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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XA335]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Mukilteo Multimodal Construction Project in Washington State

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 Washington State Department of Transportation (WSDOT) to incidentally harass, by Level A and Level B harassment, marine mammals during pile driving and pile removal activities associated with the Mukilteo Multimodal Construction Project in Washington State.

DATES: This authorization is effective from August 1, 2020, through July 31, 2021.

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

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be 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 February 18, 2020, NMFS received a request from WSDOT for an IHA to take marine mammals incidental to Mukilteo Multimodal Project in Mukilteo, Washington. The application was deemed adequate and complete on April 13, 2020. WSDOT's request is for take of a small number of 11 species of marine mammals by Level B harassment and Level A harassment. Neither WSDOT nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

This IHA covers one year of a larger project for which WSDOT obtained prior IHAs (82 FR 44164; September 21, 2017; 83 FR 43849; August 28, 2018; 84 FR 39263; August 9, 2019). The larger four-year project involves relocating the Mukilteo Ferry Terminal approximately one-third of a mile east of the existing terminal. This is expected to be the fourth and final year of project activity. WSDOT complied with all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHAs and information regarding their monitoring results may be found in the **Potential Effects of Specified Activities on Marine Mammals and their Habitat** section.

A **Federal Register** notice for the proposed IHA was published on June 12, 2020 (85 FR 35906).

Description of the Proposed Activity

Overview

The purpose of the Mukilteo Multimodal Project is to provide safe, reliable, and effective service and connection for general-purpose transportation, transit, high occupancy vehicles (HOV), pedestrians, and bicyclists traveling between Island County and the Seattle/Everett metropolitan area and beyond by constructing a new ferry

terminal. The current Mukilteo Ferry Terminal has not had significant improvements for almost 30 years and needs key repairs. The existing facility is deficient in a number of aspects, such as safety, multimodal connectivity, capacity, and the ability to support the goals of local and regional long-range transportation and comprehensive plans. The project is intended to:

- Reduce conflicts, congestion, and safety concerns for pedestrians, bicyclists, and motorists by improving local traffic and safety at the terminal and the surrounding area that serves these transportation needs.
- Provide a terminal and supporting facilities with the infrastructure and operating characteristics needed to improve the safety, security, quality, reliability, efficiency, and effectiveness of multimodal transportation.
- Accommodate future demand projected for transit, HOV, pedestrian, bicycle, and general-purpose traffic.

The proposed Mukilteo Multimodal Project would involve in-water vibratory pile driving and vibratory pile removal. Details of the proposed construction project are provided below.

Dates and Duration

Due to NMFS and the U.S. Fish and Wildlife Service (USFWS) in-water work timing restrictions to protect Endangered Species Act (ESA)-listed salmonids, planned WSDOT in-water construction is limited each year to July 15 through February 15. For this project, in-water construction is planned to take place between August 1, 2020 and February 15, 2021. The total worst-case time for pile installation and removal is 54 days (Table 1).

Specific Geographic Region

The Mukilteo Ferry Terminal is located in the City of Mukilteo, Snohomish County, Washington. The terminal is located in Township 28 North, Range 4 East, Section 3, in Possession Sound. The new terminal will be approximately 1,700 ft (518 m) east of the existing terminal in Township 28N, Range 4E, Section 33 (Figure 1). Land use in the Mukilteo area is a mix of residential, commercial, industrial, and open space and/or undeveloped lands.

Detailed Description of Specific Activity

The proposed project has two activities involving noise production that may impact marine mammals: vibratory pile removal and vibratory pile driving.

(1) Temporary Pile Removal

Sixty-nine temporary 24 inch steel piles installed to support work platforms will be removed with a vibratory hammer.

(2) Floating Dolphin Piling

The floating dolphin will be moved from the current terminal to the new terminal. A combination of anchors (four) and piles (four) will be used to secure the dolphin anchor chains to the sea floor. Four 30 inch steel piles will be installed with a vibratory hammer.

(3) Existing Terminal Removal

The existing terminal will be removed once the new terminal is complete. The existing terminal comprises 8,120 feet² (ft²)(754 meters²(m²) of overwater cover and contains approximately 290 12-inch diameter timber piles. All timber piles may be removed with a vibratory hammer, a clamshell, or pulled directly. Use of the vibratory hammer for timber pile removal is not the preferred method and it is likely that most piles will be removed via direct pull. However, for purposes of analysis we assume that all timber piles will be removed using the vibratory hammer.

Details of pile driving activities are provided below and are summarized in Table 1.

- Vibratory removal of 12-inch timber piles would take 15 minutes per pile, 10 piles per day, with 290 piles removed over 29 days.

- Vibratory removal of 24-inch steel pipe piles would take 15 minutes per pile, 3 piles removed per day, with 69 piles removed in 23 days.
- Vibratory driving of 30-inch steel pipe piles would take 30 minutes per pile, 2 piles per day, with 4 piles installed in 2 days.

Pile driving or removal will occur in different days. There is no concurrent pile driving or pile removing.

Table 1 -- Summary of In-Water Pile Driving Durations

Method	Pile Size (inch)	# piles	Minutes per pile	Piles per day	Days
Vibratory Removal	12 (timber)	290	15	10	29
Vibratory Removal	24 (steel)	69	15	3	23
Vibratory Drive	30 (steel)	4	30	2	2
Total					54

Comments and Responses

A notice of NMFS’ proposal to issue an IHA was published in the **Federal Register** on June 12, 2020 (85 FR 35906). During the 30-day public comment period, NMFS received a comment letter from the Marine Mammal Commission (Commission). Specific comments and responses are provided below.

Comment 1: The Commission recommends that NMFS (1) include the revised Level B harassment zone of 1.6 kilometer (km) in the **Federal Register** announcing NMFS’ decision regarding the IHA request and in Tables 2 and 3 of the final authorization, (2) include the revised densities from Navy (2019) in the final notice, (3) revise the Level B harassment takes to 1,322 for harbor porpoises, 35 for Dall’s porpoises, 4,989 for harbor seals, 2,430 for California sea lions, and 324 for Steller sea lions in the final notice and in Table 1 of the IHA, and (4) ensure WSDOT is aware of the correct extents of the Level A harassment zones.

Response: NMFS reviewed the WSDOT's noise level measurement report and agrees that the Level B harassment distance should be established at 1.6 km instead of 1.13 km. NMFS updated the Level B harassment distance in its final IHA. NMFS also revised the marine mammal density information based on the Navy's 2019 database. Therefore, marine mammal takes were re-calculated accordingly using the latest density information or based on WSDOT prior year sighting records. Based on the revision, NMFS agrees to revise the harbor porpoise take estimates to 1,322 and Dall's porpoise to 35 animals, based on updated density information and group size. However, NMFS does not agree with the Commission to change the numbers of Level B harassment takes of harbor seal, California sea lion, and Steller sea lion. NMFS worked with WSDOT and conservatively used the highest daily observation of these species during prior phases of the Mukilteo Multimodal Project. Takes of these species were calculated using the daily high observation multiplied by the total number of pile driving days (54 days), which yield total Level B harassment numbers of 3,888 for harbor seals, 2,620 for California sea lions, and 108 for Steller sea lions for the Mukilteo Multimodal Project.

Finally, WSDOT is aware of the referenced error for the Level A harassment zones that was provided in its draft marine mammal monitoring plan. WSDOT has since fixed the error and provided an updated marine mammal monitoring plan.

Comment 2: The Commission recommends that NMFS (1) reinforce the fact that WSDOT must comply with the various reporting requirements in the final authorization, including conditions 6(a)(vii) and (xii), (2) ensure that WSDOT extrapolates the observed numbers of takes to the extents of the Level B harassment zones when estimating the total numbers of takes and by considering both the observation platform of each protected

species observer (PSO) and the species for the 2020 final authorization, and (3) require WSDOT to submit a revised monitoring report for its 2019–2020 activities, consistent with conditions 6(a)(ix) and (xi) in the 2019 final authorization and the recommendations herein.

Response: Conditions 6(a)(vii) and 6(a)(xii) in the draft IHA states:

6(a)(vii) Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).

6(a)(xii) An extrapolation of the estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible.

NMFS is reminding WSDOT that it must comply with condition 6(a)(vii) to include distances and bearing of marine mammals observed during pile driving in its final report, as it appears that this information was not included in its final report for the 2019 season. However, NMFS does not agree with the Commission’s recommendation on condition 6(a)(xii) regarding extrapolation of estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible. Although this condition was included in the draft IHA at the suggestion of the Commission at the time when the proposed IHA was drafted, NMFS later realized that the extrapolation of Level B harassment takes based on simple visual detection of the areas monitored is not scientifically sound for various reasons. Some of these reasons include, (1) visual detection rate vs. distance is a complex function that cannot be simply determined by an

“all or none” method; distance sampling methods must be used to properly extrapolate marine mammal takes in the area, and (2) marine mammals are not uniformly distributed in small Level B harassment zones. While it is appropriate to use density information as an average to estimate marine mammal abundance in a larger project area, for a much smaller area such as a Level B harassment zone with a radius at approximately 2 to 8 km, extrapolation from sighting without more sophisticated distance sampling methods is not appropriate. Given the small area, the animals sighted could be the only individuals or groups within that area and, therefore, would represent all the animals taken by Level B harassment. Therefore, NMFS has removed condition 6(a)(xii) from the final IHA issued to WSDOT.

Conditions 6(a)(ix) and (xi) in the 2019 IHA states:

6(a)(ix) Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).

6(a)(xi) Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).

NMFS has requested WSDOT to provide information required in the 2019 IHA.

Comment 3: The Commission states that a requirement to conduct pile driving only in daylight hours is necessary to ensure that WSDOT is effecting the least practicable adverse impact on the species and stocks, particularly Southern Resident killer whales, and recommends that NMFS include in the final authorization the

requirement that WSDOT conduct pile-driving and removal activities during daylight hours only.

Response: WSDOT has indicated that all pile driving and removal activities will be conducted during daylight hours only. NMFS has included this condition in the final IHA issued to WSDOT.

Comment 4: The Commission recommends that NMFS ensure that WSDOT keep a running tally of the total takes, based on observed and extrapolated takes, for Level B harassment consistent with condition 4(h) of the final authorization

Response: We agree that WSDOT must ensure they do not exceed authorized takes but do not concur with the recommendation. NMFS is not responsible for ensuring that WSDOT does not operate in violation of an issued IHA.

Comment 5: Commission recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated **Federal Register** notice process, which is similarly expeditious and fulfills NMFS's intent to maximize efficiencies.

Response: NMFS does not agree with the Commission and, therefore, does not adopt the Commission's recommendation. On July 22, 2020, NMFS provided a detailed explanation of its reasons for (in part) not following the Commission's recommendations regarding renewals, as required by section 202(d) of the MMPA.

Changes from the Proposed IHA to Final IHA

There is no change in the WSDOT's Mukilteo Multimodal construction activities from the **Federal Register** notice for the proposed IHA (85 FR 35906; June 12, 2020). Some of the marine mammal density information was updated based on the latest density information (Navy 2019). Take calculations for these species were revised based on the

updated marine mammal density information. After further examining the noise measurements of the Level B harassment distance from vibratory pile removal of 12-inch timber pile, the distance where underwater pile driving noise cannot be detected for all species should be at 1.61 km, not 1.13 km as stated in the proposed IHA. Therefore the Level B harassment distance is changed to 1.61 km, and the ensonified area was updated to 3.9 km². Potential Level B harassment takes of marine mammals associated with the new distance were re-calculated. However, these changes in take numbers based on revised density and Level B harassment zone do not change our impact assessment to marine mammals from incidental takes by WSDOT's Mukilteo Multimodal project.

In addition, the final IHA removed condition 6(a)(xii) from the draft IHA, which would require WSDOT to extrapolate Level B harassment takes from visual observation. The reason for the removal is stated in *Response to Comment 2*.

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. Additional information regarding population trends and threats may be found in NMFS's 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's website (<https://www.fisheries.noaa.gov/find-species>).

Table 2 lists all species or stocks for which take is expected and authorized to be taken for this action, and summarizes information related to the population or stock,

including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2019). 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’s SARs). While no 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 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’s stock abundance estimates for all species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. All managed stocks in this region are assessed in NMFS’s U.S Pacific and Alaska SARs (*e.g.*, Carretta *et al.*, 2020; Muto *et al.*, 2020). All values presented in Table 2 are the most recent available at the time of publication and are available in the 2018 SARs (Carretta *et al.*, 2019; Muto *et al.*, 2019) and draft 2019 SARs (available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>).

Table 2 -- Marine Mammals With Potential Presence Within the Proposed Project

Area

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR	Annual M/SI ³
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						

Gray whale	<i>Eschrichtius robustus</i>	Eastern North Pacific	N	26,960 (0.05, 25,849)	801	139
Family Balaenopteridae (rorquals)						
Humpback whale	<i>Megaptera novaeangliae</i>	California/Oregon/ Washington	Y	2,900 (0.05, 2,784)	16.7	unk
Minke whale	<i>Balaenoptera acutorostrata</i>	California/Oregon/ Washington	N	636 (0.72, 369)	3.5	1.3
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Killer whale	<i>Orcinus orca</i>	Eastern North Pacific Southern Resident	Y	75 (NA, 75)	0	0
		West coast transient	N	243 (NA, 243)	2.4	0
Bottlenose dolphin	<i>Tursiops truncatus</i>	California/Oregon/ Washington offshore	N	1,924 (0.54, 1,255)	11	1.6
Family Phocoenidae (porpoises)						
Harbor porpoise	<i>Phocoena phocoena</i>	Washington inland waters	N	11,233 (0.37, 8,308)	66	7.2
Dall's porpoise	<i>P. dalli</i>	California/Oregon/ Washington	N	25,750 (0.45, 17,954)	172	0.3
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California sea lion	<i>Zalophus californianus</i>	U.S.	N	257,606 (NA, 233,515)	14,011	321
Steller sea lion	<i>Eumetopias jubatus</i>	Eastern U.S.	N	43,201 (NA, 43,201)	2,592	113
Family Phocidae (earless seals)						
Harbor seal	<i>Phoca vitulina</i>	Washington northern inland waters	N	11,036 ⁴	NA	10.6
Northern elephant seal	<i>Mirounga angustirostris</i>	California breeding	N	179,000 (NA, 81,368)	4,882	8.8

¹Endangered 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.

²NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>. CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance.

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

⁴Harbor seal estimate is based on data that are greater than 8 years old, but this is the best available information for use here.

As indicated above, all 11 species (with 12 managed stocks) in Table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur, and we have authorized it, with the exception of the Southern Resident killer whale. Take of Southern Resident killer whale can be avoided by implementing strict monitoring and mitigation measures (see **Mitigation** and **Monitoring and Reporting** sections below).

In addition, the sea otter may be found in inland waters of Washington. However, this species is managed by the USFWS and is not considered further in this document.

A detailed description of the marine mammals in the area of the activities is found in the notice of proposed IHA for WSDOT's Season 3 Mukilteo Multimodal construction project (83 FR 30421, June 28, 2018). This information remains valid, as there is no new information available, so we do not repeat it here but provide a summary table with marine mammal species and stock details (Table 2).

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. Current data indicate that 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) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound

was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

Table 3 -- Marine Mammal Hearing Groups (NMFS, 2018)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, <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. Eleven marine mammal species (seven cetacean and four pinniped (two otariid and two phocid) species) have the reasonable potential to co-occur with the proposed construction activities. Please refer to Table 2. Of the cetacean species that may be present, three are classified as low-frequency cetaceans (*i.e.*, all mysticete species), two are classified as mid-frequency

cetaceans (*i.e.*, all delphinid species), and two are classified as high-frequency cetaceans (*i.e.*, porpoise species).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The **Estimated Take** section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The **Negligible Impact Analysis and Determination** section considers the content of this section, the **Estimated Take** section, and the **Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

The WSDOT's Mukilteo Multimodal construction work using in-water pile driving and pile removal could adversely affect marine mammal species and stocks by exposing them to elevated noise levels in the vicinity of the activity area.

A detailed description on the noise impacts on marine mammals and their habitat is provided in the **Federal Register** notice (85 FR 35906; June 12, 2020) for the proposed IHA, and is not repeated here.

Estimated Take

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

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA

defines “harassment” as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to vibratory pile driving and pile removal. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.*, shutting down pile driving or removal activities when a marine mammal is observed to approach the injury zone) – discussed in detail below in **Mitigation** section, Level A harassment is neither anticipated nor authorized.

As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

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 basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more

detail and present the take estimate.

Acoustic Thresholds

Using the best available science, NMFS has developed 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 permanent threshold shift (PTS) of some degree (equated to Level A harassment).

Level B Harassment for non-explosive sources – 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 (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 μ Pa (rms) for continuous (*e.g.*, vibratory pile-driving, drilling) and above 160 dB re 1 μ Pa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

WSDOT’s Mukilteo Ferry Terminal Year 4 construction project includes the use vibratory pile driving and pile removal, and therefore the 120 dB re 1 μ Pa (rms) is applicable.

Level A harassment for non-explosive sources - 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). WSDOT’s Mukilteo Ferry Terminal Year 4 construction project includes the use non-impulsive (vibratory pile driving) sources.

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

Table 4 -- Thresholds Identifying the Onset of Permanent Threshold Shift

Hearing Group	PTS Onset Acoustic Thresholds* (Received Level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	<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	<i>Cell 8</i> $L_{E,PW,24h}$: 201 dB

	$L_{E,PW,24h}$: 185 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
<p>* 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.</p> <p><u>Note:</u> Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (L_E) has a reference value of 1 μPa²s. 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>i.e.</i>, 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.</p>		

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

Source Levels

The project includes vibratory pile removal of 12-inch timber piles and 24-inch steel piles, and vibratory pile driving of 30-inch steel piles. Near source levels (defined as noise level at 10-m from the pile) of these pile driving and removal activities are all based on prior measurements conducted by WSDOT. A summary of the 10-m near source

levels of the pile driving and removal activities is provided in Table 5, along with references.

Table 5 -- Near Source Noise Levels at 10-m From the Pile for Various Pile Driving and Removal at Mukilteo Ferry Terminal Year 4 Project

Activity/Pile Size	Source Level (dB RMS SPL at 10m)	Literature Source
Vibratory removal of 12-inch timber pile	153	WSDOT Port Townsend measurement (2011)
Vibratory removal of 24-inch steel pile	166	WSDOT Manette Bridge measurement (2010)
Vibratory driving of 30-inch steel pile	170	WSDOT Manette Bridge measurement (2010)

Level A Harassment Distances and Areas

Distances to Level A harassment thresholds were estimated using the NMFS User Spreadsheet. When the NMFS Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which may result in some degree of overestimate of Level A harassment take. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources such as vibratory pile driving and pile removal,

NMFS User Spreadsheet predicts the distance at which, if a marine mammal remained at that distance the whole duration of the activity, it would incur PTS.

A summary of the calculated Level A harassment distances and areas is presented in Table 6.

Level B Harassment Distances and Areas

Level B harassment distances from all pile driving and pile removal activities were based on in situ measurements conducted by WSDOT on the same or similar piles at Mukilteo Ferry Terminal in the early phases of this project. Specifically, the following measurement data were used.

WSDOT has conducted in situ measurements of the Level B harassment zones from vibratory removal of 12-inch diameter timber piles, and vibratory driving of 30-inch diameter steel piles at the Mukilteo Ferry Terminal. For removal of 12-inch timber piles, the measurement results show that underwater noise cannot be detected at a distance of 1.6 km/1 mile (Laughlin 2015). For driving of 30-inch steel piles, the sound source verification (SSV) results show that underwater noise cannot be detected at a distance of 7.9 km/4.9 miles) (Laughlin 2017).

No far distance measurement for 24-inch piles has been conducted at the Mukilteo project site to establish the Level B harassment zone. For 24-inch piles, the practical spreading model results in a Level B harassment distance of 10 km/6.2 miles for the source level of 166 dB_{rms} (root-mean-square decibel level). However, given that this source level is less than the 170 dB_{rms} source level for the 30-inch piles, it is assumed that the size of Level B harassment zone for 24-inch pile removal will be the same as for the driving of 30-inch piles (7.9 km/4.9 miles).

The Level B harassment areas were estimated by WSDOT using geographic information system (GIS) tools to eliminate land masses and other obstacles that block sound propagation.

A summary of the measured Level B harassment distances (and assumed Level B harassment distance for 30-in steel piles) and associated areas, and modeled Level A harassment distances, is presented in Table 6.

Table 6 -- Level A and Level B Harassment Distances and Areas

Source	Level A harassment distance (m) / area (km ²)					Level B harassment distance (m) / area (km ²)
	LF Cetaceans	MF Cetaceans	HF Cetaceans	Phocids	Otariids	
Vibratory removal 12 inch timber pile	3.7 / 0.0	0.3 / 0.0	5.4 / 0.0	2.2 / 0.0	0.2 / 0.0	1,610 / 3.9
Vibratory removal 24 inch steel pile	12.1 / 0.0	1.1 / 0.0	18.0 / 0.0	7.4 / 0.0	0.5 / 0.0	7,900 / 66
Vibratory drive 30 inch steel pile	27.2 / 0.0	2.4 / 0.0	40.2 / 0.0	16.5 / 0.0	1.2 / 0.0	7,900 / 66

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

Marine mammal occurrence are based on the U.S. Navy Marine Species Density Database (U.S. Navy, 2019) and on WSDOT marine mammal monitoring efforts during prior years of construction work at Mukilteo Ferry Terminal. A summary of the marine mammal density is provided in Table 7.

Table 7 -- Marine Mammal Density in the WSDOT Mukilteo Multimodal Project

Area

Marine mammals	Density (animals/km ²)
Gray whale	0.0048
Humpback whale	0.00074
Minke whale	0.00045
Killer whale (West Coast transient)	0.005141
Bottlenose dolphin	NA
Harbor porpoise	0.75
Dall's porpoise	0.00045
Harbor seal	2.83
Northern elephant seal	0.0000
California sea lion	0.2211
Steller sea lion	0.0478

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

For most species, take numbers were calculated using the information aggregated in the Navy density database (U.S. Navy, 2019). Where a low to high range of densities is given for a species, the more conservative high density was used. In these cases, take numbers were calculated as:

$$\text{Total Take} = \text{marine mammal density} \times \text{ensonified area} \times \text{pile driving days}$$

For species with no density data (*e.g.*, bottlenose dolphin) or species with very low density but observations were made at the project location which may indicate more animals could be present (*e.g.*, humpback whale, West Coast transient killer whale, and northern elephant seal), adjustments were made to estimate the take numbers. Specific adjustments for calculating take numbers for these species are provided below.

- Northern elephant seal – During the Mukilteo project, individuals have been observed on two occasions. Observations have been of single individuals, not groups. It is assumed that one individual may be present in the Level B harassment zone once a month during the in-water work window (7 months), or seven incidents of take.
- Humpback whale - During the Mukilteo project, individuals have been observed on two occasions. Observations have been of single individuals, not groups. It is assumed that one individual may be present in the Level B harassment zone once a month during the in-water work window (7 months), or seven incidents of take.
- West Coast transient killer whale - take is based on maximum group size observed during the project. Groups of 8 individuals have been observed on two occasions. It is assumed that one group of eight animals may be present in the Level B harassment zone once a month during the in-water work window (7 months), or 56 incidents of take.
- Bottlenose dolphin – The bottlenose dolphin take estimate is based on sightings data from Cascadia Research Collective. Between September 2017 and March 2018, a group of up to seven individuals was sighted in South Puget Sound (EPS, 2018). It is assumed that this group is still present in the area. Given how rare bottlenose dolphins are in the area, it is unlikely they would be present on a daily basis. Instead it is assumed that one group size of seven animals may be present in the Level B harassment zone once a month during the in-water work window (7 months), or 49 incidents of take.

- Dall's porpoise – No Dall's porpoise were observed during previous WSDOT marine mammal monitoring. However, they are known to occur in the inland waters of Puget Sound in the project area. Take number of this species is assessed by assuming taking of one group per month with an average group size of five animals for 7 months. Thus the total Level B harassment take of Dall's porpoise is estimated to be 35 animals.
- Harbor seal – The harbor seal take estimate is based on WSDOT marine mammal observations in prior years at Mukilteo. For the Mukilteo Project from August 2015 to January 2020, there have been 134 days of monitoring and 3,130 harbor seals observed, an average of 24/day. From September 2017 to February 2018, WSDOT conducted marine mammal monitoring during Year Two of the Mukilteo Multimodal Project. During 51 days of monitoring, 1,703 harbor seals were observed within the Level B harassment zones, with a one-day high of 72 individuals on October 24, 2017 (WSDOT 2018). The daily high number of 72 animals per day was used to calculate potential takes during the 54-day project season, which yields a total of 3,888 Level B harassment takes.
- California sea lion – For the Mukilteo Project from August 2015 to January 2020, there have been 134 days of monitoring and 1,716 California sea lions observed, an average of 13 observed per day. From August to November 2015, WSF conducted marine mammal monitoring during tank farm pier removal at the Mukilteo Multimodal Project. During 51 days of monitoring, 345 California sea lions were observed within the Level B harassment zone,

with a one-day high of 30 individuals on October 22, 2015 (WSDOT 2016).

The highest number of 30 animals per day was used to calculate potential takes during the 54-day project season, which yields a total of 1,620 Level B harassment takes.

- Steller sea lion – For the Mukilteo Project from August 2015 to January 2020, there have been 134 days of monitoring and 26 Steller sea lions observed, an average of 0.20 observed per day. From October 2019 to January 2020, WSF conducted marine mammal monitoring during Year Three of the Mukilteo Multimodal Project (which is still in construction). During 32 days of monitoring, 18 Steller sea lions were observed within the ZOIs, with a one-day high of two individuals on October 21, 2019 (WSDOT 2020). The highest number of two animals per day was used to calculate potential takes during the 54-day project season, which yields a total of 108 Level B harassment takes.

A summary of estimated marine mammal takes is listed in Table 8.

Table 8 -- Estimated Numbers of Marine Mammals That May be Exposed to Received Noise Levels That Cause Level B Harassment

Marine mammals	Estimated Level B harassment	Abundance	Percentage (%)
Gray whale	9	26,906	0
Humpback whale	7	2,900	0
Minke whale	3	636	0
Killer whale (West Coast transient)	56	243	23
Bottlenose dolphin	49	1924	3
Harbor porpoise	1,322	11,233	12
Dall's porpoise	35	25,750	0
Harbor seal	3,888	11,036	35
Northern elephant seal	7	179,000	0

California sea lion	1,620	257,606	1
Steller sea lion	108	43,201	0

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, we carefully consider two primary factors:

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

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Time Restriction

Work would occur only during daylight hours, when visual monitoring of marine mammals can be conducted. In addition, all in-water construction will be limited to the period between August 1, 2020, and February 15, 2021.

Establishing and Monitoring Level A, Level B Harassment Zones, and Exclusion Zones

Before the commencement of in-water construction activities, which include vibratory pile driving and pile removal, WSDOT shall establish Level A harassment zones where received underwater SPLs or SEL_{cum} (cumulative sound exposure level) could cause PTS.

WSDOT shall also establish Level B harassment zones where received underwater SPLs are higher than 120 dB_{rms} re $1 \mu\text{Pa}$ for continuous noise sources (vibratory pile driving and pile removal).

WSDOT shall establish a 50 m exclusion zone for all in-water pile driving for cetaceans except Southern Resident killer whale and a 20 m exclusion zone for all in-water pile driving for pinnipeds. These zones encompass all estimated Level A harassment zones.

WSDOT shall establish exclusion zones for Southern Resident killer whale and all marine mammals for which takes are not authorized at the Level B harassment distances. Specifically, for vibratory pile removal of 12-inch timber piles, a 1.6 km

exclusion zone shall be established. For vibratory pile removal of 24-inch steel piles and vibratory pile driving of 30-inch steel piles, a 7.9 km exclusion zone shall be established.

A summary of exclusion zones is provided in Table 9.

Table 9 -- Exclusion Zones (m) for Various Marine Mammals

Activities	Cetaceans except SRKW*	Pinnipeds	SRKW
Vibratory pile removal, 12-inch timber pile	50	20	1,600
Vibratory pile removal, 24-inch steel pile or vibratory pile driving, 30-inch steel pile	50	20	7,900

* SRKW = Southern Resident killer whale

NMFS-approved PSOs shall conduct an initial survey of the exclusion zones to ensure that no marine mammals are seen within the zones beginning 30 minutes before pile driving and pile removal of a pile segment begins. If marine mammals are found within the exclusion zone, pile driving of the segment would be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor would wait 15 minutes. If no marine mammals are seen by the observer in that time it can be assumed that the animal has moved beyond the exclusion zone.

If pile driving of a segment ceases for 30 minutes or more and a marine mammal is sighted within the designated exclusion zone prior to commencement of pile driving, the observer(s) must notify the pile driving operator (or other authorized individual) immediately and continue to monitor the exclusion zone. Operations may not resume until the marine mammal has exited the exclusion zone or 15 minutes have elapsed since the last sighting.

Shutdown Measures

WSDOT shall implement shutdown measures if a marine mammal is detected within or entering an exclusion zone listed in Table 9.

WSDOT shall also implement shutdown measures if Southern Resident killer whales are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

If a killer whale approaches the Level B harassment zone during pile driving or removal, and it is unknown whether it is a Southern Resident killer whale or a transient killer whale, it shall be assumed to be a Southern Resident killer whale and WSDOT shall implement the shutdown measure.

If a Southern Resident killer whale or an unidentified killer whale enters the Level B harassment zone undetected, in-water pile driving or pile removal shall be suspended until the whale exits the Level B harassment zone, or 15 minutes have elapsed with no sighting of the animal, to avoid further Level B harassment.

Further, WSDOT shall implement shutdown measures if the number of authorized takes for any particular species reaches the limit under the IHA and if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

Coordination with Local Marine Mammal Research Network

Prior to the start of pile driving for the day, the Orca Network and/or Center for Whale Research will be contacted by WSDOT to find out the location of the nearest marine mammal sightings. The Local Marine Mammal Research Network consists of a list of over 600 (and growing) residents, scientists, and government agency personnel in the U.S. and Canada. Sightings are called or emailed into the Orca Network and immediately distributed to other sighting networks including: the NMFS Northwest

Fisheries Science Center, the Center for Whale Research, Cascadia Research, the Whale Museum Hotline and the British Columbia Sightings Network.

Sightings information collected by the Orca Network includes detection by hydrophone. The SeaSound Remote Sensing Network is a system of interconnected hydrophones installed in the marine environment of Haro Strait (west side of San Juan Island) to study orca communication, in-water noise, bottom fish ecology and local climatic conditions. A hydrophone at the Port Townsend Marine Science Center measures average in-water sound levels and automatically detects unusual sounds. These passive acoustic devices allow researchers to hear when different marine mammals come into the region. This acoustic network, combined with the volunteer (incidental) visual sighting network allows researchers to document presence and location of various marine mammal species.

Based on our evaluation of the applicant's proposed measures, NMFS has determined that the prescribed mitigation measures provide the means 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 in the proposed action area. 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 action; 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).
- Mitigation and monitoring effectiveness.

Monitoring Measures

WSDOT shall employ NMFS-approved PSOs to conduct marine mammal monitoring for its Mukilteo Multimodal Project. The PSOs will observe and collect data on marine mammals in and around the project area for 30 minutes before, during, and for 30 minutes after all pile removal and pile installation work. NMFS-approved PSOs shall meet the following requirements:

1. Independent observers (*i.e.*, not construction personnel) are required;
2. At least one observer must have prior experience working as an observer;
3. Other observers may substitute education (undergraduate degree in biological science or related field) or training for experience;
4. Where a team of three or more observers are required, one observer should be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer; and
5. NMFS will require submission and approval of observer Curriculum vitae.

Monitoring of marine mammals around the construction site shall be conducted using high-quality binoculars (*e.g.*, Zeiss, 10 x 42 power). Due to the different sizes of Level B harassment distances from different pile sizes, several different Level B harassment zones and different monitoring protocols corresponding to a specific pile size will be established.

- During 12-inch vibratory timber pile removal, two land-based PSOs will monitor from the lighthouse and the new ferry terminal observation deck.
- During 24- and 30-inch steel vibratory driving/removal, three land-based and one ferry-based PSO will monitor the zones.

Locations of the land-based PSOs and routes of monitoring vessels are shown in WSDOT's Marine Mammal Monitoring Plan, which is available online at <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

To verify the required monitoring distance, the exclusion zones and zones of influence will be determined by using a range finder or hand-held global positioning system device.

Reporting Measures

WSDOT is required to submit a draft report on all marine mammal monitoring conducted under the IHA (if issued) within 90 calendar days of the completion of the project. A final report shall be prepared and submitted within 30 days following resolution of comments on the draft report from NMFS.

The marine mammal report must contain the informational elements described in the Marine Mammal Monitoring Plan, dated February 18, 2020, including, but not limited to:

1. Dates and times (begin and end) of all marine mammal monitoring.
2. Construction activities occurring during each daily observation period, including how many and what type of piles were driven or removed.
3. Weather parameters and water conditions during each monitoring period (*e.g.*, wind speed, percent cover, visibility, sea state).
4. The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting.
5. Age and sex class, if possible, of all marine mammals observed.

6. PSO locations during marine mammal monitoring.
7. Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).
8. Description of any marine mammal behavior patterns during observation, including direction of travel and estimated time spent within the Level B harassment zones while the source was active.
9. Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).
10. Detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any.
11. Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.
12. Submit all PSO datasheets and/or raw sighting data (in a separate file from the Final Report referenced immediately above).

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, WSDOT shall report the incident to the Office of Protected Resources (301-427-8401), NMFS and to the West Coast Region (WCR) regional stranding coordinator (1-866-767-6114) as soon as feasible. If the death or injury

was clearly caused by the specified activity, WSDOT must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. WSDOT must not resume their activities until notified by NMFS.

The report must include the following information:

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

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 responses (*e.g.*, intensity, duration), the context of any responses

(*e.g.*, critical reproductive time or location, migration), 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's 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 environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, this introductory discussion of our analyses applies to all the species listed in Table 9, given that the anticipated effects of WSDOT's Mukilteo Multimodal Project activities involving pile driving and pile removal on marine mammals are expected to be relatively similar in nature. There is no information about the nature or severity of the impacts, or the size, status, or structure of any species or stock that would lead to a different analysis by species for this activity, or else species-specific factors would be identified and analyzed.

Marine mammal takes that are anticipated and authorized are expected to be limited to short-term Level B harassment (behavioral and temporary threshold shift (TTS)) only. Marine mammals present in the vicinity of the action area and taken by Level B harassment would most likely show overt brief disturbance (startle reaction) and avoidance of the area from elevated noise levels during pile driving and pile removal and the implosion noise. These behavioral distances are not expected to affect marine mammals' growth, survival, and reproduction due to the limited geographic area that would be affected in comparison to the much larger habitat for marine mammals in the

Puget Sound. A few marine mammals could experience TTS if they occur within the Level B harassment zones. However, as discussed earlier in this document, TTS is a temporary loss of hearing sensitivity when exposed to loud sound, and the hearing threshold is expected to recover completely within minutes to hours. Therefore, it is not considered an injury.

Portions of the SRKW range is within the proposed action area. In addition, the entire Puget Sound is designated as the SRKW critical habitat under the ESA. However, WSDOT would be required to implement strict mitigation measures to suspend pile driving or pile removal activities when this stock is detected in the vicinity of the project area. We anticipate that take of SRKW would be avoided. There are no other known important areas for other marine mammals, such as feeding or pupping, areas.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the **Potential Effects of Specified Activities on Marine Mammals and their Habitat** section. There is no other ESA designated critical habitat in the vicinity of the Mukilteo Multimodal Project area. The project activities would not permanently modify existing marine mammal habitat. The activities may kill some fish and cause other fish to leave the area temporarily, thus impacting marine mammals' foraging opportunities in a limited portion of the foraging range. However, because of the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences. Therefore, given the consideration of potential impacts to marine mammal prey species and their physical

environment, WSDOT's proposed construction activity at the Mukilteo Ferry Terminal would not adversely affect marine mammal habitat.

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 the species or stock through effects on annual rates of recruitment or survival:

- Injury – no marine mammal would be taken by Level A harassment in the form of either physical injury or PTS;
- Behavioral disturbance – 11 species/stocks of marine mammals would experience behavioral disturbance and TTS from the WSDOT's Mukilteo Ferry Terminal construction. However, as discussed earlier, the area to be affected is small and the duration of the project is short. In addition, the nature of the take would involve mild behavioral modification; and
- Although portion of the SWKR critical habitat is within the project area, strict mitigation measures such as implementing shutdown measures and suspending pile driving are expected to avoid take of SRKW, and impacts to prey species and the habitat itself are expected to be minimal. No other important habitat for marine mammals exist in the vicinity of the project area.

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

Small Numbers

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

The estimated takes are below 24 percent of the population for all marine mammals except harbor seal (Table 7). While the estimated takes of harbor seal would be 35 percent of its population if all takes occurred to unique individuals, it is very likely that a single individual would be taken multiple times on different days. Therefore, the actual unique take of individual animals among the total population would be well under one-third of the population size.

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

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking

of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

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

The only species listed under the ESA with the potential to be present in the action area is the Mexico DPS of humpback whales. The effects of this Federal action were adequately analyzed in NMFS' Biological Opinion for the Mukilteo Multimodal Project, Snohomish, Washington, dated August 1, 2017, which concluded that issuance of an IHA would not jeopardize the continued existence of any endangered or threatened species or destroy or adversely modify any designated critical habitat. NMFS WCR has confirmed the Incidental Take Statement (ITS) issued in 2017 is applicable for this IHA. That ITS authorizes the take of seven humpback whales from the Mexico DPS.

National Environmental Policy Act

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

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

Authorization

As a result of these determinations, NMFS has issued an IHA to the WSDOT to conduct Mukilteo Multimodal Project Year 4 in Washington State, between August 1, 2020, and July 31, 2021, provided the previously prescribed mitigation, monitoring, and reporting requirements are incorporated.

Dated: August 3, 2020.

Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.