammal observed relative to the pile being driven for each sighting (if pile driving was occurring at time of sighting);

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

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

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

○ Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral responses 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 and shutdown zones; by species; and

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

If no comments are received from NMFS within 30 days, the draft reports will constitute the final reports. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments.

Reporting Injured or Dead Marine Mammals

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the USCG must immediately cease the specified activities and report the incident to the Office of Protected Resources (*PR.ITP.MonitoringReports@noaa.gov*), NMFS, and to the Alaska Regional Stranding Coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, the USCG must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. The IHA-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.

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 discussion of our analysis applies to all the species listed in table 5, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar. There is little information about the nature or severity of the impacts, or the size, status, or structure of any of these species or stocks that would lead to a different analysis for this activity.

Pile driving and DTH activities associated with the specified activities, as described 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 only for all species other than the Steller sea lion, harbor seal, Pacific white-sided dolphin, harbor porpoise, and Dall's porpoise from underwater sounds generated from pile driving and DTH. Potential takes could occur if individual marine mammals are present in the ensonified areas when pile driving or DTH is occurring.

No serious injury or mortality would be expected, even in the absence of required mitigation measures, given the nature of the activities. For all species other than Steller sea lion, harbor seal, Pacific white-sided dolphin, harbor porpoise, and Dall's porpoise, no Level A harassment is anticipated due to the confined nature of the facilities, ability to position PSOs at stations from which they can observe the entire shutdown zones, and the high visibility of the species expected to be present at each site. The potential for injury is small for mid- and low-frequency cetaceans and sea lions, and is expected to be essentially eliminated through implementation of the planned mitigation measures—soft start (for impact driving), and shutdown zones. Further, no take by Level A harassment is anticipated for killer whales, humpback whales, gray whales, fin whales, or minke whales due to the application of planned mitigation measures and the small Level A harassment zones (for killer whales only). The potential for harassment would be minimized through the construction method and the implementation of the planned mitigation measures (see Proposed Mitigation).

Take by Level A harassment is proposed for Steller sea lion, harbor seal, Pacific white-sided dolphin, harbor porpoise, and Dall's porpoise. Due to their inconspicuous nature, it is possible an individual of one of these species could enter the Level A harassment zone undetected and remain within that zone for a duration long enough to incur PTS. Any take by Level A harassment is expected to arise from, at most, a small degree of PTS (*i.e.,* minor degradation of hearing capabilities within regions of hearing that align most completely with the energy produced by impact pile driving such as the low-frequency region below 2 kHz), not severe hearing impairment or impairment within the ranges of greatest hearing sensitivity. Animals would need to be exposed to higher levels and/or longer duration than are expected to occur here in order to incur any more than a small degree of PTS.

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 serious injury or mortality is anticipated or proposed for authorization;
- Level A harassment would be very small amounts and of low degree;
- Level B harassment would be primarily in the form of behavioral disturbance, resulting in avoidance of the project areas around where piling is occurring, with some low-level TTS that may limit the detection of acoustic cues for relatively brief amounts of time in relatively confined footprints of the activities;
- The ensonified areas are very small relative to the overall habitat ranges of all species and stocks, and would not adversely affect ESA-designated critical habitat for any species or any areas of known biological importance;
- The amount of take proposed for authorization accounts for no more than, at most, 3 percent of any stock that may occur in the project areas;
- The lack of anticipated significant or long-term negative effects to marine mammal habitat; and
- The implementation of mitigation measures to minimize the number of marine mammals exposed to injurious levels of sound and ensure take by Level A harassment is, at most, a small degree of PTS.

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 amount of take NMFS proposes to authorize is below one-third of the estimated stock abundance of all species and stocks (take of individuals is less than 3 percent of the abundance of the affected stocks at Moorings Seward and Moorings Sitka; see tables 15, 16). This is likely a conservative estimate because it assumes all takes are of different individual animals, which is likely not the case. Some individuals may return multiple times in a day but PSOs would count them as separate takes if they cannot be individually identified.

There are no valid abundance estimates available for humpback whales (Mexico-North Pacific stock), fin whales (Northeast Pacific stock), minke whales (Alaska stock), Dall's porpoises (Alaska stock), and harbor porpoises (Yakutat/Southeast Alaska Offshore Waters stock). There is no recent stock abundance estimate for the Mexico-North Pacific stock of humpback whale and the minimum population is considered unknown (Young *et al.,* 2023). There are two minimum population estimates for this stock that are over 15 years old: 2,241 (Martínez-Aguilar, 2011) and 766 (Wade, 2021). Using either of these estimates, the 3 takes by Level B harassment proposed for authorization (2 at Moorings Seward, 1 at Moorings Sitka) represent small numbers of the stock. Muto *et al.* (2021) estimate the minimum stock size for the Northeast Pacific stock of fin whale for the areas surveyed is 2,554 individuals. Therefore, the 3 takes by Level B harassment of this stock at Moorings Seward represent small numbers of this stock. There is also no current abundance estimate of the Alaska stock of minke whale but over 2,000 individuals were documented in areas recently surveyed (Muto *et al.,* 2021). Therefore, the 22 takes by Level B harassment at Moorings Sitka represent small numbers of this stock, even if each take occurred to a new individual.

The most recent stock abundance estimate of the Alaska stock of Dall's porpoise was 83,400 animals and, although the estimate is more than 8 years old, it is unlikely this stock has drastically declined since that time. Therefore, the 72 takes proposed for authorization, 15 by Level A and 57 by Level B harassment (6 total at Moorings Seward, 66 total at Moorings Sitka), represent small numbers of this stock. A current stock-wide abundance estimate for the Yakutat/Southeast Alaska Offshore Waters stock of harbor porpoises in offshore waters (which includes Moorings Sitka) is not available (Young *et al.,* 2023). However, Muto *et al.* (2021) estimate the minimum stock size for the areas surveyed is 1,057 individuals. Therefore, the 35 takes proposed for authorization at Moorings Sitka (3 by Level A harassment, 32 by Level B harassment) represent small numbers of this stock.

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.

There are two species of marine mammals analyzed herein that have been taken as part of subsistence harvests in Resurrection Bay and southeast Alaska: Steller sea lion and harbor seal. The most recent data on subsistence-harvested marine mammals near Seward is of harbor seals in 2002, and the most recent data near Sitka is of both harbor seals and Steller sea lions in 2013 (ADFG, 2013). The most recent subsistence hunt survey data available indicated approximately 11 percent of Sitka households used subsistence-caught marine mammals (Sill and Koster, 2013) and no data is available since that time.

The proposed project is not likely to adversely impact the availability of any marine mammal species or stocks that are commonly used for subsistence purposes or impact subsistence harvest of marine mammals in the region. Although the proposed activities are located in regions where subsistence harvests have occurred historically, subsistence harvest of marine mammals is rare in the project areas and local subsistence users have not expressed concern about this project. Both locations are adjacent to heavily traveled industrialized waterways and all project activities will take place within closed and secured waterfronts where subsistence activities do not generally occur. The project also will not have an adverse impact on the availability of marine mammals for subsistence use at locations farther away, where the proposed construction activities are not expected to take place. Some minor, short-term harassment of Steller sea lions and harbor seals could occur, but any effects on subsistence harvest activities in the project areas will be minimal, and not have an adverse impact.

Based on the description of the specified activity and 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 the USCG's proposed activities.

Endangered Species Act

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

NMFS is proposing to authorize take of Western DPS Steller sea lion, Mexico-North Pacific stock of humpback whale, and the Northeast Pacific stock of fin whale, 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 authorizations.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue two IHAs to the USCG for construction of FRC homeporting docks in Seward and Sitka for a period of 1 year each, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. Drafts of the proposed IHAs 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 authorizations, and any other aspect of this notice of proposed IHAs for the proposed construction project. We also request comment on the potential renewal of these proposed IHAs 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 these IHAs or subsequent renewal IHAs.

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 one year from expiration of the initial IHA).
- The request for renewal must include the following:
  - 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); and
  - 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: July 22, 2024.

Kimberly Damon-Randall,

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

[FR Doc. 2024–16412 Filed 7–24–24; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XD995]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Army Corps of Engineers Baker Bay Pile Dike Repair Project

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 Army Corps of Engineers (ACOE) for authorization to take marine mammals incidental to Baker Bay Pile Dike Repair Project in Baker Bay, Oregon. 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 August 26, 2024.