



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XD533]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Eareckson Air Station Fuel Pier Repair in Alcan Harbor on Shemya Island, Alaska

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

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to the Pacific Air Forces Regional Support Center (USAF) to incidentally harass marine mammals during construction activities associated with the Eareckson Air Station (EAS) Fuel Pier Repair in Alcan Harbor, Shemya Island, Alaska. There are no changes from the proposed authorization in this final authorization.

DATES: This authorization is effective from April 1, 2024 through March 31, 2025.

ADDRESSES: 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.

FOR FURTHER INFORMATION CONTACT: Kate Fleming, 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 mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On May 15, 2023, NMFS received a request from the USACE on behalf of USAF for an IHA to take marine mammals incidental to construction associated with the EAS Fuel Pier Repair in Alcan Harbor on Shemya Island, Alaska. Following NMFS’ review of the application, and discussions between NMFS and USAF, the application was deemed adequate and complete on September 19, 2023. The USAF’s request is for take of 12 species of marine mammals, by Level B harassment and, for a subset of these species,

Level A harassment. Neither USAF nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate. There are no changes from the proposed IHA to the final IHA.

The IHA will be effective from April 1, 2024 to March 31, 2025.

Description of the Specified Activity

The USAF plans to conduct long-term repairs on the only existing fuel pier at EAS on Shemya Island, Alaska. The activities that have the potential to take marine mammals, by Level A harassment and Level B harassment, include down-the-hole (DTH) drilling, vibratory and impact installation of temporary and permanent steel pipe piles, and vibratory removal of temporary steel pipe piles, and would introduce underwater sounds that may result in take, by Level A harassment and Level B harassment, of marine mammals. The marine construction associated with the planned activities is planned to occur over 160 days over 1 year, accounting for weather delays and mechanical issues. The IHA is effective from April 1, 2024 to March 31, 2025.

The fuel pier replacement project would include the installation of an interlocking steel pipe combi-wall system, which will require the installation and removal of 60 30-inch (in) temporary steel pipe piles and the installation of 208 42-in round steel interlocking pipe piles using vibratory, impact, and/or DTH methods.

A detailed description of the planned construction project is provided in the **Federal Register** notice for the proposed IHA (88 FR 74451, October 31, 2023). Since that time, no changes have been made to the planned activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

Comments and Responses

A notice of NMFS' proposal to issue an IHA to USAF was published in the **Federal Register** on October 31, 2023 (88 FR 74451). That notice described, in detail,

USAF's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. In that notice, we requested public input on the request for authorization described therein, our analyses, the proposed authorization, and any other aspect of the notice of proposed IHA, and requested that interested persons submit relevant information, suggestions, and comments. During the 30-day public comment period, the United States Geological Survey noted that they have “no comment at this time.” NMFS received no other public comments.

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

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Alaska 2022 SARs

(Young *et al.*, 2023). All values presented in table 1 are the most recent available at the time of publication and are available online at:

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>.

Table 1 -- Species Likely Impacted by the Specified Activities

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR	Annual M/SI ³
Order Artiodactyla – Infraorder Cetacea – Mysticeti (baleen whales)						
<i>Family Balaenopteridae</i>						
Fin Whale	<i>Balaenoptera physalus</i>	Northeast Pacific	E, D, Y	UND (UND, UND, 2013) ⁴	UND	0.6
Humpback Whale	<i>Megaptera novaeangliae</i>	Western North Pacific	E, D, Y	1,084, (0.088, 1,007, 2006)	3	2.8
		Mexico – North Pacific	T, D, Y	N/A (N/A, N/A, 2006) ⁵	UND	0.56
		Hawai'i	-, -, N	11,278 (0.56, 7,265, 2020)	127	19.6
Minke Whale	<i>Balaenoptera acutorostrata</i>	Alaska	-, -, -	N/A (N/A, N/A, N/A) ⁶	UND	0
Odontoceti (toothed whales, dolphins, and porpoises)						
<i>Family Physeteridae</i>						
Sperm whale	<i>Physeter macrocephalus</i>	North Pacific	E, D, Y	UND (UND, UND, 2015) ⁷	UND	3.5
<i>Family Ziphiidae (beaked whales)</i>						
Baird's beaked whale	<i>Berardius bairdii</i>	Alaska	-, -, N	N/A (N/A, N/A, N/A) ⁸	N/A	0
Stejneger's Beaked Whale	<i>Mesoplodon stejnegeri</i>	Alaska	-, -, N	N/A (N/A, N/A, N/A) ⁸	N/A	0
<i>Family Delphinidae</i>						
Killer Whale	<i>Orcinus orca</i>	ENP Alaska Resident Stock	-, -, N	1,920 (N/A, 1,920, 2019)	19	1.3
		ENP Gulf of Alaska, Aleutian Islands, and Bering Sea	-, -, N	587 (N/A, 587, 2012)	5.9	0.8

<i>Family Phocoenidae (porpoises)</i>						
Dall's Porpoise	<i>Phocoenoides dalli</i>	Alaska	-, -, N	UND (UND, UND, 2015) ⁹	UND	37
Harbor Porpoise	<i>Phocoena phocoena</i>	Bering Sea	-, -, Y	UNK (UNK, N/A, 2008) ¹⁰	UND	0.4
Order Carnivora – Pinnipedia						
<i>Family Otariidae (eared seals and sea lions)</i>						
Northern Fur Seal	<i>Callorhinus ursinus</i>	Eastern Pacific	-, D, Y	626,618 (0.2, 530,376, 2019)	11,403	373
Steller Sea Lion	<i>Eumetopias jubatus</i>	Western, U.S.	E, D, Y	52,932 (N/A, 52,932, 2019)	318	254
<i>Family Phocidae (earless seals)</i>						
Harbor Seal	<i>Phoca vitulina</i>	Aleutian Islands	-, -, N	5,588 (N/A, 5,366, 2018)	97	90

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

² NMFS marine mammal stock assessment reports online at: <https://www.nmfs.noaa.gov/pr/sars>. CV is coefficient of variation; N_{\min} is the minimum estimate of stock abundance. In some cases, CV is not applicable (explain if this is the case)

³ These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, 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.

⁴ The best available abundance estimate for this stock is not considered representative of the entire stock as surveys were limited to a small portion of the stock's range. Based upon this estimate and the N_{\min} , the PBR value is likely negatively biased for the entire stock.

⁵ Abundance estimates are based upon data collected more than 8 years ago and therefore current estimates are considered unknown.

⁶ Reliable population estimates are not available for this stock. Please see Friday *et al.* (2013) and Zerbini *et al.* (2006) for additional information on numbers of minke whales in Alaska.

⁷ The most recent abundance estimate is likely unreliable as it covered a small area that may not have included females and juveniles, and did not account for animals missed on the trackline. The calculated PBR is not a reliable index for the stock as it is based upon negatively biased minimum abundance estimate.

⁸ Reliable abundance estimates for this stock are currently unavailable.

⁹ The best available abundance estimate is likely an underestimate for the entire stock because it is based upon a survey that covered only a small portion of the stock's range.

¹⁰ The best available abundance estimate and N_{\min} are likely an underestimate for the entire stock because it is based upon a survey that covered only a small portion of the stock's range. PBR for this stock is undetermined due to this estimate being older than 8 years.

As indicated above, all 12 species (with 15 managed stocks) in table 1 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. All species that could potentially occur in the project area are included in table 3-1 of the IHA application. While blue whale, gray whale, North Pacific right whale, Pacific white-sided dolphin, and ribbon seal could occur in the area, the temporal and/or spatial occurrence of these species is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here. These species all have extremely low abundance and most are observed in areas outside of the project area.

In addition, northern sea otter may be found the western Aleutians. However, this species is managed by the U.S. Fish and Wildlife Service and is not considered further in this document.

A detailed description of the of the species likely to be affected by the USAF's project, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (88 FR 74451, October 31, 2023); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au

and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (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 2.

Table 2 -- 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, <i>Kogia</i> , river dolphins, Cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i>)	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>i.e.</i> , all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65-dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall <i>et al.</i> , 2007) and PW pinniped (approximation).	

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

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

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

The effects of underwater noise from the USAF's construction activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the project area. The notice of proposed IHA (88 FR 74451, October 31, 2023) included a discussion of the effects of anthropogenic noise on marine mammals and the potential effects of underwater noise from the USAF's construction on marine mammals and their habitat. That information and analysis is incorporated by reference into this final IHA determination and is not repeated here; please refer to the notice of proposed IHA (88 FR 74451, October 31, 2023).

Estimated Take

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

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

Authorized takes would primarily be by Level B harassment, as use of the acoustic sources (*i.e.*, impact and vibratory pile driving and removal and 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 mysticetes and/or high frequency species and/or phocids because predicted auditory injury zones are larger than for mid-frequency species and/or otariids. Auditory injury is unlikely to occur for other groups. The required 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 authorized for this activity. Below we describe how the authorized take numbers are estimated.

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

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 μ Pa)) for continuous (*e.g.*, vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 μ Pa 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. USAF's planned activity includes the use of continuous (vibratory pile driving and removal and DTH) and impulsive (impact pile driving and DTH) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1 μ Pa is/are applicable.

Level A harassment – NMFS' "Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing" (Version 2.0, Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). USAF's planned

activity includes the use of impulsive (impact pile driving and DTH) and non-impulsive (vibratory pile driving and removal and DTH) sources.

These thresholds are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at:

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance>.

Table 3 -- Thresholds Identifying the Onset of Permanent Threshold Shift

Hearing Group	PTS Onset Acoustic Thresholds* (Received Level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	<i>Cell 1</i> $L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	<i>Cell 2</i> $L_{E,LF,24h}$: 199 dB
Mid-Frequency (MF) Cetaceans	<i>Cell 3</i> $L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	<i>Cell 4</i> $L_{E,MF,24h}$: 198 dB
High-Frequency (HF) Cetaceans	<i>Cell 5</i> $L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	<i>Cell 6</i> $L_{E,HF,24h}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	<i>Cell 7</i> $L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	<i>Cell 8</i> $L_{E,PW,24h}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	<i>Cell 9</i> $L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	<i>Cell 10</i> $L_{E,OW,24h}$: 219 dB

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

Note: Peak sound pressure (L_{pk}) has a reference value of 1 μ Pa, and cumulative sound exposure level (L_E) has a reference value of 1 μ Pa²s. In this table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI, 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.*, varying exposure levels and durations, duty cycle). When possible, it is valuable for action

proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Ensonified Area

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

The sound field in the project area is the existing background noise plus additional construction noise from the planned project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.*, pile driving and removal and DTH). The maximum (underwater) area ensonified above the thresholds for behavioral harassment referenced above is 1286 kilometers² (km²) (496 miles² (mi²)), and the calculated distance to the farthest behavioral harassment isopleth is approximately 39,811 meters (m) (24,737.4 mi).

The project includes vibratory pile installation and removal, impact pile driving, and DTH. Source levels for these activities are based on reviews of measurements of the same or similar types and dimensions of piles available in the literature. Source levels for each pile size and activity are presented in table 4. Source levels for vibratory installation and removal of piles of the same diameter are assumed to be the same.

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; Reyff and Heyvaert, 2019; Reyff, 2020; Heyvaert and

Reyff, 2021) (table 4 includes sound pressure and sound exposure levels for each pile type).

Table 4 -- Estimates of Mean Underwater Sound Levels Generated During Vibratory and Impact Pile Installation, DTH, and Vibratory Pile Removal

Continuous Sound Sources		SSL at 10 m dB rms		Literature source
Vibratory Hammer				
42-in steel piles		168.2		Port of Anchorage Test Pile Program (table 16 in Austin <i>et al.</i> , 2016)
30-in steel piles		166		*NMFS Analysis (C. Hotchkin, April 24, 2023)
DTH				
42-in steel piles		174		Reyff & Heyvaert, 2019; Reyff, 2020
30-in steel piles		174		Reyff & Heyvaert, 2019; Reyff, 2020
Impulsive Sound Sources	dB rms	dB SEL	dB peak	Literature Source
Impact Hammer				
42-in steel piles	192	179	213	Caltrans, 2020
30-in steel piles	191	177	212	Caltrans, 2020
DTH				
42-in steel piles	N/A	164	194	Reyff & Heyvaert, 2019; Reyff, 2020; Denes <i>et al.</i> , 2019
30-in steel piles	N/A	164	194	Reyff & Heyvaert, 2019; Reyff, 2020; Denes <i>et al.</i> , 2019

Note: dB peak = peak sound level; DTH = down-the-hole drilling; rms = root mean square; SEL = sound exposure level.

* NMFS generated this source level by completing a comprehensive review of source levels relevant to southeast Alaska; NMFS compiled all available data from Puget Sound and southeast Alaska and adjusted the data to standardize distance from the measured pile to 10 m. NMFS then calculated average source levels for each project and for each pile type. NMFS weighted impact pile driving project averages by the number of strikes per pile following the methodology in Navy (2015).

Transmission loss (*TL*) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. *TL* parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater *TL* is:

$$TL = B * \text{Log}_{10} (R1/R2), \text{ where}$$

TL = transmission loss in dB

B = transmission loss coefficient

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

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

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

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

Table 5 -- User Spreadsheet Inputs

	Vibratory	Impact	DTH
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	30-in steel piles	42-in steel piles	30-in steel piles	42-in steel piles	30-in steel piles	42-in steel piles
	Installation or removal	Installation	Installation	Installation	Installation	Installation
Spreadsheet Tab Used	A.1) Vibratory Pile Driving	A.1) Vibratory Pile Driving	E.1) Impact Pile Driving	E.1) Impact Pile Driving	E.2) DTH Pile Driving	E.2) DTH Pile Driving
Source Level (SPL)	166 RMS	168.2 RMS	177 SEL	179 SEL	174 RMS, 164 SEL	174 RMS, 164 SEL
Transmission Loss Coefficient	15	15	15	15	15	15
Weighting Factor Adjustment (kHz)	2.5	2.5	2	2	2	2
Activity Duration per day (minutes)	60	120	120	180	150	180
Strike Rate per second	-	-	-	-	10	10
Number of strikes per pile	-	-	900	1,800	-	-
Number of piles per day	4	4	4	4	3	3
Distance of sound pressure level measurement	10	10	10	10	10	10

Table 6 -- Level A Harassment and Level B Harassment Isoleths from Vibratory and Impact Pile Driving and DTH

Pile type	Level A harassment isopleths (m)					Level B harassment isopleth (m)
	LF	MF	HF	PW	OW	
Vibratory						
42-in steel pipe piles	32.7	2.9	48.4	19.9	1.4	16,343
30-in Steel pipe piles	14.7	1.3	21.8	8.9	0.6	11,659
DTH						
42-in Steel pipe piles	2,549.4	90.7	3,036.7	1,364.3	99.3	39,811
30-in Steel pipe piles	2,257.6	80.3	2,689.2	1,208.2	88	39,811
Impact						
42-in steel pipe piles	2,015.1	71.7	2,400.3	1,078.4	78.5	1,359
30-in Steel pipe piles	933.8	33.2	1,112.3	499.7	36.4	1,166

Marine Mammal Occurrence and Take Estimation

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

As described above, for some species (humpback whale, killer whale, Steller sea lion and harbor seal) observations within the project area from the prior monitoring were available to directly inform the take estimates, while for other species (fin whale, minke whale, sperm whale, Baird's beaked whale, Stejneger's beaked whale, Dall's porpoise, harbor porpoise and northern fur seal) they were not. Prior surveys include Protected Species Observer (PSO) monitoring completed at the project site on 60 days between June and August 2021 during the emergency fuel pier repair, island-wide faunal surveys completed by the USACE Engineer Research Development Center (ERDC) across 33 days between 2016 and 2019 (primarily in the spring and fall), and island-wide marine mammal surveys completed by the USACE Civil Works Environmental Resource Section on 26 days between May and October 2021. From all three surveys, data that were collected within the project area are primarily the basis for the take estimates because those data best represents what might be encountered there. Average group sizes used to inform Level B take estimates (which also underlie the estimates for Level A harassment) for all species with prior observations in the project area are primarily based on those data. Alternate methods utilizing average group sizes informed primarily by Alaska's Wildlife Notebook Series are used for species without prior observations.

Also of note, while the results are not significantly different, in some cases we recommended modified methods for estimating take from those presented by the

applicant and have described them below. A summary of authorized take, including as a percentage of population for each of the species, is shown in table 7.

Fin Whale

No fin whale were reported during monitoring conducted for the EAS fuel pier emergency repair completed in 2021, nor during other surveys completed from Shemya Island (see application). Accordingly, average group size, estimated group size based on information shared in the Alaska Wildlife Notebook Series (Clark, 2008a), is used as the basis for the take estimates.

USAF requested 17 takes of fin whales by Level B harassment, using a calculation based on 0.002 groups of eight fin whales per hour of construction activity. NMFS concurs with USAF's predicted group size of fin whale (eight individuals), but since there are no observations of this species from Shemya Island, NMFS finds it more appropriate to estimate take by Level B harassment using a less granular occurrence estimate (monthly) rather than USAF's hourly occurrence estimate. Specifically, one group of eight fin whales is predicted every 2 construction months, based on the applicant's prediction that this species would be rare in the project area. The duration of the construction is 160 days ($2.65 * \text{the basic 60-day period}$) and $8 * 2.65 = 21$ takes by Level B harassment).

Although the shutdown zone is larger than the Level A harassment zone for low frequency cetaceans, USAF indicates that at $\geq 2,000$ m, it becomes more challenging to reliably detect low frequency cetaceans in some environmental conditions, and therefore it is possible that a fin whale could enter the Level A harassment zone during DTH activities and stay long enough to incur PTS before USAF detects the animal and shuts down. As such, USAF requested and NMFS authorized a small amount of take by Level A harassment of fin whales. NMFS calculated takes by Level A harassment by first determining the proportion of the area of largest Level A harassment zone (42-in DTH,

2,549 m) that occurs beyond the readily observable 2,000 m from the pile driving location (*i.e.*, $7.5 \text{ km}^2 - 5 \text{ km}^2 / 7.5 \text{ km}^2 = 0.33$). This ratio was multiplied by the estimated fin whale exposures, which is generally one group of eight fin whale that would occur every 2 construction months (or 60 days, adjusted by 1.2 to account for the 70 days that DTH activities are planned). Multiplying these factors ($8 * 1.2 * 0.33$) results in three takes by Level A harassment.

Any individuals exposed to the higher levels associated with the potential for PTS closer to the source might also be behaviorally disturbed, however, for the purposes of quantifying take we do not count those exposures of one individual as both a Level A harassment take and a Level B harassment take, and therefore takes by Level B harassment calculated as described above are further modified to deduct the authorized amount of take by Level A harassment (*i.e.*, $21 - 3 = 18$).

Therefore, NMFS proposes to authorize 3 takes by Level A harassment and 18 takes by Level B harassment for fin whales, for a total of 21 takes.

Humpback Whale

Across 119 days of marine mammal surveys completed from Shemya Island between 2016 and 2021, seven humpback whales were observed in the project area. The average group size for humpback whales detected in the project area was two humpback whales per group detected.

For estimating take by Level B harassment where monitoring data confirmed the presence of the marine mammal species, NMFS concurred with USAF's approach. USAF requested take by Level B harassment by predicting that 0.07 groups of humpback whales would be sighted every hour, which was based on the applicant predicting this species would commonly occur within the project area. This was then multiplied by the average group size for humpback whales (two individuals), to achieve an hourly humpback rate.

Finally, these numbers are multiplied by the hours of construction activity ($0.07 * 2 * 1,101 = 154$ takes by Level B harassment).

Although the shutdown zone is larger than the Level A harassment zone for low frequency cetaceans, USAF indicates that at $\geq 2,000$ m, it becomes more challenging to reliably detect low frequency cetaceans in some environmental conditions, and therefore it is possible that humpback whales could enter the Level A harassment zone during DTH activities and stay long enough to incur PTS before USAF detects the animal and shuts down. As such, USAF requested and NMFS authorized a small amount of take by Level A harassment of humpback whales. NMFS calculated takes by Level A harassment by determining the proportion of the area of largest Level A harassment zone (42-in DTH, 2,549 m) that occurs beyond 2,000 m from the pile driving location (*i.e.*, $7.5 \text{ km}^2 - 5 \text{ km}^2 / 7.5 \text{ km}^2 = 0.33$) and multiplying this ratio by the estimated humpback whale exposures (0.07 groups of 2 humpback whale) that would occur every construction hour that DTH activities are planned (624 hours) ($0.07 * 2 * 624 * 0.33 = 29$ takes by Level A harassment).

For the reasons described above, takes by Level B harassment were modified to deduct the authorized amount of take by Level A harassment (*i.e.*, $154 - 29 = 125$).

Therefore, NMFS proposes to authorize 29 takes by Level A harassment and 125 takes by Level B harassment for humpback whales, for a total of 154 takes.

Minke Whale

No minke whales were reported during monitoring conducted for the EAS fuel pier emergency repair completed in 2021, nor during other surveys completed from Shemya Island (*e.g.*, see application). Accordingly, average group size, estimated based on group size information shared in the Alaska Wildlife Notebook Series (Clark, 2008a), is used as the basis for the take estimates (Guerrero, 2008b).

USAF requested seven takes of minke whales by Level B harassment, using a calculation of 0.002 groups of three minke whales per hour of construction activity. NMFS concurs with USAF's predicted group size of minke whale (three individuals), but since there are no observations of this species from Shemya Island, NMFS finds it more appropriate to estimate take by Level B harassment using a less granular occurrence estimate (monthly) rather than USAF's hourly occurrence estimate. Specifically, one group of three minke whales is predicted every 2 construction months, based on the applicant's prediction that this species would be rare in the project area. The duration of construction is 160 days ($2.65 * \text{the basic 60-day period}$, which corresponds to 2 months) and $3 * 2.65 = 8$ takes by Level B harassment.

Although the shutdown zone is larger than the Level A harassment zone for low frequency cetaceans, USAF indicates that at $\geq 2,000$ m, it becomes more challenging to reliably detect low frequency cetaceans in some environmental conditions, and therefore it is possible that a minke whale could enter the Level A harassment zone during DTH activities and stay long enough to incur PTS before USAF detects the animal and shuts down. As such, USAF requested and NMFS authorized a small amount of take by Level A harassment of minke whales. NMFS calculated takes by Level A harassment by determining the proportion of the area of largest Level A harassment zone (42-in DTH, 2,549 m) that occurs beyond the readily observable 2,000 m from the pile driving location (*i.e.*, $7.5 \text{ km}^2 - 5 \text{ km}^2 / 7.5 \text{ km}^2 = 0.33$). This ratio was multiplied by the estimated minke whale exposures, which is generally one group of three minke whales every 2 construction months (or 60 days), adjusted by 1.2 to account for the 70 days that DTH activities are planned. Multiplying these factors ($1.2 * 0.33$) results in one take by Level A harassment. Since the predicted average group size of minke whale is three, NMFS proposes to authorize three takes by Level A harassment of minke whale.

For reasons described above, takes by Level B harassment were modified to deduct the authorized amount of take by Level A harassment (*i.e.*, $8 - 3 = 5$).

Therefore, NMFS proposes to authorize three takes by Level A harassment and five takes by Level B harassment for minke whales, for a total of eight takes.

Sperm Whale

Across 119 monitoring days between 2016 and 2021, four sperm whales were observed on a single day from Shemya Island, though outside of the project area (see application).

USAF requested 27 takes of sperm whale by Level B harassment, using a calculation based on 0.006 groups of four sperm whales per hour of construction activity. NMFS concurs with USAF's predicted group size of sperm whale (four individuals, which corresponds to the number of sperm whales detected on a single day during Shemya Island marine mammal surveys), but since there are few observations of this species from Shemya Island, NMFS finds it more appropriate to estimate take by Level B harassment using a less granular occurrence estimate (monthly) rather than USAF's hourly occurrence estimate. Specifically, two groups of four sperm whales is predicted every 1 construction month based on sperm whales being one of the most frequently sighted marine mammals in the high latitude regions of the North Pacific, including the Bering Sea and the Aleutian Islands. The duration of the construction is 5 months and $2 * 4 * 5 = 40$ takes by Level B harassment.

Due to the small Level A harassment zones (table 8), which do not reach deep water where sperm whales are expected to be encountered, coupled with the implementation of shutdown zones, which will be larger than Level A harassment zones for mid-frequency cetaceans (described in the **Mitigation** section), NMFS concurs with USAF's assessment that take by Level A harassment is not anticipated for sperm whale.

Therefore, NMFS authorized all 40 estimated exposures as takes by Level B harassment. Takes by Level A harassment for sperm whales are not requested nor are they authorized.

Baird's Beaked Whale

Baird's beaked whales are usually found in tight social groups (schools or pods) averaging between 5 and 20 individuals, but they have occasionally been observed in larger groups of up to 50 animals. Across 119 days of marine mammal surveys completed from Shemya Island between 2016 and 2021, no observations of Baird's beaked whale were recorded (see application). Accordingly, average group size, estimated based on group size information shared in the Alaska Wildlife Notebook Series (Guerrero, 2008a), is used as the basis for take estimates.

USAF requested 11 takes by Level B harassment, using a calculation based on 0.001 groups of ten Baird's beaked whales per hour of construction activity. NMFS concurs with USAF's predicted group size of Baird's beaked whale (10 individuals), but since there are no observations of this species from Shemya Island, NMFS finds it more appropriate to estimate take by Level B harassment using a less granular occurrence estimate (monthly) rather than USAF's hourly occurrence estimate. Specifically, 1 group of 10 Baird's beaked whales is predicted across the project, which is based on this species being shy and preferring deep waters and as such the applicant predicted they would be very rare in the project area. Therefore, NMFS proposes to authorize 10 takes of Baird's beaked whale by Level B harassment.

Due to the small Level A harassment zones (table 8), which do not reach deep water where Baird's beaked whales are expected to be encountered, coupled with the implementation of shutdown zones, which will be larger than Level A harassment zones for mid-frequency cetaceans (described in the **Mitigation** section), NMFS concurs with USAF's assessment that take by Level A harassment is not anticipated for Baird's beaked whale. Therefore, NMFS authorized all 10 estimated exposures as takes by Level B

harassment. Takes by Level A harassment for Baird's beaked whales are not requested nor are they authorized.

Stejneger's Beaked Whale

Across 119 days of marine mammal surveys completed from Shemya Island between 2016 and 2021, no observations of Stejneger's beaked whale were recorded (see application). Accordingly, average group size, estimated based on group size information shared in the Alaska Wildlife Notebook Series (Guerrero, 2008a), is used as the basis for take estimates.

USAF requested nine takes of Stejneger's beaked whale by Level B harassment, using a calculation based on 0.001 groups of eight Stejneger's beaked whales per hour of construction activity. NMFS concurs with USAF's predicted group size of Stejneger's beaked whale (eight individuals), but since there are no observations of this species from Shemya Island, NMFS finds it more appropriate to estimate take by Level B harassment using a less granular occurrence estimate (monthly) rather than USAF's hourly occurrence estimate. Specifically, one group of eight Stejneger's beaked whales is predicted across the entirety of the project, based on this species being shy and preferring deep waters and as such the applicant predicted they would only be very rarely encountered in the project area. Therefore, NMFS proposes to authorize eight Stejneger's beaked whale by level B harassment.

Due to the small Level A harassment zones (table 8), which do not reach deep water where Stejneger's beaked whales are expected to be encountered, coupled with the implementation of shutdown zones, which will be larger than Level A harassment zones for mid-frequency cetaceans (described in the **Mitigation** section), NMFS concurs with USAF's assessment that take by Level A harassment is not anticipated for Stejneger's beaked whale. Therefore, NMFS authorized all eight estimated exposures as takes by

Level B harassment. Takes by Level A harassment for Stejneger's beaked whales are not requested nor are they authorized.

Killer Whale

Across 119 days of marine mammal surveys completed from Shemya Island between 2016 and 2021, 69 killer whales were observed in the project area. The average group size for killer whales detected in the project area was eight killer whales per group detected.

For estimating take by Level B harassment where monitoring data confirmed the presence of the marine mammal species, NMFS concurred with USAF's approach. USAF requested take by Level B harassment by predicting that 0.02 groups of killer whales would be sighted every hour, which was based on the applicant's prediction that this species would commonly be encountered in the project area. This was then multiplied by the average group size for humpback whales (eight individuals), to achieve an hourly killer whale rate. Finally, these numbers are multiplied by the hours of construction activity ($0.02 * 8 * 1,101 = 176$ takes by Level B harassment).

Due to the small Level A harassment zones (table 8), coupled with the implementation of shutdown zones, which will be larger than Level A harassment zones for mid-frequency cetaceans (described in the **Mitigation** section), NMFS concurs with USAF's assessment that take by Level A harassment is not anticipated for killer whale. Therefore, NMFS authorized all 176 estimated exposures as takes by Level B harassment. Takes by Level A harassment for killer whale are not requested nor are they authorized.

Dall's Porpoise

No Dall's porpoise were reported during monitoring conducted for the EAS fuel pier emergency repair completed in 2021, nor during other surveys completed from Shemya Island (see application). Dall's porpoise generally travel in groups of 10 to 20

individuals but can occur in groups with over hundreds of individuals (Wells, 2008). Accordingly, average group size, estimated based group size information shared in the Alaska Wildlife Notebook Series (Wells 2008), is used as the basis for the take estimates, is used as the basis for take estimates.

USAF requested 33 takes of Dall's porpoise by Level B harassment, using a calculation based on of 0.002 groups of 15 Dall's porpoise per hour of construction activity. NMFS concurs with USAF's predicted group size of Dall's porpoise (15 individuals), but since there are no observations of this species from Shemya Island, NMFS finds it more appropriate to estimate take by Level B harassment using a less granular occurrence estimate (monthly) rather than USAF's hourly occurrence estimate. Specifically, 1 group of 15 Dall's porpoise is predicted every 2 construction months, based on the applicant's prediction that this species would be rarely encountered in the project area. The duration of the construction is 160 days ($2.65 * \text{the basic 60-day period that corresponds to 2 construction months}$) and $15 * 2.65 = 40$ takes by Level B harassment.

For most activities, NMFS calculated takes by Level A harassment by determining the ratio of the largest Level A harassment area for 42-in DTH activities (*i.e.*, 10.2 km^2 for a Level A harassment distance of 3,037 m) minus the area of the shutdown zone for Dall's porpoise (*i.e.*, 0.5 km^2 for a shutdown zone distance of 500 m) to the area of the Level B harassment isopleth ($1,285.9 \text{ km}^2$) for a Level B harassment distance of 39,811 m (*i.e.*, $(10.2 \text{ km}^2 - 0.5 \text{ km}^2) / 1,285.9 \text{ km}^2 = 0.008$). We then multiplied this ratio by the number of estimated Dall's porpoise exposures calculated as described above for Level B harassment to determine take by Level A harassment (*i.e.*, $0.008 * 40 \text{ exposures} = 0.32 \text{ takes by Level A harassment}$).

For Level A harassment during impact pile driving of 42-in piles, for which the Level A harassment zone is larger than the Level B harassment zone, NMFS estimates

take based on 1 group of 15 Dall's porpoise every 2 months, or 60 days, in consideration of the 52 days (0.87 of 60) of impact driving of 42-in piles (15 Dall's porpoise * 0.87 months = 13.05) for a total of 13.37 takes by Level A harassment (0.32 + 13.05 = 13).

For reasons described above, takes by Level B harassment were modified to deduct the authorized amount of take by Level A harassment (*i.e.*, $40 - 13 = 27$).

Therefore, NMFS proposes to authorize 13 takes by Level A harassment and 27 takes by Level B harassment for Dall's porpoise, for a total of 40 takes.

Harbor Porpoise

Across 119 monitoring days between 2016 and 2021, one group of two to three harbor porpoise were observed from Shemya Island (see application), though outside of the project area. Average group size, estimated based on the Alaska Wildlife Notebook Series (Schmale, 2008), is used as the basis for take estimates.

USAF requested 11 takes of harbor porpoise by Level B harassment, using a calculation based on of 0.01 groups of 1 harbor porpoise per hour of construction activity. NMFS concurs with USAF's predicted group size of harbor porpoise (one individual), but since there are few observations of this species from Shemya Island, NMFS finds it more appropriate to estimate take by Level B harassment using a less granular occurrence estimate (monthly) rather than USAF's hourly occurrence estimate. Specifically, three groups of one harbor porpoise is predicted every 1 construction month. The duration of construction is 5 months and $3 * 5 = 15$ takes by Level B harassment.

For most activities, NMFS calculated takes by Level A harassment by determining the ratio of the largest Level A harassment area for 42-in DTH activities (*i.e.*, 10.2 km² for a Level A harassment distance of 3,037 m) minus the area of the shutdown zone for harbor porpoise (*i.e.*, 0.5 km² for a shutdown zone distance of 500 m) to the area of the Level B harassment isopleth (1,285.9 km²) for a Level B harassment distance of 39,811 m (*i.e.*, $(10.2 \text{ km}^2 - 0.5 \text{ km}^2) / 1,285.9 \text{ km}^2 = 0.008$). We then

multiplied this ratio by the number of estimated harbor porpoise exposures calculated as described above for Level B harassment to determine take by Level A harassment (*i.e.*, $0.008 * 15 \text{ exposures} = 0.12 \text{ takes by Level A harassment}$).

For Level A harassment during impact pile driving of 42-in piles, for which the Level A harassment zone is larger than the Level B harassment zone, NMFS estimates take based on three groups of one harbor porpoise could be taken by Level A harassment every 1 month, or 30 days in consideration of the 52 days ($1.7 * 30$) of impact pile driving of 42-in piles ($3 \text{ groups of 1 harbor porpoise} * 1.7 = 5.1$) for a total of five takes by Level A harassment ($0.12 + 5.1 = 5$).

For reasons described above, takes by Level B harassment were modified to deduct the authorized amount of take by Level A harassment (*i.e.*, $15 - 5 = 10$).

Therefore, NMFS proposes to authorize 5 takes by Level A harassment and 10 takes by Level B harassment for harbor porpoise, for a total of 15 takes.

Northern Fur Seal

USAF requested 33 takes of northern fur seal by Level B harassment using a calculation based on 0.003 groups of eight northern fur seals per hour of construction activity. NMFS disagrees with USAF's predicted group size of northern fur seal, as these animals are typically solitary when at sea. Additionally, because there are no records of northern fur seal in the area, NMFS finds it more appropriate to estimate take by Level B harassment according to a less granular occurrence estimate (monthly) rather than USAF's hourly occurrence estimate. Specifically, one group of one northern fur seal every 1 construction month is predicted and $1 * 5 = 5$ takes by Level B harassment.

Due to the small Level A harassment zones (table 8), coupled with the implementation of shutdown zones, which will be larger than Level A harassment zones for otariids (described in the **Mitigation** section), NMFS concurs with USAF's assessment that take by Level A harassment is not anticipated for northern fur seal.

Therefore, NMFS authorized all five estimated exposures as takes by Level B harassment. Takes by Level A harassment for northern fur seals are not requested nor are they authorized.

Steller Sea Lion

Steller sea lions are frequently observed around Shemya Island outside of the ensonified area, but only occasionally observed in Alcan Harbor and Shemya Pass (see application). Across 119 monitoring days between 2016 and 2021, 16 Steller sea lions were observed within the project area. The average group size for Steller sea lion detected in the project area as well as around Shemya Island was one Steller sea lion per detection.

For estimating take by Level B harassment where monitoring data confirmed the presence of the marine mammal species, NMFS concurred with USAF's planned approach. USAF requested take by Level B harassment by predicting that 0.09 groups of Steller sea lion would be sighted every hour, which was based on the applicant's prediction that this species would be more commonly encountered in the project area. This was then multiplied by the average group size for Steller sea lion (1 individual), to achieve an hourly steller sea lion rate. Finally, these numbers are multiplied by the hours of construction activity ($0.09 * 1 * 1,101 = 99$ takes by Level B harassment).

Due to the small Level A harassment zones (table 8), coupled with the implementation of shutdown zones, which will be larger than Level A harassment zones for otariids (described in the **Mitigation** section), NMFS concurs with USAF's assessment that take by Level A harassment is not anticipated for Steller sea lion.

Therefore, NMFS authorized all 99 estimated exposures as takes by Level B harassment. Takes by Level A harassment for Steller sea lion are not requested nor are they authorized.

Harbor Seal

Across 119 monitoring days between 2016 and 2021, 54 harbor seals were observed within the project area. The average group size for harbor seals detected in the project area was one harbor seals per group.

For estimating take by Level B harassment where monitoring data confirmed the presence of the marine mammal species, NMFS concurred with USAF's planned approach. USAF requested take by Level B harassment by predicting that 0.14 groups of harbor seals would be sighted every hour, which was based on the fact that this species is expected to more commonly occur within the project area. This was then multiplied by the average group size for harbor seal (1 individual), to achieve an hourly harbor seal rate. Finally, these numbers are multiplied by the hours of construction activity ($0.14 * 1 * 1,101 = 154$ takes by Level B harassment).

NMFS initially calculated takes by Level A harassment by determining the ratio of the largest Level A harassment area for 42-in DTH activities (*i.e.*, 2.6 km² for a Level A harassment distance of 1364 m) minus the area of the shutdown zone for harbor seal (*i.e.*, 0.37 km² for a shutdown zone distance of 400 m) to the area of the Level B harassment isopleth (1,285.9 km²) for a Level B harassment distance of 39,811 m (*i.e.*, $(2.6 \text{ km}^2 - 0.37 \text{ km}^2) / 1,285.9 \text{ km}^2 = 0.002$). We then multiplied this ratio by the number of estimated harbor seal exposures calculated as described above for Level B harassment to determine take by Level A harassment (*i.e.*, $0.002 * 154 \text{ exposures} = 0.3$ takes by Level A harassment).

Because harbor seals typically inhabit areas closer to shore rather than distances represented by the largest level B zone (39,811 m), NMFS determined that the method above could underestimate potential take by Level A harassment. NMFS accordingly estimated additional takes by Level A harassment by determining the ratio of harbor seals that were observed beyond the shutdown zone isopleth compared to the harbor seals that were observed closer to construction activities during the EAS fuel pier emergency repair

that was completed in 2021 (*i.e.*, $11/38 = 0.29$ harbor seals). We then multiplied this ratio by the total number of estimated harbor seal exposures to determine take by Level A harassment (*i.e.*, $0.29 * 154 \text{ exposures} = 45$) for a total of 45 takes by Level A harassment ($0.3 + 45 = 45.3$).

For reasons described above, takes by Level B harassment were modified to deduct the authorized amount of take by Level A harassment (*i.e.*, $154 - 45 = 109$).

Therefore, NMFS proposes to authorize 45 takes by Level A harassment and 109 takes by Level B harassment for harbor seal, for a total of 154 takes.

Table 7 -- Authorized Take by Stock and Harassment Type and as a Percentage of Stock Abundance

Species	Stock	Authorized take		Authorized take as a percentage of stock abundance
		Level B harassment	Level A harassment	
Fin Whale	Northeast Pacific	18	3	<1
Humpback Whale	Western North Pacific	3	1	<1
	Mexico – North Pacific	9	2	1.2
	Hawai'i	113	26	1.2
Minke Whale	Alaska	5	3	<1
Sperm Whale	North Pacific	40	0	16.4
Baird's beaked whale	Alaska	10	0	_*
Stejneger's beaked whale	Alaska	8	0	_*
Killer whale	ENP Alaska Resident Stock			9.2
	ENP Gulf of Alaska, Aleutian Islands, and Bering Seal	176	0	30
Dall's Porpoise	Alaska	26	13	<1
Harbor Porpoise	Bering Seal	10	5	<1
Northern Fur Seal	Eastern Pacific	5	0	<1
Steller Sea Lion	Western, U.S.	99	0	<1

Harbor Seal	Aleutian Islands	109	45	2.8
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* Reliable abundance estimates for these stock are currently unavailable.

Mitigation

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

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

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat, 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.

USAF must ensure that construction supervisors and crews, the monitoring team and relevant USAF 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.

Mitigation for Marine Mammals and their Habitat

Shutdown Zones —For all pile driving/removal and DTH activities, USAF would implement shutdowns within designated zones. The purpose of a shutdown zone is generally to define an area within which shutdown of the activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones vary based on the activity type and marine mammal hearing group (table 8). In most cases, the shutdown zones are based on the estimated Level A harassment isopleth distances for each hearing group, as requested by USAF. However, in cases where it would be challenging to detect marine mammals at the Level A isopleth, (e.g., for high frequency cetaceans and phocids during DTH activities and impact pile driving), smaller shutdown zones have been established (table 8). Additionally, USAF has agreed to implement a minimum shutdown zone of 25 m during all pile driving and removal activities and DTH.

Finally, construction supervisors and crews, PSOs, and relevant USAF staff must avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 m of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions, as necessary to avoid direct physical interaction. If an activity is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond

the shutdown zone indicated in table 8 or 15 minutes have passed for delphinids or pinnipeds or 30 minutes for all other species without re-detection of the animal.

Construction activities must be halted upon observation of a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met entering or within the harassment zone.

Table 8 -- Shutdown Zones

Activity	Pile Diameter	Shutdown Zones (m)				
		LF	MF	HF	PW	OW
Vibratory Installation or Removal	42-in	50				
	30-in	25				
DTH	42-in	2,600	100	500	400	100
	30-in	2,300	80			90
Impact Pile	42-in	2,100	50			80
	30-in	1,000				50

Protected Species Observers —The number and placement of PSOs during all construction activities (described in the **Monitoring and Reporting** section) would ensure that the entire shutdown zone is visible. USAF would employ at least two PSOs for all pile driving and DTH activities.

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

Pre and Post-Activity Monitoring —Prior to the start of daily in-water construction activity, or whenever a break in pile driving of 30 minutes or longer occurs, PSOs will observe the shutdown, Level A harassment, and Level B harassment for a

period of 30 minutes. Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones are clear of marine mammals. If the shutdown zone is obscured by fog or poor lighting conditions, in-water construction activity will not be initiated until the entire shutdown zone is visible. Pile driving may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals. If a marine mammal is observed entering or within shutdown zones, pile driving activity must be delayed or halted. If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone or 15 minutes have passed for delphinids or pinnipeds or 30 minutes have passed for all other species without re-detection of the animal. If a marine mammal for which Level B harassment take is authorized is present in the Level B harassment zone, activities would begin and Level B harassment take would be recorded.

Soft Start —The use of soft-start procedures are believed to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. For impact pile driving, contractors would be required to provide an initial set of three strikes from the hammer at reduced energy, with each strike followed by a 30-second waiting period. This procedure would be conducted a total of three times before impact pile driving begins. 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. Soft start is not required during vibratory pile driving and removal activities.

Based on our evaluation of the applicant's planned measures, as well as other measures considered by NMFS, NMFS has determined that the planned mitigation measures provide the means of effecting the least practicable impact on the affected

species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

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

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

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

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

Visual Monitoring—Marine mammal monitoring must be conducted in accordance with the Marine Mammal Monitoring and Mitigation Plan. Marine mammal monitoring during pile driving and removal and DTH activities must be conducted by NMFS-approved PSOs in a manner consistent with the following:

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

PSOs must also 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 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.

Visual monitoring will be conducted by a minimum of two trained PSOs positioned at suitable vantage points. One PSO will have an unobstructed view of all water within the shutdown zone and will be stationed at or near the pier. Remaining PSOs will be placed at one or more of the observer monitoring locations identified on figure 3-3 of the marine mammal monitoring and mitigation plan, in order to observe as much as the Level A and Level B harassment zone as possible. All PSOs will have access to 20 by 60 spotting scope on a window mount or tripod.

Monitoring will be conducted 30 minutes before, during, and 30 minutes after all in water construction activities. In addition, PSOs will record all incidents of marine mammal occurrence, regardless of distance from activity, and will 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

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

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including: (1) The number and type of piles that were driven and the method (*e.g.*, impact, vibratory, DTH); (2) Total duration of driving time for each pile (vibratory driving) and number of strikes for each pile (impact driving); and (3) For DTH drilling, duration of operation for both impulsive and non-pulse components;
- PSO locations during marine mammal monitoring;
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;
- Upon observation of a marine mammal, the following information: (1) Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting; (2) Time of sighting; (3) Identification of the animal(s) (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species; (4) Distance and location of

each observed marine mammal relative to the pile being driven for each sighting; (5) Estimated number of animals (min/max/best estimate); (6) Estimated number of animals by cohort (adults, juveniles, neonates, group composition, *etc.*); (7) Animal's closest point of approach and estimated time spent within the harassment zone; (8) Description of any marine mammal behavioral observations (*e.g.*, observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (*e.g.*, no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);

- Number of marine mammals detected within the harassment zones, by species; and,
- Detailed information about implementation of any mitigation (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.

A final report must be prepared and submitted within 30 calendar days following receipt of any NMFS comments on the draft report. If no comments are received from NMFS within 30 calendar days of receipt of the draft report, the report shall be considered final. All PSO datasheets and/or raw sighting data would be submitted with the draft marine mammal report.

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the Holder must report the incident to the Office of Protected Resources (OPR), NMFS (*PR.ITP.MonitoringReports@noaa.gov* and *itp.fleming@noaa.gov*) and to the Alaska regional stranding network (877-925-7773) as soon as feasible. If the death or injury was clearly caused by the specified activity, the Holder must immediately cease the activities until NMFS OPR is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of this IHA. The Holder must not

resume their activities until notified by NMFS. The report must include the following information:

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

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any impacts or responses (*e.g.*, intensity, duration), the context of any impacts or responses (*e.g.*, critical reproductive time or location, foraging impacts affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’ implementing regulations (54 FR 40338, September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this

analysis via their impacts on the baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the majority of our analysis applies to all the species listed in table 1, given that many of the anticipated effects of this project on different marine mammal stocks are expected to be relatively similar in nature. Where there are meaningful differences between species or stocks, or groups of species, in anticipated individual responses to activities, impact of expected take on the population due to differences in population status, or impacts on habitat, they are described independently in the analysis below.

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

No serious injury or mortality would be expected, even in the absence of required mitigation measures, given the nature of the activities. Further, no take by Level A harassment is anticipated for otariids and mid-frequency cetaceans, due to the application of planned mitigation measures, such as shutdown zones that encompass Level A harassment zones for these species. The potential for harassment would be minimized through the implementation of planned mitigation measures (see **Mitigation** section).

Take by Level A harassment is authorized for six species (harbor porpoise, Dall's porpoise, harbor seal, fin whale, humpback whale, and minke whale) as the Level A harassment zone exceeds the size of the shutdown zones (high frequency cetaceans and

phocids), or, in the case of low frequency cetaceans, the shutdown zone is so large that it is possible that a minke whale, fin whale, or humpback whale could enter the Level A harassment zone and remain within the zone for a duration long enough to incur PTS before being detected.

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.

Given the small degree anticipated, any PTS potential incurred would not be expected to affect the reproductive success or survival of any individuals, much less result in adverse impacts on the species or stock.

Additionally, some subset of the individuals that are behaviorally harassed could also simultaneously incur some small degree of TTS for a short duration of time. However, since the hearing sensitivity of individuals that incur TTS is expected to recover completely within minutes to hours, it is unlikely that the brief hearing impairment would affect the individual's long-term ability to forage and communicate with conspecifics, and would therefore not likely impact reproduction or survival of any individual marine mammal, let alone adversely affect rates of recruitment or survival of the species or stock.

As described above, NMFS expects that marine mammals would likely move away from an aversive stimulus, especially at levels that would be expected to result in PTS, given sufficient notice through use of soft start. USAF would also shut down pile

driving activities if marine mammals enter the shutdown zones (table 8) further minimizing the likelihood and degree of PTS that would be incurred.

Effects on individuals that are taken by Level B harassment in the form of behavioral disruption, on the basis of reports in the literature as well as monitoring from other similar activities, would likely be limited to reactions such as avoidance, increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.*, Thorson and Reyff, 2006). Most likely, individuals would simply move away from the sound source and temporarily avoid the area where pile driving is occurring. If sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the area while the activities are occurring. We expect that any avoidance of the project areas by marine mammals would be temporary in nature and that any marine mammals that avoid the project areas during construction would not be permanently displaced. Short-term avoidance of the project areas and energetic impacts of interrupted foraging or other important behaviors is unlikely to affect the reproduction or survival of individual marine mammals, and the effects of behavioral disturbance on individuals is not likely to accrue in a manner that would affect the rates of recruitment or survival of any affected stock.

The project area does overlap a Biologically Important Area (BIA) identified as important for feeding by sperm whale (Brower *et al.*, 2022). The BIA that overlaps the project area is active April through September, which overlaps USAF's planned work period (April to October). While the BIA is considered to be of higher importance, the area of the BIA is very large, spanning the island chain, and the project area is very small in comparison. Further sperm whales utilize deeper waters to feed, and while the Level B harassment zone does extend into deeper waters, the sound levels at the distances that overlay deeper water where sperm whales might be foraging would be of comparatively lower levels. Given the extensive options for high quality foraging area near and outside

of the project area, any impacts to feeding sperm whales would not be expected to impact the survival or reproductive success of any individuals.

The ensonified area also overlaps ESA-designated critical habitat for western DPS Steller sea lion. Specifically, the Level B ensonified area overlaps with the aquatic zones of three designated major haulouts to the east and northwest of the project site: Shemya Island Major Haulout, Alaid Island Major Haulout, Attu/Chirikof Point Major Haulout. The ensonified area Level B harassment zone related to implementation of the planned project, described in the **Estimated Take of Marine Mammals** section, overlaps with the designated aquatic zone of all three designated major haulouts.. No Steller sea lions have been observed on Shemya Island Major Haulout (2.75 nm to the east of the project site) during the most recent surveys (between 2015 and 2017) and only one Steller sea lion was observed at Attu/Chirikof Point Major Haulout (24 nm northwest of the project site). An average of 68 non-pups and 7 pups were observed annually during this time at Alaid Island Major Haulout, which is 5 nautical miles northwest of the project site. The construction site itself does not overlap with critical habitat. Take by Level B harassment of steller sea lions has been authorized to account for those that are occasionally observed in low numbers in Alcan Harbor and Shemya Pass, however, the project is not expected to have significant adverse impacts on Steller sea lion critical habitat.

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

affected, the impacts to marine mammal habitat, including fish and invertebrates, are not expected to cause significant or long-term negative consequences.

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

- No serious injury or mortality is anticipated or authorized;
- No Level A harassment of six species is authorized;
- Level A harassment takes authorized for six species are expected to be of a small degree;
- While impacts would occur within areas that are important for feeding for sperm whale, because of the small footprint of the activity relative to the area of these important use areas, we do not expect impacts to the reproduction and survival of any individuals;
- Effects on species that serve as prey for marine mammals from the activities are expected to be short-term and, therefore, any associated impacts on marine mammal feeding are not expected to result in significant or long-term consequences for individuals, or to accrue to adverse impacts on their populations;
- The lack of anticipated significant or long-term negative effects to marine mammal habitat; and,
- The efficacy of the mitigation measures in reducing the effects of the specified activities on all species and stocks.

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 planned monitoring and mitigation measures, NMFS finds that the

total marine mammal take from the planned 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 instances of take NMFS proposes to authorize are below one-third of the estimated stock abundance for all stocks (table 7). The number of animals that we expect to authorize to be taken from these stocks would be considered small relative to the relevant stocks' abundances even if each estimated taking occurred to a new individual, which is an unlikely scenario.

The best available abundance estimate for fin whale is not considered representative of the entire stock as surveys were limited to a small portion of the stock's range, but there are known to be over 2,500 fin whales in the northeast Pacific stock (Muto *et al.*, 2021). As such, the 18 takes by Level B harassment and 3 takes by Level A harassment authorized, compared to the abundance estimate, shows that less than 1 percent of the stock would be expected to be impacted.

The most recent abundance estimate for the Mexico-North Pacific stock of humpback whale is likely unreliable as it is more than 8 years old. The most relevant

estimate of this stock's abundance in the Bering Sea and Aleutian Islands is 918 humpback whales (Wade, 2021), so the 9 authorized takes by Level B harassment and 2 authorized takes by Level A harassment, is small relative to the estimated abundance (1.2 percent), even if each authorized take occurred to a new individual.

A lack of an accepted stock abundance value for the Alaska stock of minke whale did not allow for the calculation of an expected percentage of the population that would be affected. The most relevant estimate of partial stock abundance is 1,233 minke whales in coastal waters of the Alaska Peninsula and Aleutian Islands (Zerbini *et al.*, 2006), so the 5 authorized takes by Level B harassment, and 3 authorized takes by Level A harassment, compared to the abundance estimate, shows that less than 1 percent of the stock would be expected to be impacted.

The most recent abundance estimate for sperm whale in the North Pacific is likely unreliable as it is more than 8 years old and was derived from data collected in a small area that may not have included females and juveniles, and did not account for animals missed on the trackline. The minimum population estimate for this stock is 244 sperm whales, so the 40 authorized takes by Level B harassment is small relative to the estimated survey abundance, even if each authorized take occurred to a new individual.

There is no abundance information available for any Alaskan stock of beaked whale. However, the take numbers are sufficiently small (8 and 10 takes by Level B harassment for Stejneger's beaked whale and Baird's beaked whale, respectively) that we can safely assume that they are small relative to any reasonable assumption of likely population abundance for these stocks. For reference, current abundance estimates for other beaked whale stocks in the Pacific include 1,363 Baird's beaked whales (California/Oregon/Washington stock), 3,044 Mesoplodont beaked whales (CA/OR/WA stock), 5,454 Cuvier's beaked whales (CA/OR/WA stock), 564 Blainville's beaked whales

(Hawai'i Pelagic stock), 2,550 Longman's beaked whales (Hawai'i stock), and 3,180 Cuvier's beaked whales (Hawai'i Pelagic stock).

The Alaska stock of Dall's porpoise has no official NMFS abundance estimate for this area, as the most recent estimate is greater than 8 years old. The most recent estimate was 13,110 animals for just a portion of the stock's range. Therefore, the 26 takes by Level B harassment and 13 takes by Level A harassment authorized for this stock, compared to the abundance estimate, shows that less than 1 percent of the stock would be expected to be impacted.

For the Bering Sea stock of harbor porpoise, the most reliable abundance estimate is 5,713, a corrected estimate from a 2008 survey. However, this survey covered only a small portion of the stock's range, and therefore, is considered to be an underestimate for the entire stock (Muto *et al.*, 2022). Given the 10 takes by Level B harassment authorized for the stock, and 5 takes by Level A harassment authorized for the stock, compared to the abundance estimate, which is only a portion of the Bering Sea Stock, shows that, at most, less than 1 percent of the stock would be expected to be impacted.

Based on the analysis contained herein of the planned activity (including the planned mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS 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.

No subsistence hunting occurs on Shemya Island, which is a USAF Air Station; Access to the island is only provided by military aircraft and USAF-contracted charter planes for crews and workers. The nearest community that engages in subsistence hunting is located on Adak, Alaska which is 640 km (399 mi) to the east. Historically, an Alaska Native community on Attu, 60 km (37 mi) to the west, hunted for subsistence, but that community was destroyed during WWII and the residents that survived internment did not return to the island.

Based on the description of the specified activity, NMFS has determined that there will not be an unmitigable adverse impact on subsistence uses from USAF's planned activities.

Endangered Species Act

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

There are four marine mammal species (northeast Pacific fin whale, Mexico-North Pacific and western North Pacific humpback whale, North Pacific sperm whale, and western DPS Steller sea lion) with confirmed occurrence in the project area that are listed as endangered under the ESA. The NMFS Alaska Regional Office Protected

Resources Division issued a Biological Opinion on March 1, 2024 under section 7 of the ESA, on the issuance of an IHA to USAF under section 101(a)(5)(D) of the MMPA by the NMFS Permits and Conservation Division. The Biological Opinion concluded that the proposed action is not likely to jeopardize the continued existence of northeast Pacific fin whale, Mexico Pacific and western North Pacific humpback whale, North Pacific sperm whale, and western DPS Steller sea lion and is not likely to destroy or adversely modify western DPS Steller sea lion critical habitat.

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 evaluate our proposed action (*i.e.*, the issuance of an IHA) and alternatives 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 determined that the issuance of this IHA qualifies to be categorically excluded from further NEPA review.

Authorization

NMFS has issued an IHA to USAF for the potential harassment of small numbers of 12 marine mammal species incidental to the Eareckson Air Station (EAS) Fuel Pier Repair in Alcan Harbor, Shemya Island, Alaska, that includes the previously explained mitigation, monitoring and reporting requirements.

Dated: March 6, 2024.

Catherine G. Marzin,

Deputy Director, Office of Protected Resources,

National Marine Fisheries Service.

[FR Doc. 2024-05105 Filed: 3/8/2024 8:45 am; Publication Date: 3/11/2024]