**BILLING CODE 3510-22-P**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**RTID 0648-XR045**

# Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Whittier Ferry Terminal Alaska Class Ferry Modification Project

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

**ACTION:** Notice; Issuance of 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 Alaska Department of Transportation and Public Facilities to incidentally harass, by Level B harassment only, marine mammals during construction activities associated with the Whittier Ferry Terminal ACF Modification project in Whittier, AK.

**DATES**: This Authorization is effective from February 1, 2020 to January 31, 2021.

**FOR FURTHER INFORMATION CONTACT**: Leah Davis, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/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 such 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 such 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 June 6, 2019, NMFS received a request from Alaska Department of Transportation and Public Facilities (ADOT&PF) for an IHA to take marine mammals incidental to the relocation of one dolphin at the Whittier Ferry Terminal in Whittier, Alaska. The application was deemed adequate and complete on September 27, 2019. ADOT&PF's request is for take of a small number of five species of marine mammals by Level B harassment. Neither ADOT&PF nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

**Description of the Specified Activity**

ADOT&PF is seeking an IHA for ferry terminal modifications at the Whittier Ferry terminal in Whittier, AK. Whitter is located at the head of Passage Canal, a deep-water fjord within Prince William Sound. The project includes relocation of one dolphin to accommodate a new, Alaska Class Ferry, the M/V Hubbard, as it is wider than the ferries currently operating in Prince William Sound. The dolphin will be removed using a vibratory hammer, and reinstalled using both vibratory and impact hammers. Additionally, construction will include modifying the existing catwalk and landing and modifying the bridge girder connection. Pile removal and installation associated with the project are expected to result in Level B harassment of humpback whale, killer whale, Dall's porpoise, Steller sea lion, and harbor seal. The ensonified area is expected to reach 12.0 km beyond the project site in Passage Canal. In-water construction is expected to

occur over six workdays during February and March 2020, however the IHA will be effective from February 2020 to January 2021.

A detailed description of the planned project is provided in the **Federal Register** notification for the proposed IHA (84 FR 56427; October 22, 2019). Since that time, no changes have been made to the planned construction activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notification for the description of the specific activity.

**Comments and Responses**

A notification of NMFS's proposal to issue an IHA to ADOT&PF was published in the **Federal Register** on October 22, 2019 (84 FR 56427). That notification described, in detail, ADOT&PF's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission; the Commission's recommendations and our responses are provided here.

*Comment 1*: The Commission recommends that NMFS update its various templates for **Federal Register** notifications and draft authorizations and conduct a more thorough review of the applications and **Federal Register** notifications to ensure accuracy, completeness, and consistency prior to submitting them to the **Federal Register** for public comment.

*Response*: NMFS thanks the Commission for its recommendation. NMFS makes every effort to keep templates up-to-date and read notifications thoroughly prior to publication and will continue this effort to publish the best possible product for public comment.

*Comment 2:* The Commission recommends that NMFS authorize at least four Level A harassment takes of harbor seals based on impact driving of four piles. While the shutdown zone includes the entire Level A harassment zone for harbor seals, harbor seals could pop up into the Level A harassment zone before activities can shut down. In that instance, the Commission asserts that a sighting should be recorded as a Level A harassment take, as a Protected Species Observer (PSO) cannot determine the amount of time that the animal was within the Level A harassment zone undetected, nor its location while it was underwater.

*Response:* During impact pile driving, the shutdown zone for harbor seals (200m) encompasses the entire Level A harassment zone for harbor seals (195m). While it is possible that a harbor seal may pop up in the shutdown zone before a shutdown can be implemented, it is unlikely that the animal would have been exposed to pile driving noise for a long enough duration to cause Level A harassment, given the duration component. Therefore, we have not authorized Level A harassment takes of harbor seals.

Additionally, as noted in the mitigation and monitoring requirements, PSOs are required to record and report all observed instances of marine mammals, including the distance from pile driving activity to the animal. Therefore, if a harbor seal is observed within 200m of the shutdown zone, it will be included in the monitoring report along with the estimated distance from pile driving activity. However, as noted above, it is not expected that the animal would have been taken by Level A harassment, and it would not be considered an unauthorized Level A harassment take.

*Comment 3:* The Commission recommended that NMFS increase the number of Level B harassment takes of Steller sea lions from 15 takes to 30 takes based on five animals potentially occurring in the Level B harassment zone on each of the six days of activities.

*Response*: As described in the **Federal Register** notification for the proposed IHA (84 FR 56427; October 22, 2019), as many as ten sea lions haul out year-round on a channel buoy within Shotgun Cove approximately 6 km (3.7 mi) northeast of the project location (M. Bender, Lazy Otter Charters, pers. comm.; M. Kopec, Whittier Marine Charters, pers. comm.). The Level B harassment zone does extend past Shotgun cove, however, due to the features of the shoreline, the Level B harassment zone is clipped on the Shotgun Cove side of Passage canal. It does not include the area of Passage Canal directly outside of Shotgun Cove (see application for more information), therefore animals do not have to enter the Level B harassment zone to exit Shotgun Cove and travel toward Prince William Sound. Given the limited prey availability in the project area in February and March, as described in the **Federal Register** notification for the proposed IHA (84 FR 56427), NMFS believes that Level B harassment takes of Steller sea lion are not likely to occur. However, 15 Level B harassment takes are being authorized at the request of the applicant to ensure MMPA coverage, should they occur.

*Comment 4*: The Commission recommends that NMFS require ADOT&PF to implement shutdown zones of 375m for low-frequency cetaceans and 450m for high-frequency cetaceans.

*Response*: During impact pile driving, the Level A harassment zone for low-frequency cetaceans is 364.3m. During informal discussion with the Commission on the

Draft IHA, NMFS expected to include a shutdown zone of 350m for low-frequency cetaceans, which NMFS believed to be sufficient to prevent Level A harassment. Due to the duration component associated with the Level A harassment zones, NMFS did not expect that a low-frequency cetacean would remain in the Level A harassment zone for a long enough period, without being detected and triggering a shutdown, to be taken by Level A harassment, given a shutdown zone of 350m. However, in the final Authorization, NMFS is requiring a 550-meter shutdown zone during impact pile driving. The shutdown zone is much larger than the Level A harassment zone, however, NMFS previously concluded informal Section 7 consultation with the Alaska Region with the understanding that the shutdown zone would include the area within the 550m isopleth. For vibratory pile driving, the shutdown zone for low-frequency cetaceans will be 25m, while the Level A harassment zone is 26m.

During impact pile driving, the Level A harassment zone for high-frequency cetaceans is 433.9m. NMFS is requiring a 400m shutdown zone for high-frequency cetaceans. As previously discussed for low-frequency cetaceans, due to the duration component associated with the Level A harassment zones, NMFS does not expect that a high-frequency cetacean would remain in the Level A harassment zone for a long enough period, without being detected and triggering a shutdown, to be taken by Level A harassment.

*Comment 5*: The Commission recommends that NMFS ensure that ADOT&PF keep a running tally of the *total* takes, which includes extrapolated takes, for each species to comply with section 4(g) of the authorization.

*Response*: NMFS agrees that ADOT&PF must ensure they do not exceed authorized takes. We have included in the authorization that ADOT&PF must include 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 in the draft and final reports.

*Comment 6*: The Commission recommends that NMFS refrain from using the proposed renewal process for ADOT&PF's authorization. The Commission states that the renewal process should be used sparingly and selectively, by limiting its use only to those proposed incidental harassment authorizations that are expected to have the lowest levels of impacts to marine mammals and that require the least complex analyses.

The Commission states that if NMFS intends to use the renewal process frequently *or* for authorizations that require a more complex review or for which much new information has been generated (e.g., multiple or extensive monitoring reports), it recommends that NMFS provide the Commission and other reviewers the full 30-day comment opportunity set forth in section 101(a)(5)(D)(iii) of the MMPA.

*Response*: We appreciate the Commission's input and direct the reader to our recent response to a similar comment, which can be found at 84 FR 52464 (October 2, 2019).

**Changes from the Proposed IHA to Final IHA**

The sizes of the Level A harassment zones decreased between the proposed IHA and the final IHA. In the proposed IHA, NMFS used the average number of piles per day (1.5 piles) and a sound source level based on SPL RMS (and assumed 100msec pulse duration for impact pile driving) to estimate Level A harassment zones for pile driving

activities. In the Final IHA, NMFS used the maximum number of piles per day (2 piles) and a sound source level based on a single-strike sound exposure level (for impact pile driving only), as recommended by the Commission. Additionally, shutdown zone sizes have been modified based on informal correspondence with the Commission and NMFS's Alaska Regional Office. After a shutdown, activities may not resume until either the animal has been visually confirmed beyond the shutdown zone or 15 minutes (pinnipeds)/ 30 minutes (cetaceans) have passed without subsequent detections of the animal. The proposed authorization stated that activities may resume after the animal has been visually confirmed beyond the shutdown zone, or 15 minutes have passed without subsequent detections for all species. See the *Mitigation Measures* section for additional information. Also suggested by the Commission, the monitoring zone associated with vibratory pile driving and removal was decreased to reflect concerns that PSOs would not be able to view the farthest extents of the proposed 12km monitoring zone. Finally, 60 Level B harassment takes of harbor seal are authorized, rather than the 15 Level B harassment takes of harbor seal originally proposed for authorization, as a result of informal correspondence with the Commission.

**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 1 lists all species with expected potential for occurrence in Passage Canal 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 (2016). 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 most species represent the total estimate of individuals within the geographic area, if known, that comprise that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. Alaska and U.S. Pacific SARs (*e.g.*, Muto *et al.*, 2019). All values presented in Table 1 are the most recent available at the time of publication and are available in the 2018 SARs or 2019 draft SARs (Carretta *et al.*, 2019 and Muto *et al.*, 2019).

**Table 1: Marine mammals that could occur in the 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* | *Eschrichtius robustus* | Eastern North Pacific | -, -, N | 26,960 (0.05, 25,849, 2016) | 801 | 139 |
| Family Balaenopteridae (rorquals) | | | | | | |
| *Fin whale* | *Balaenoptera physalus* | Northeast Pacific | E, D, Y | see SAR (see SAR, see SAR, 2013) | 5.1 | 0.6 |
| Humpback whale | *Megaptera novaeangilae* | Central North Pacific | -, -, Y | 10,103 (0.300, 7,891, 2006) | 83 | 26 |
| | | California/ Oregon/ Washington | -, -, Y | 2,900 (0.05, 2,784, 2014) | 16.7 | ≥40.2 |
| | | Western North Pacific | E, D, Y | 1,107 (0.300, 865, 2006) | 3 | 3.0 |
| *Minke whale* | *Balaenoptera acutorostra* | Alaska | -, -, N | N/A (see SAR, N/A, see SAR) | Undetermined | 0 |
| Superfamily Odontoceti (toothed whales, dolphins, and porpoises) | | | | | | |
| Family Delphinidae | | | | | | |
| Killer whale | *Orcinus orca* | Eastern North Pacific, Alaska Resident | -, -, N | 2,347c (N/A, 2,347, 2012) | 24 | 1 |
| | | Gulf, Aleutian, Bering Transient | -, -, N | 587c (N/A, 587, 2012) | 5.87 | 1 |
| | | AT1 Transient | -, D, Y | 7c (N/A, 7, 2017) | 0.01 | 0 |
| *Pacific white-sided dolphin* | *Lagenorhynchus obliquidens* | North Pacific | -, -, N | 26,880 (Unknown, Unknown, 1990) | Undetermined | 0 |
| Family Phocoenidae (porpoises) | | | | | | |
| Dall's porpoise | *Phocoenoides dalli* | Alaska | -, -, N | 83,400 (0.097, N/A, 1991) | Undetermined | 38 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Harbor porpoise* | *Phocoena* | Gulf of Alaska | -, -, Y | 31,046 (0.214, N/A, 1998) | Undetermined | 72 |
| Order Carnivora – Superfamily Pinnipedia | | | | | | |
| Family Otariidae (eared seals and sea lions) | | | | | | |
| *California sea lion* | *Zalophus californianus* | U.S. | -, -, N | 257,606 (N.A, 233,515, 2014) | 14,011 | ≥321 |
| Steller sea lion | *Eumetopias jubatus* | Western U.S. | E, D, Y | 53,624a (Unknown, 53,624, 2018) | 322 | 247 |
| Family Phocidae (earless seals) | | | | | | |
| Pacific harbor seal | *Phoca vitulina* | Prince William Sound | -, -, N | 44,756 (see SAR, 41,776, 2015) | 1253 | 413 |

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: *www.nmfs.noaa.gov/pr/sars/*. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. For certain stocks of pinnipeds, abundance estimates are based upon observations of animals (often pups) ashore multiplied by some correction factor derived from knowledge of the species (or similar species) life history to arrive at a best abundance estimate; therefore, there is no associated CV. In these cases, the minimum abundance may represent actual counts of all animals ashore.

3 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

**Note:** Italicized species are not expected to be taken or proposed for authorization.

All species that could potentially occur in the project area are included in Table 1. However, the temporal and/or spatial occurrence of gray whale, fin whale, minke whale, Pacific white-sided dolphin, harbor porpoise, and California sea lion are such that take is not expected to occur, and they are not discussed further beyond the explanation provided here. Gray whales do not regularly enter Prince William Sound, and charter operators have only observed gray whales in Passage Canal twice in the past 20 years (M. Bender, Lazy Otter Charters, pers. comm.; M. Kopec, Whittier Marine Charters, pers. comm.).

Fin whales typically arrive to the Gulf of Alaska in May, well after the February and March work window, and there is only one record of a fin whale occurring within Passage Canal in the past 20 years (M. Kopec, Whittier Marine Charters, pers. comm.). Minke whales are not expected to occur in the ensonified area, as in the past 20 years, marine mammal charter operators have seen fewer than five minke whales within Passage Canal, and they are typically found farther south during winter months (NMFS 2018b). Extensive marine mammal surveys conducted within Prince William Sound by Hall (1979) and Waite (2003) yielded no sightings of Pacific white-sided dolphins. Based on habitat preferences and past survey results, this dolphin is unlikely to occur in the Action Area, especially given the early spring work-window. Over the last 20 years, none have been observed in the inlet by charter operators (M. Bender, Lazy Otter Charters, pers. comm.; M. Kopec, Whittier Marine Charters, pers. comm.). Harbor porpoise have not been observed in Passage Canal during over two decades of whale watching by one charter operator (M. Bender, Lazy Otter Charters, pers. comm.), and are considered extremely rare in Passage Canal by another (M. Kopec, Whittier Marine Charters, pers. comm.). California sea lions are rarely sighted in southern Alaska. NMFS' anecdotal sighting database includes four sightings in Seward and Kachemak Bay, and they were also documented during the Apache 2012 seismic survey in Cook Inlet. However, California sea lions have not been observed in Passage Canal.

In addition, the northern sea otter may be found in Whittier, AK. However, northern sea otters are managed by the U.S. Fish and Wildlife Service and are not considered further in this document.

A detailed description of the of the species likely to be affected by the Whittier Ferry Terminal ACF Modification 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** notification for the proposed IHA (84 FR 56427; October 22, 2019); since that time, the Draft 2019 Stock Assessment Reports have been published, which include changes for the Prince William Sound stock of harbor seals and the western stock of Steller sea lion. However, take estimates are still based on the information on presence in Passage Canal, such as expected group size, outlined in the **Federal Register** notification for the proposed IHA (84 FR 56427; October 22, 2019); therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notification for these descriptions. Please also refer to NMFS' website (*https://www.fisheries.noaa.gov/find-species*) for generalized species accounts.

**Potential Effects of Specified Activities on Marine Mammals and their Habitat**

Underwater noise from impact and vibratory pile driving activities associated with the project have the potential to result in harassment of marine mammals in the vicinity of the action area. The **Federal Register** notification for the proposed IHA (84 FR 56427; October 22, 2019) included a discussion of the potential effects of such disturbances on marine mammals and their habitat, therefore that information is not repeated in detail here; please refer to the **Federal Register** notification (84 FR 56427; October 22, 2019) for that information.

**Estimated Take**

This section provides an estimate of the number of incidental takes for authorization through this IHA, which will inform both NMFS's 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 pile driving and removal activities. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.*, shutdown zones) discussed in detail below in the Mitigation Measures section, Level A harassment is not 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) and 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 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 microPascal (μPa) root mean square (rms) for continuous (*e.g.*, vibratory pile-driving, drilling) and above 160 dB re 1 μPa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

ADOT&PF's activity includes the use of continuous (vibratory pile driving and removal) and impulsive (impact pile driving) sources, and therefore the 120 and 160 dB re 1 μPa (rms) thresholds are 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) (NMFS, 2018a) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). ADOT&PF's activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving and removal) 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 2: Thresholds identifying the onset of Permanent Threshold Shift (PTS).**

| | **PTS Onset Acoustic Thresholds*** **(Received Level)** | |
|---|---|---|
| **Hearing Group** | **Impulsive** | **Non-impulsive** |
| **Low-Frequency (LF) Cetaceans** | *Cell 1*<br>$L_{pk,flat}$: 219 dB<br>$L_{E,LF,24h}$: 183 dB | *Cell 2*<br>$L_{E,LF,24h}$: 199 dB |
| **Mid-Frequency (MF) Cetaceans** | *Cell 3*<br>$L_{pk,flat}$: 230 dB<br>$L_{E,MF,24h}$: 185 dB | *Cell 4*<br>$L_{E,MF,24h}$: 198 dB |
| **High-Frequency (HF) Cetaceans** | *Cell 5*<br>$L_{pk,flat}$: 202 dB<br>$L_{E,HF,24h}$: 155 dB | *Cell 6*<br>$L_{E,HF,24h}$: 173 dB |

| | | |
|---|---|---|
| **Phocid Pinnipeds (PW) (Underwater)** | *Cell 7*<br>$L_{pk,flat}$: 218 dB<br>$L_{E,PW,24h}$: 185 dB | *Cell 8*<br>$L_{E,PW,24h}$: 201 dB |
| **Otariid Pinnipeds (OW) (Underwater)** | *Cell 9*<br>$L_{pk,flat}$: 232 dB<br>$L_{E,OW,24h}$: 203 dB | *Cell 10*<br>$L_{E,OW,24h}$: 219 dB |

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

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

*Ensonified Area*

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

The sound field in the project area is the existing background noise plus additional construction noise from the project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.*, impact pile driving, vibratory pile driving and removal). The maximum (underwater) area ensonified above the thresholds for behavioral harassment referenced above is 20.5 km$^2$ (7.9 mi$^2$) and is governed by the inlet topography.

The project includes vibratory and impact pile installation of steel pipe piles and vibratory removal of steel pipe piles. Source levels of pile installation and removal 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 driving method are presented in Table 3. The vibratory and impact source levels for 30-inch (0.76m) pile installation is from pile driving activities at the Auke Bay Ferry Terminal in November 2015 (Denes *et al.*, 2016). Source levels for vibratory installation and removal of piles of the same diameter are assumed to be the same.

**Table 3: Sound source levels for pile driving methods.**

| Pile Size and Method | Source Level (SPL at 10m) | | | Literature Source |
|---|---|---|---|---|
| | dB RMS | dB SEL[a] | dB peak | |
| **30-inch Vibratory** | 168.0 | N/A | N/A | Denes *et al.* 2016 |
| **30-inch Impact** | 191.3 | 177.4 | 206.0 | Denes *et al.* 2016 |

[a] Sound exposure level (dB re 1 μPa$^2$-sec).

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:

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

where

TL = transmission loss in dB

B = transmission loss coefficient

$R_1$ = the distance of the modeled SPL from the driven pile, and

$R_2$ = the distance from the driven pile of the initial measurement

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 Whittier are not available;

therefore, the default coefficient of 15 is used to determine the distances to the Level A and Level B harassment thresholds.

**Table 4: Pile driving source levels and distances to Level B harassment thresholds.**

| Pile Size and Method | Source level at 10m (dB re 1 µPa rms) | Level B threshold (dB re 1 µPa rms) | Propagation (xLogR) | Distance to Level B threshold (km) | Level B harassment ensonified area ($km^2$) |
|---|---|---|---|---|---|
| **30-inch Vibratory** | 168.0 | 120 | 15 | 15.85 | 20.5 |
| **30-inch Impact** | 191.3 | 160 | 15 | 1.221 | 1.24 |

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 pile driving, 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. Inputs used in the User Spreadsheet, and the resulting isopleths are reported below.

**Table 5: User spreadsheet input parameters used for calculating Level A harassment isopleths.**

| Pile Size and Installation Method | 30-inch Pile Vibratory Installation and Removal | 30-inch Pile Impact Installation ($SEL_{cum}$) | 30-inch Pile Impact Installation (PK) |
|---|---|---|---|
| Spreadsheet Tab Used | A.1)Vibratory pile driving | E.1) Impact pile driving | E.1) Impact pile driving |
| Weighting Factor Adjustment (kHz) | 2.5 | 2 | 2 |
| Source Level (@ 10m) | 168.0 dB RMS SPL | 177.4 dB | 206 dB |
| Number of piles within 24-h period | 2 | 2 | |
| Duration to drive a single pile (minutes) | 45 | | |
| Strike Duration (seconds) | | | |
| Number of strikes per pile | | 400 | |
| Activity Duration (seconds) within 24-h period | 5400 | | |
| Propagation (xLogR) | 15 | 15 | |
| Distance from source level measurement (meters) | 10 | 10 | 10 |

**Table 6: Calculated distances to Level A harassment isopleths.**

| Activity | Level A harassment zone (m) | | | | |
|---|---|---|---|---|---|
| | Low-Frequency Cetaceans | Mid-Frequency Cetaceans | High-Frequency Cetaceans | Phocid Pinnipeds | Otariid Pinnipeds |
| **30-inch Pile Vibratory Installation and Removal** | 26.2 | 2.3 | 38.8 | 15.9 | 1.1 |
| **30-inch Pile Impact Installation ($SEL_{cum}$)** | 364.3 | 13.0 | 433.9 | 195.0 | 14.2 |

| | | | | | |
|---|---|---|---|---|---|
| **30-inch Pile Impact Installation (PK)** | 1 | NA | 19 | 2 | N/A |

*Marine Mammal Occurrence and Take Calculation and Estimation*

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. No systematic surveys for marine mammals have occurred in Passage Canal. Animal presence is based on the observations by whale watching charters based out of Whittier, which specifically search for marine mammals in Passage Canal and one of which operates during the February and March construction window.

Here we describe how the information provided above is brought together to produce a quantitative take estimate. Because reliable densities are not available and marine mammal presence in Passage Canal is minimal, take requests are species specific and a general take calculation formula does not apply. All take estimates remain the same as in the proposed IHA, except for harbor seals which have been increased in the final IHA.

*Humpback Whale*

Based on over two decades of whale watching activity in Passage Canal, humpback whales have been observed in Passage Canal on only very rare occasions and remained for very short periods (M. Bender, Lazy Otter Charters, pers. comm.). Reported occurrence is approximately once per year (M. Kopec, Whittier Marine Charters, pers. comm.).

ADOT&PF estimated that one humpback whale (Straley *et al.*, 2018) may enter Passage Canal and remain in the Canal for several days during the project if herring are

present. Therefore, NMFS has authorized take of one whale for each of the six project days for a total of six humpback whale takes.

The largest Level A harassment zone for humpback whales extends 364.3m from the source during impact installation of 30-inch (0.76m) piles (Table 6). The $SEL_{cum}$ Level A harassment zone includes a time component, and we do not expect humpback whales to remain in the area within 364.3m during impact pile driving for long enough to experience Level A harassment. Therefore, Level A harassment takes of humpback whales were not requested and are not authorized.

*Killer Whale*

On rare occasions killer whales have been reported to make brief sorties into Passage Canal, but they are not regular residents there (M. Bender, Lazy Otter Charters, pers. comm.). They are seen in the inlet approximately once each year (M. Kopec, Whittier Marine Charters, pers. comm.). ADOT&PF estimates that one pod may enter the Level B harassment zone during the project. Based on that estimate, NMFS has authorized 20 killer whale takes, which equates to the largest, single pod (AB) entering the project area on one day of pile driving.

The largest Level A harassment zone for killer whales extends 13m from the source during impact installation of 30-inch (0.76m) piles (Table 6). Given the irregular and small presence of killer whales in Passage Canal, and the fact that PSOs are expected to detect killer whales before they enter the Level A harassment zone and implement shutdown zones to prevent take by Level A harassment, Level A harassment takes of killer whales have not been requested and are not authorized.

*Dall's Porpoise*

Dall's porpoises have occasionally been observed near the entrance of Passage Canal, but within the inlet they are considered exceedingly rare (M. Bender, Lazy Otter Charters, pers. comm.; M. Kopec, Whittier Marine Charters, pers. comm.). NMFS has authorized take of five Dall's porpoise, based on the springtime average group size (4.59 individuals) from Prince William Sound surveys conducted by Moran *et al.* (2018). The estimate assumes that one group enters the Level B harassment zone on one day of pile driving.

The largest $SEL_{cum}$ Level A harassment zone for Dall's porpoise extends 433.9m from the source during impact installation of 30-inch (0.76m) piles (Table 6), while the Peak Level A harassment zone for the same activity is 19m (Table 6). As noted in Table 8, a 400-m shutdown zone will be implemented for Dall's porpoises. The $SEL_{cum}$ Level A harassment zone includes a time component, however, we do not expect Dall's porpoises to remain in the area within 433.9m during impact pile driving for a long enough period to experience Level A harassment. Therefore, takes of Dall's porpoises by Level A harassment were not requested and are not authorized.

*Steller Sea Lion*

Steller sea lions are often seen near Whittier during May to August salmon runs but are irregularly seen in the Action Area the rest of the year, although as many as ten sea lions haul out year-round on a channel buoy within Shotgun Cove approximately 6 km (3.7 mi) northeast of the Action Area (M. Bender, Lazy Otter Charters, pers. comm.; M. Kopec, Whittier Marine Charters, pers. comm.).

An average of five Steller sea lions haul out on the buoy in Shotgun Cove. ADOT&PF estimates that half of those animals (average of 2.5) may enter the Level B

harassment zone on each of the six days of pile driving, and requested 15 Level B harassment takes of Steller sea lions. Due to the limited prey availability in the project area in February and March (Bishop and Green 2009, NMFS 2019), NMFS acknowledges that the requested Level B harassment takes are unlikely to occur. However, the takes were analyzed and are being authorized at the request of the applicant to ensure MMPA coverage should they occur in the ensonified zone during the specified activities.

The largest Level A harassment zone for otariid pinnipeds extends 14.2m from the source during impact installation of 30-inch (0.76m) piles (Table 6). ADOT&PF will implement a minimum 25-m shutdown zone during all pile installation and removal activities (see Mitigation Measures section), which is expected to eliminate the potential for Level A harassment take of Steller sea lions. Therefore, takes of Steller sea lions by Level A harassment were not requested and are not authorized.

*Harbor Seal*

Harbor seal use of the project area is occasional and sporadic. If food is available, small numbers of harbor seals may remain for extended periods in the Whittier boat harbors feeding on sessile invertebrates growing on harbor pilings. Otherwise, they are only occasionally seen in the mid-inlet, although sightings do occur year-round. Recently, four to ten seals (typically about five) have been observed hauling out on a rock pinnacle in Logging Camp Bay located 12.4 km (7.7 mi) east of the project area, just outside of the Level B harassment zone (M. Bender, Lazy Otter Charters, pers. comm.). In the proposed authorization, ADOT&PF assumed that on any given day, half (2.5 average) of these seals might occur in the Level B harassment zone during each of the six days of pile

driving, and therefore requested 15 Level B harassment takes of harbor seals. However, during informal correspondence, the Commission suggested that all ten seals have the potential to enter the Level B harassment zone and be taken on each of the six days of pile driving. NMFS agrees, and is authorizing 60 Level B harassment takes of harbor seals.

The largest $SEL_{cum}$ Level A harassment zone for phocid pinnipeds extends 195m from the source during impact installation of 30-inch (0.76m) piles (Table 6), while the Peak Level A harassment zone for the same activity is 1.6m (Table 6) . ADOT&PF is planning to implement a 25-m shutdown zone during vibratory pile installation and removal activities and a 200-m shutdown zone during impact pile installation for phocid pinnipeds (Table 8). These shutdown zones are expected to eliminate the potential for Level A harassment take of harbor seals. Therefore, takes of harbor seals by Level A harassment were not requested and are not authorized.

**Table 7: Authorized take by Level B harassment only, by species and stock.**

| Common name | Stock | Stock abundance[a] | Level B take | Authorized take as percentage of stock |
|---|---|---|---|---|
| **Humpback whale** | Central North Pacific | 10,103 | 6[b] | 0.06 |
| **Killer whale** | Eastern North Pacific, Alaska Resident | 2,347 | 20 | 0.85 |
| | Gulf, Aleutian, Bering Transient | 587 | 20 | 3.41 |
| **Dall's porpoise** | Alaska | 83,400 | 5 | 0.01 |

| | | | | |
|---|---|---|---|---|
| **Steller sea lion** | Western U.S. | 53,624 | 15 | 0.03 |
| **Harbor seal** | Prince William Sound | 44,756 | 60[c] | 0.13 |

[a] Stock or DPS size is Nbest according to NMFS 2018 SARs or 2019 Draft SARs.
[b] For ESA Section 7 consultation purposes, 89% of humpbacks in the project area are designated to the Hawaii DPS. Therefore, this individual humpback whale is expected to be from the Hawaii DPS, as are all authorized humpback whale takes.
[c]Updated based on informal correspondence with the Commission.

**Mitigation Measures**

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 such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such 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 such 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.

In addition to the measures described later in this section, ADOT&PF will employ the following standard mitigation measures:

- Conduct briefings between construction supervisors and crews and the marine mammal monitoring team prior to the start of all pile driving activity, and when new personnel join the work, to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures;
- For in-water heavy machinery work other than pile driving (*e.g.*, standard barges, *etc.*), if a marine mammal comes within 10 m, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions. This type of work could include the following activities: (1) Movement of the barge to the pile location; or (2) positioning of the pile on the substrate via a crane (*i.e.*, stabbing the pile);
- To minimize impacts from vessel interactions with marine mammals, the crew aboard project vessels (tugs, barges, and monitoring vessels) will follow NMFS's marine mammal viewing guidelines and regulations as practicable

- Work may only occur during daylight hours, when visual monitoring of marine mammals can be conducted;
- For those marine mammals for which Level B harassment take has not been requested, in-water pile installation/removal will shut down immediately if such species are observed within or on a path towards the monitoring zone (*i.e.*, Level B harassment zone); and
- If take reaches the authorized limit for an authorized species, pile installation will be stopped as these species approach the Level B harassment zone to avoid additional take.

The following mitigation measures would apply to ADOT&PF's in-water construction activities:

*Establishment of Shutdown Zone for Level A Harassment*—For all pile driving/removal and drilling activities, ADOT&PF will establish a shutdown zone. The purpose of a shutdown zone is generally to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones will vary based on the activity type and marine mammal hearing group (see Table 8). The largest shutdown zones are generally for low frequency and high frequency cetaceans as shown in Table 8. The placement of Protected Species Observers (PSOs) during all pile driving and pile removal activities (described in detail in the Monitoring and Reporting Section) will ensure that the entire shutdown zone is visible during pile installation.

**Table 8: Shutdown zones during pile installation and removal.**

| | **Shutdown zone (m)** |
|---|---|

| Activity | LF cetaceans | MF cetaceans | HF cetaceans | Phocids | Otariids |
|---|---|---|---|---|---|
| Vibratory pile installation and removal | 25 | 25 | 50 | 25 | 10 |
| Impact pile installation | 550 | 25 | 400 | 200 | 25 |

*Establishment of Monitoring Zones for Level B Harassment*—ADOT&PF would establish monitoring zones to correlate with Level B harassment zones or zones of influence which are areas where SPLs are equal to or exceed the 160 dB rms threshold for impact driving and the 120 dB rms threshold during vibratory driving and drilling. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones enable observers to be aware of and communicate the presence of marine mammals in the project area outside the shutdown zone and thus prepare for a potential cease of activity should the animal enter the shutdown zone. Placement of PSOs on the shorelines around Passage Canal allow PSOs to observe marine mammals within Passage Canal. As noted by the Commission, PSOs will not be able to observe the entire Level B harassment zone during all activities. Therefore, Level B harassment takes will be recorded and extrapolated based upon the number of observed taked and the percentage of the Level B harassment zone that was not visible.

**Table 9: Marine mammal monitoring zones.**

| Activity | Monitoring zone (m) |
|---|---|
| Vibratory pile installation and removal | 9,000[a] |

| | |
|---|---|
| Impact pile installation | 1,200 |

[a]Maximum distance that PSOs will be able to monitor. The monitored area will depend on the number of PSOs and how close animals are to the opposite side of Passage Canal from the observer.

*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 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 thirty minutes or longer. Soft start is not required during vibratory pile driving and removal activities.

*Pre-Activity Monitoring*—Prior to the start of daily in-water construction activity, or whenever a break in pile driving/removal or drilling of 30 minutes or longer occurs, PSOs will observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone will be cleared when a marine mammal has not been observed within the zone for that 30-minute period. If a marine mammal is observed within the shutdown zone, a soft-start cannot proceed until the animal has left the zone or has not been observed for 15 minutes (for pinnipeds) or 30 minutes (for cetaceans). If the Level B harassment zone has been observed for 30 minutes and no species for which take is not authorized are present within the zone, soft start procedures can commence and work can continue even if visibility becomes impaired within the Level B harassment monitoring

zone. When a marine mammal for which Level B harassment take is authorized is present in the Level B harassment zone, activities may begin and Level B harassment take will be recorded. As stated above, if the entire Level B harassment zone is not visible at the start of construction, pile driving activities can begin. If work ceases for more than 30 minutes, the pre-activity monitoring of both the Level B harassment and shutdown zones will commence.

**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 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); and
- Mitigation and monitoring effectiveness.

*Visual Monitoring*

Monitoring would be conducted 30 minutes before, during, and 30 minutes after pile driving/removal activities. In addition, observers shall record all incidents of marine mammal occurrence, regardless of distance from activity, and shall 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 thirty minutes.

There will be at least two PSOs employed during all pile driving/removal activities. PSO will not perform duties for more than 12 hours in a 24-hour period. For impact and vibratory pile driving and removal, one PSO would be positioned at the end of the terminal catwalk near the pile driving/removal activities at the best practical vantage point. A second PSO would be stationed approximately 2.5 km down Shotgun

Cove Road and Trail. For vibratory pile driving and removal, two additional PSOs will be stationed along Shotgun Cove Road and Trail, each approximately 2.5 km down the trail from the previous PSO. Observed take will be extrapolated across unobserved portions of the Level B harassment zone.

If Station 2 is not accessible via snowmobile on Shotgun Cove Road and Trail, a vessel will be used as a monitoring station. The vessel will be mostly stationary, however, it will be somewhat influenced by the tides. If Stations 3 or 4 are not accessible via snowmobile on Shotgun Cove Road and Trail, take observed by PSOs at Stations 1 and 2 will be extrapolated across the unobserved portion of the project area.

As part of monitoring, PSOs would scan the waters using binoculars, and/or spotting scopes, and would use a handheld GPS or range-finder device to verify the distance to each sighting from the project site. All PSOs would be trained in marine mammal identification and behaviors and are required to have no other project-related tasks while conducting monitoring. In addition, monitoring will be conducted by qualified observers who will be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. Qualified observers are trained and/or experienced professionals, with the following minimum qualifications:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance; use of binoculars may be necessary to correctly identify the target;
- Independent observers (*i.e.*, not construction personnel);

- Observers must have their CVs/resumes submitted to and approved by NMFS;
- Advanced education in biological science or related field (*i.e.*, undergraduate degree or higher). Observers may substitute education or training for experience;
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience);
- At least one observer must have prior experience working as an observer;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates and times when in-water construction activities were suspended to avoid potential incidental injury from construction sound of marine mammals observed within a defined shutdown zone; 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.

*Reporting*

A draft marine mammal monitoring report would be submitted to NMFS within 90 days after the completion of pile driving and removal activities. The report will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets. Specifically, the report must include:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;
- Weather parameters (*e.g.*, percent cover, visibility);
- Water conditions (*e.g.*, sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals;
- Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- Locations of all marine mammal observations;
- An estimate of total take based on proportion of the monitoring zone that was observed; and
- Other human activity in the area.

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

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury, serious injury or mortality, ADOT&PF would immediately cease the specified activities and

report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinator. The report would include the following information:

- Description of the incident;
- Environmental conditions (*e.g.*, Beaufort sea state, visibility);
- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS would work with ADOT&PF to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. ADOT&PF would not be able to resume their activities until notified by NMFS via letter, email, or telephone.

In the event that ADOT&PF discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (*e.g.*, in less than a moderate state of decomposition as described in the next paragraph), ADOT&PF would immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or by email to the Alaska Regional Stranding Coordinator. The report would include the same information identified in the paragraph above. Activities would be able to continue while NMFS reviews the circumstances of

the incident. NMFS would work with ADOT&PF to determine whether modifications in the activities are appropriate.

In the event that ADOT&PF discovers an injured or dead marine mammal and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in the IHA (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), ADOT&PF would report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or by email to the Alaska Regional Stranding Coordinator, within 24 hours of the discovery. ADOT&PF would provide photographs, video footage (if available), or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

**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).

Pile driving installation and removal activities associated with the project as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment, from underwater sounds generated from pile driving and removal. Potential takes could occur if individuals of these species are present in zones ensonified above the thresholds for Level B harassment identified above when these activities are underway.

The takes from Level B harassment would be due to potential behavioral disturbance. No Level A harassment is anticipated given the nature of the activity and measures designed to minimize the possibility of injury to marine mammals. The potential for Level A harassment and the scale and intensity of Level B harassment are minimized through the construction method and the implementation of the planned mitigation measures (see Mitigation Measures section).

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.*, Thorson and Reyff 2006; HDR, Inc. 2012; Lerma 2014; ABR 2016). Most likely for pile driving, individuals will simply

move away from the sound source and be temporarily displaced from the areas of pile driving and drilling, although even this reaction has been observed primarily only in association with impact pile driving. Level B harassment will be reduced to the level of least practicable adverse impact through use of mitigation measures described herein and, if sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the area while the activity is occurring. While vibratory driving associated with the project may produce sound at distances of many kilometers from the project site, thus intruding on some habitat, the ensonified area is already less-preferred habitat when the project is not underway. Therefore, we expect that animals annoyed by project sound would simply avoid the area and use more-preferred habitats.

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; but, 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.

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:

- No mortality is anticipated or authorized;
- No injury is anticipated or authorized;

- Any resulting Level B harassment is expected to be short-term and of relatively low impact;
- In fact, nearby habitat is considered non-optimal given the low likelihood of many known prey resources during the months of the activity;
- The area impacted by the specified activity is very small relative to the overall habitat ranges of all species;
- The project area does not include ESA-designated critical habitat and does not overlap with any Biologically Important Areas (BIAs);
- The project is only taking place over six total pile driving/removal days;
- The project has the potential to impact less than 3.5 percent of each impacted stock; and
- The mitigation measures are expected to reduce the effects of the specified activity to the level of least practicable adverse impact.

In addition, although affected Steller sea lions are from a DPS that is listed under the ESA, it is unlikely that minor noise effects in a small, localized area of habitat would have any effect on the stocks' ability to recover. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activities will have only minor, short-term effects on individuals. The specified activities are not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

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 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. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

Table 7 demonstrates the number of animals that could be exposed to received noise levels that could cause Level B harassment for the work in Whittier. Our analysis shows that less than 1 percent of most affected stocks could be taken by Level B harassment, with the exception of the Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock of killer whales, for which less than 3.5 percent of the stock could be taken. The numbers of animals authorized to be taken for these stocks would be considered small relative to the relevant stock's abundances even if each estimated taking occurred to a new individual, which is an extremely unlikely scenario.

Based on the analysis contained herein of the 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**

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.

Hunters from two native villages – Chenega Bay and Tatitlek – and native hunters living in Cordova annually harvest marine mammals within Prince William Sound as part of a subsistence lifestyle (Fall and Zimpelman 2016). Chenega Bay hunters annually harvest a few harbor seals and sea otters and have hunted Steller sea lions in the past (Wolfe et al. 2009). Most hunting occurs locally. Hunters from Tatitlek harvest harbor seals and sea lions over most of central Prince William Sound, although their hunting range does not extend to Passage Canal (Fall and Zimpelman 2016). Native hunters living in Cordova mostly harvest harbor seals but occasionally take sea otters and sea lions (Fall and Zimpelman 2016). All villages are greater than 100 km (62 mi) by boat travel from Passage Canal. The short-term, relatively low-impact, Level B harassment takes resulting from construction activities associated with the Whittier Ferry Terminal modifications project will have no impact on the ability of hunters from these villages to harvest marine

mammals. 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 (ESA)**

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

NMFS is authorizing take of western stock Steller sea lions under the MMPA. For purposes of the Endangered Species Act, the NMFS Permits and Conservation Division has determined that while this action may affect western DPS Steller sea lions, it is not likely to adversely affect the DPS because we do not expect Steller sea lions to use habitats near Whittier during the season when construction will occur. On December 4, 2019, per section 7 of the ESA, the NMFS Alaska Region concurred that the proposed action may affect, but is not likely to adversely affect, the western distinct population segment (DPS) of Steller sea lions (*Eumetopias jubatus*) or the Mexico or Western North Pacific DPSs of humpback whale (*Megaptera novaeangliae*).

**Authorization**

NMFS has issued an IHA to ADOT&PF for the incidental take of marine mammals due to in-water construction work associated with the Whittier Ferry Terminal

ACF Modification project in Whittier, AK from February 1, 2020 to January 31, 2021, provided the previously mentioned mitigation, monitoring and reporting requirements are incorporated.

Dated: December 23, 2019.

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Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

[FR Doc. 2019-28213 Filed: 12/30/2019 8:45 am; Publication Date: 12/31/2019]