



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XD199]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Ferry Berth Construction in Tongass Narrows in Ketchikan, Alaska.

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

ACTION: Notice; Issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to the Alaska Department of Transportation and Public Facilities (ADOT&PF) to incidentally harass marine mammals during construction activities associated with ferry berth construction in Tongass Narrows in Ketchikan, Alaska.

DATES: This authorization is effective from September 11, 2023 to September 10, 2024.

ADDRESSES: Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at:

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities>. In case of problems accessing these documents, please call the contact listed below.

FOR FURTHER INFORMATION CONTACT: Kate Fleming, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

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

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

Summary of Request

On January 24, 2023, NMFS received a request from ADOT&PF for an IHA to take marine mammals incidental to the construction of and improvements to four (initially five – see explanation below) ferry berths in Tongass Narrows in Ketchikan, Alaska. On February 23, 2023, ADOT&PF submitted a memo proposing additional construction activities at this project site, which was later retracted on March 21, 2023. Following NMFS’ review of the application and discussions between NMFS and ADOT&PF, on May 2, 2023, ADOT&PF asked NMFS to halt processing of the IHA

until it submitted an acoustic monitoring report associated with previous work at the project site. ADOT&PF submitted the report on May 24, 2023. NMFS reviewed and accepted the results in the report, and the application was deemed adequate and complete on June 27, 2023. ADOT&PF's request is for take of 11 species of marine mammals, by Level B harassment and, for Steller sea lion (*Eumetopias jubatus*), harbor seal (*Phoca vitulina*), northern elephant seal (*Mirounga angustirostris*), harbor porpoise (*Phocoena phocoena*), and Dall's porpoise (*Phocoenoides dalli*), Level A harassment. Neither ADOT&PF nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued two consecutive IHAs to ADOT&PF for this work (85 FR 673, January 7, 2020), which covered construction at the following six sites: Revilla New Ferry Berth and Upland Improvements (Revilla New Berth), New Gravina Island Shuttle Ferry Berth/Related Terminal Improvements (Gravina New Berth), Gravina Airport Ferry Layup Facility, Gravina Freight Facility, Revilla Refurbish Existing Ferry Berth Facility, and Gravina Refurbish Existing Ferry Berth Facility (Figure 1). Due to various project delays (and two minor changes to the phase 1 IHA activities), the phase 1 IHA was renewed (86 FR 23938, May 05, 2021) and the phase 2 IHA was reissued (87 FR 12117, March 3, 2022). Upon the expiration of the phase 1 renewal, because a subset of work had still not been completed, ADOT&PF requested, and NMFS issued, a new IHA (87 FR 15387, March 18, 2022) which was renewed upon its expiration (88 FR 13802, March 6, 2023). The reissued phase 2 IHA expired on February 28, 2023. While the current renewal IHA (88 FR 13802, March 6, 2023) does not expire until March 5, 2024, ADOT&PF proposed new project components that warrant a new IHA, and a subset of activities covered under the reissued phase 2 IHA remain incomplete. As such, ADOT&PF requested a new IHA to authorize take of marine mammals associated with all remaining work at the Tongass Narrows sites. Work at the Gravina Airport Ferry

Layup Facility was completed prior to the application for this new IHA. Since the submission of ADOT&PF's 2023 IHA application, work has also been completed at the Gravina Freight Facility. As such, remaining work planned is limited to four project sites: Revilla New Berth, Gravina New Berth, Revilla Refurbish Existing Ferry Berth Facility, and Gravina Refurbish Existing Ferry Berth Facility. ADOT&PF has complied with all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHAs with the exception of one incident in which ADOT&PF reported that a pile had been removed without the presence of a Protected Species Observer (PSO) on site. ADOT&PF reported the incident immediately and retrained the Construction Contractor's Foreman and ADOT&PF's on-site representative. ADOT&PF also notified NMFS on May 18, 2023 that 12 20" piles that were not included in the renewal, but were included in the initial IHA on which the renewal was based, were driven after expiration of the initial IHA (while the renewal was effective).

Monitoring results from the previous IHAs are discussed in the **Potential Effects of Specified Activities on Marine Mammals and their Habitat** and the **Estimated Take of Marine Mammals** section.

Description of Specified Activity

ADOT&PF is making improvements to two existing ferry berths and constructing two new ferry berths on Gravina Island and Revillagigedo (Revilla) Island in Tongass Narrows, near Ketchikan, in southeast Alaska (see Figure 1 of the notice of proposed IHA (88 FR 46746; July 20, 2023)). The existing ferry facilities improve access to developable land on Gravina Island, improve access to the Ketchikan International Airport, and facilitate economic development in the Ketchikan Gateway Borough. The new ferry berths provide redundancy to the existing ferry berths. The project's planned activities that have the potential to take marine mammals, by Level A harassment and Level B harassment, include down-the-hole (DTH) drilling of rock sockets and tension

anchors, vibratory installation and removal of temporary steel pipe piles and/or H-piles, vibratory and impact installation of permanent steel pipe piles, and vibratory removal of permanent piles (in cases where work is being redone). The marine construction associated with the planned activities is expected to occur over 131 non-consecutive days over 1 year.

A detailed description of the planned construction project is provided in the **Federal Register** notice for the proposed IHA (88 FR 46746, July 20, 2023). Since that time, no changes have been made to planned activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specified activity.

Comments and Responses

A notice of NMFS' proposal to issue an IHA to ADOT&PF was published in the **Federal Register** on July 20, 2023 (88 FR 46746). That notice described, in detail, ADOT&PF's activities, the marine mammal species that may be affected by the activities, and the anticipated effects on marine mammals. In that notice, we requested public input on the request for authorization described therein, our analyses, the proposed authorization, and any other aspect of the notice of proposed IHA, and requested that interested persons submit relevant information, suggestions, and comments. During the 30-day public comment period, NMFS did not receive any public comments.

Changes from the Proposed IHA to Final IHA

Since the **Federal Register** notice of the proposed IHA was published (88 FR 46746, July 20, 2023), NMFS published the final 2022 Alaska and Pacific Stock Assessment Reports (SARs), which describe revised stock structures under the MMPA for humpback whales and southeast Alaska harbor porpoise (*Carretta et al.*, 2023; Young *et al.*, 2023). In the notice of proposed IHA, we explained that although we typically consider updated peer-reviewed data provided in draft SARs to be the best available science, and use the information accordingly, we make exception for proposed revised stock structures. Upon finalization of these revised stock structures, we have made appropriate updates, including descriptions of the potentially affected stocks (see Table 1), attribution of take numbers to stock (see **Estimated Take of Marine Mammals**), and by updating our analyses to ensure the necessary determinations are made for the new stocks (see **Negligible Impact Analysis and Determination** and **Small Numbers**).

Additionally, as requested by ADOT&PF, NMFS made two changes to the PSO requirements since publication of the proposed IHA. First, NMFS revised the requirement for PSOs to be independent of the activity contractor (for example, employed by a subcontractor), to reflect that PSOs must be independent (not be part of

the construction crew) but not necessarily employed by a subcontractor. This change is intended to align this requirement with that in the active IHA to allow PSOs who are currently working on the project to continue to do so. Second, NMFS proposed to require ADOT&PF to employ three PSOs for DTH activities. After publication of the proposed IHA, ADOT&PF requested for NMFS to revise this measure to require two PSOs for DTH activities, given that the zone sizes for DTH activities, like those of impact pile driving, are small enough to be adequately monitored by two PSOs. NMFS concurred, and therefore, the final IHA requires ADOT&PF to employ at least two PSOs for DTH activities, rather than three.

Finally, NMFS corrected a typographical error in Table 8 of the notice of the proposed IHA (88 FR 46746, July 20, 2023). The table omitted the Level B harassment isopleth for DTH of tension anchors, which should have been listed as 1,274 m. The corresponding table in the proposed IHA at the time of publishing was correct.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions, incorporated here by reference, instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' SARs (<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and more general information about these species (e.g., physical and behavioral descriptions) may be found on NMFS' website (<https://www.fisheries.noaa.gov/find-species>).

Table 1 lists all species or stocks for which take is expected and authorized for this activity, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential

biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no serious injury or mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Alaska and Pacific Ocean SARs All values presented in Table 1 are the most recent available at the time of publication (Caretta *et al.*, 2023, Young *et al.*, 2023) and are available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>.

Table 1 -- Marine Mammal Species Likely Impacted by the Specified Activities¹

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ²	Stock abundance (CV, N _{min} , most recent abundance survey) ³	PBR	Annual M/SI ⁴
Order Artiodactyla – Infraorder Cetacea – Mysticeti (baleen whales)						
Family Balaenopteridae (rorquals)						
Minke Whale ⁵	<i>Balaenoptera acutorostrata</i>	Alaska	-, -, N	N/A (N/A, N/A, N/A)	UND	0
Fin Whale ⁶	<i>Balaenoptera physalus</i>	Northeast Pacific	E, D, Y	3,168 (0.26, 2,554, 2013)	UND	0.6
Humpback Whale ⁷	<i>Megaptera novaeangliae</i>	Hawai'i	-, -, N	11,278 (0.56, 7,265, 2020)	127	19.6
		Mexico – North Pacific	T, D, Y	N/A (N/A, N/A, 2006)	UND	0.56
Family Eschrichtiidae						
Gray whale	<i>Eschrichtius robustus</i>	Eastern North Pacific	-, -, N	26,960 (0.05, 25,849, 2016)	801	131
Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Pacific White-sided Dolphin	<i>Lagenorhynchus obliquidens</i>	N Pacific	-, -, N	26,880 (N/A, N/A, 1990)	UND	0
Killer Whale	<i>Orcinus orca</i>	Eastern North Pacific Alaska Resident	-, -, N	1,920, (N/A, 1,920, 2019)	19	1.3
		Eastern North Pacific Northern Resident	-, -, N	302 (N/A, 302, 2018)	2.2	0.2
		West Coast Transient	-, -, N	349 (N/A, 349, 2018)	3.5	0.4
Family Phocoenidae (porpoises)						
Harbor Porpoise ⁸	<i>Phocoena phocoena</i>	Southern Southeast Alaska Inland Waters	-, -, Y	890 (0.37, 610, 2019)	6.1	7.4
Dall's Porpoise ⁹	<i>Phocoenoides dalli</i>	Alaska	-, -, N	15,432 (0.097, 13,110, 2021)	131	37

Order Carnivora – Pinnipedia						
Family Otariidae (eared seals and sea lions)						
Steller Sea Lion	<i>Eumetopias jubatus</i>	Eastern	-, -, N	43,201 (N/A, 43,201, 2017)	2,592	112
Family Phocidae (earless seals)						
Northern Elephant Seal	<i>Mirounga angustirostris</i>	CA Breeding	-, -, N	187,386 (N/A, 85,369, 2013)	5,122	13.7
Harbor Seal	<i>Phoca vitulina</i>	Clarence Strait	-, -, N	27,659 (N/A, 24,854, 2015)	746	40

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

² ESA status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

³ NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable.

⁴ These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

⁵ No population estimates have been made for the number of minke whales in the entire North Pacific. Some information is available on the numbers of minke whales on some areas of Alaska, but in the 2009, 2013 and 2015 offshore surveys, so few minke whales were seen during the surveys that a population estimate for the species in this area could not be determined (Rone *et al.*, 2017). Therefore, this information is N/A (not available).

⁶ The best available abundance estimate for this stock is not considered representative of the entire stock as surveys were limited to a small portion of the stock's range. Based upon this estimate and the Nmin, the PBR value is likely negatively biased for the entire stock.

⁷ Abundance estimates for the Mexico-North Pacific Stock of humpback whale are based upon data collected more than 8 years ago and therefore, current estimates are considered unknown.

⁸ Abundance estimates assumed that detection probability on the trackline was perfect; work is underway on a corrected estimate. Additionally, preliminary data results based on eDNA analysis show genetic differentiation between harbor porpoise in the northern and southern regions on the inland waters of southeast Alaska. Geographic delineation is not yet known. Data to evaluate population structure for harbor porpoise in Southeast Alaska have been collected and are currently being analyzed. Should the analysis identify different population structure than is currently reflected in the Alaska SARs, NMFS will consider how to best revise stock designations in the future.

⁹ Previous abundance estimates covering the entire stock's range are no longer considered reliable and the current estimates presented in the SARs and reported here only cover a portion of the stock's range. Therefore, the calculated Nmin and PBR is based on the 2015 survey of only a small portion of the stock's range. PBR is considered to be biased low since it is based on the whole stock whereas the estimate of mortality and serious injury is for the entire stock's range.

As indicated above, all 11 species (with 13 managed stocks) in Table 1 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur.

A detailed description of the species likely to be affected by ADOT&PF's project, including brief introductions to the species and relevant stocks as well as available information regarding populations trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (88 FR 46746, July 20, 2023). The 2022 Alaska and Pacific SARs described a revised stock structure for humpback whales which modifies the previous stocks designated under the MMPA to align more closely with the ESA-designated DPSs (Caretta et al., 2023; Young et al., 2023). Specifically, the three previous North Pacific humpback whale stocks (Central and Western North Pacific stocks and a CA/OR/WA stock) were replaced by five stocks, largely corresponding with the ESA-designated DPSs. These include Western North Pacific and Hawaii stocks and a Central America/Southern Mexico-CA/OR/WA stock (which corresponds with the Central America DPS). The remaining two stocks, corresponding with the Mexico DPS, are the Mainland Mexico-CA/OR/WA and Mexico-North Pacific stocks (Caretta *et al.*, 2023; Young *et al.*, 2023). The former stock is expected to occur along the west coast from California to southern British Columbia, while the latter stock may occur across the Pacific, from northern British Columbia through the Gulf of Alaska and Aleutian Islands/Bering Sea region to Russia.

In the proposed IHA, NMFS stated that the Central North Pacific stock of humpback whale was likely to be impacted by ADOT&PF's activities. Given the revised stock structure, NMFS has reanalyzed the potential for take of each stock of humpback whale and determined that the Hawaii stock and the Mexico- North Pacific stock are likely to be impacted by ADOT&PF's activities.

The 2022 Alaska SARs described a revised stock structure for southeast Alaska harbor porpoise, which were split from one stock into three: the Northern Southeast Alaska Inland Waters, Southern Southeast Alaska Inland Waters, and Yakutat/Southeast Alaska Offshore Waters harbor porpoise stocks (Young *et al.*, 2023). This update better aligns harbor porpoise stock structure with genetics, trends in abundance, and information regarding discontinuous distribution trends (Young *et al.*, 2023). Harbor porpoises found in the Tongass Narrows area are assumed to be members of the Southern Southeast Alaska Inland Waters stock, based on the geographical range of the stock. Please refer to the notice of the proposed IHA (88 FR 46746, July 20, 2023) for species descriptions. Please also refer to the NMFS' website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts, and to the SARs (<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) for more information about the changes to humpback whale and harbor porpoise stock structures.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine

mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 2.

Table 2 -- Marine Mammal Hearing Groups (NMFS, 2018)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, <i>Kogia</i> , river dolphins, Cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i>)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
* Represents the generalized hearing range for the entire group as a composite (<i>i.e.</i> , all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall <i>et al.</i> , 2007) and PW pinniped (approximation).	

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

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

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from ADOT&PF's construction activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the project area. The notice of the proposed IHA (88 FR 46746, July 20, 2023) included a discussion of the effects of anthropogenic noise on marine mammals and the potential

effects of underwater noise from ADOT&PF's construction activities on marine mammals and their habitat. That information and analysis is incorporated by reference into these final IHA determinations and is not repeated here; please refer to the **Federal Register** notice of proposed IHA (88 FR 46746, July 20, 2023).

Estimated Take of Marine Mammals

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

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

Authorized takes will primarily be by Level B harassment, as use of the acoustic sources (*i.e.*, impact and vibratory pile driving and removal and DTH) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for high frequency cetaceans, phocids, and otariids because predicted auditory injury zones are larger than for other hearing groups. Auditory injury is unlikely to occur for other groups. The mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

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

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

Acoustic Thresholds

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

Level B Harassment – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.*, frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.*, bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.*, Southall *et al.*, 2007, 2021, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are

likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1 μ Pa)) for continuous (*e.g.*, vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 μ Pa for non-explosive impulsive (*e.g.*, impact pile driving) or intermittent (*e.g.*, scientific sonar) sources. This take estimation includes disruption of behavioral patterns resulting directly in response to noise exposure (*e.g.*, avoidance), as well as the resulting indirectly from the associated impacts such as Temporary Threshold Shift (TTS) or masking.

ADOT&PF’s planned activity includes the use of continuous (vibratory pile driving/removal and DTH) and impulsive (impact pile driving and DTH) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1 μ Pa are applicable.

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

These thresholds are provided in Table 3 below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS’ 2018 Technical Guidance, which may be accessed at:

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

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

Hearing Group	PTS Onset Thresholds* (Received Level)	
	Impulsive	Non-impulsive

Low-Frequency (LF) Cetaceans	<i>Cell 1</i> $L_{p,0-pk,flat}$: 219 dB $L_{E,p,LF,24h}$: 183 dB	<i>Cell 2</i> $L_{E,p,LF,24h}$: 199 dB
Mid-Frequency (MF) Cetaceans	<i>Cell 3</i> $L_{p,0-pk,flat}$: 230 dB $L_{E,p,MF,24h}$: 185 dB	<i>Cell 4</i> $L_{E,p,MF,24h}$: 198 dB
High-Frequency (HF) Cetaceans	<i>Cell 5</i> $L_{p,0-pk,flat}$: 202 dB $L_{E,p,HF,24h}$: 155 dB	<i>Cell 6</i> $L_{E,p,HF,24h}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	<i>Cell 7</i> $L_{p,0-pk,flat}$: 218 dB $L_{E,p,PW,24h}$: 185 dB	<i>Cell 8</i> $L_{E,p,PW,24h}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	<i>Cell 9</i> $L_{p,0-pk,flat}$: 232 dB $L_{E,p,OW,24h}$: 203 dB	<i>Cell 10</i> $L_{E,p,OW,24h}$: 219 dB
<p>* Dual metric 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 are recommended for consideration.</p> <p>Note: Peak sound pressure level ($L_{p,0-pk}$) has a reference value of 1 μPa, and weighted cumulative sound exposure level ($L_{E,p}$) has a reference value of 1 μPa²s. In this Table, thresholds are abbreviated to be more reflective of International Organization for Standardization standards (ISO 2017). The subscript “flat” is being included to indicate peak sound pressure are flat weighted or unweighted within the generalized hearing range of marine mammals (<i>i.e.</i>, 7 Hz to 160 kHz). 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 weighted 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 thresholds will be exceeded.</p>		

Ensonified Area

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

The sound field in the project area is the existing background noise plus additional construction noise from the planned project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.*, impact pile driving, vibratory pile driving and removal, and DTH).

The intensity of pile driving sounds is greatly influenced by factors such as the type of piles (material and diameter), hammer type, and the physical environment (*e.g.*, sediment type) in which the activity takes place. The ADOT&PF evaluated SPL

measurements available for certain pile types and sizes from similar activities elsewhere to determine appropriate proxy levels for their planned activities. The ADOT&PF also initially referred to preliminary results from a sound source verification study to determine SPLs for DTH of 8-inch tension anchors and Transmission Loss values (TLs) for all DTH activities. As discussed in the **Summary of Request** section above, a Sound Source Verification (SSV) report detailing sound source values and TL coefficients collected at the project site was subsequently submitted.

To determine appropriate proxy SPLs for impact and vibratory pile driving of all pile types, NMFS completed a comprehensive review of source levels relevant to Southeast Alaska to generate regionally-specific source levels. NMFS compiled all available data from Puget Sound and Southeast Alaska and adjusted the data to standardize distance from the measured pile to 10 meters (m). NMFS then calculated average source levels for each project and for each pile type. NMFS weighted impact pile driving project averages by the number of strikes per pile following the methodology in Navy (2015). The source levels for these various pile types, sizes and methods are listed in Table 4. Additionally, ADOT&PF requested, and NMFS agreed, to use the 24-inch sound source values for impact or vibratory pile driving of 14-inch H-piles, because the source value of smaller piles of the same general type (steel) are not expected to exceed a larger pile.

NMFS recommends treating DTH systems as both impulsive and continuous, non-impulsive sound source types simultaneously. Thus, impulsive thresholds are used to evaluate Level A harassment, and continuous thresholds are used to evaluate Level B harassment. NMFS (2022) recommended guidance on DTH systems (https://media.fisheries.noaa.gov/2022-11/PUBLIC%20DTH%20Basic%20Guidance_November%202022.pdf) outlines its recommended source levels for DTH systems. NMFS has applied that guidance in this

analysis (see Table 4 for NMFS' source levels). Note that the values in this table represent the SPL referenced to a distance of 10 m (33 (feet) ft) from the source.

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

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

Where:

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

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

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

Absent site-specific acoustical monitoring with differing measured transmission loss, a practical spreading value of 15 is used as the transmission loss coefficient in the above formula. Site-specific transmission loss data for the Tongass Narrows are not available for vibratory pile installation and removal and impact pile driving; therefore, the default coefficient of 15 is used to determine the distances to the Level A harassment and Level B harassment thresholds for these activities and associated pile types. In the case of DTH activities, ADOT&PF conducted SSV at the project site for DTH of 24-inch rock sockets and 8-inch tension anchors. NMFS reviewed the TL data from this monitoring and has incorporated the most conservative transmission loss values measured for each pile type at the project site in its analysis herein (Table 4).

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

	RMS SPL (dB re 1 μPa)	SEL _{ss} (dB re 1 μPa ² sec)	Peak SPL (dB re 1 μPa)	References Levels (TL)	TL coefficient ¹
Vibratory Hammer					

30-inch steel piles	166	NA	NA	NMFS Analysis - C. Hotchkin April 24, 2023	15
24-inch steel piles	163	NA	NA	NMFS Analysis - C. Hotchkin April 24, 2023	15
Steel 14" H-piles ²	163	NA	NA	24-inch as proxy	15
DTH of Rock Sockets and Tension Anchors – Continuous					
24-inch (Rock Socket)	167	NA	NA	Heyvaert & Reyff 2021; (Reyff and Ambaskar 2023)	19.5
8-inch DTH (Tension Anchor)	156	NA	NA	Reyff & Heyvaert 2019; Reyff 2020; (Reyff and Ambaskar 2023)	17.1
Impact Hammer					
30-inch steel piles	195	183	210	NMFS Analysis - C. Hotchkin April 24, 2023	15
24-inch steel piles	190	177	203	Caltrans 2015, Caltrans 2020	15
Steel 14" H-piles ²	190	177	203	24-inch as proxy	15
DTH of rock sockets and tension anchors - Impulsive					
24-inch (Rock Socket)	NA	159	184	Heyvaert & Reyff 2021; (Reyff and Ambaskar 2023)	19.9
8-inch (Tension anchor)	NA	144	170	Reyff 2020; (Reyff and Ambaskar 2023)	17.1

¹NMFS recommends a default transmission loss of $15 \cdot \log_{10}(R)$ when site-specific data are not available (NMFS, 2020; NMFS, 2022).

²For 14-inch H piles, NMFS uses sound source level data from 24-inch piles as a conservative proxy.

Note: all SPLs are unattenuated and represent the SPL referenced to a distance of 10 m from the source; NA = Not applicable; dB re 1 μ Pa = decibels (dB) referenced to a pressure of 1 microPascal, measures underwater SPL; dB re 1 μ Pa²-sec = dB referenced to a pressure of 1 microPascal squared per second, measures underwater Sound Exposure Level (SEL).

All Level B harassment isopleths are reported in Table 5 below. Of note, based on the geography of Tongass Narrows and the surrounding islands, sound will not reach the

full distance of the Level B harassment isopleth in most directions. Generally, due to interaction with land, only a thin slice of the possible area will be ensounded to the full distance of the Level B harassment isopleth.

Table 5 -- Level B Harassment Isopleths by Activity and Pile Size

Activity	Pile diameter (inch)	Level B harassment isopleth (m)
Vibratory Installation and Removal	30	11,659
	24	7,365
	14	
DTH Rock Sockets	24	2,572
DTH Tension Anchor	8	1,274
Impact Installation	30	2,154
	24	1,000
	14	

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

incur PTS. Inputs used in the optional User Spreadsheet tool, and the resulting estimated isopleths, are reported in Table 6 and Table 7.

Table 6 -- NMFS User Spreadsheet Inputs

	Vibratory Pile Driving		DTH		Impact	
	30-inch steel piles	24-inch steel piles or steel H-pile	Rock Socket (24-inch)	Tension Anchor (8-inch)	30-inch steel piles	24-inch steel piles or steel H-pile
	Installation or Removal	Installation or Removal	Installation	Installation	Installation	Installation
Spreadsheet Tab Used	A.1) Vibratory Pile Driving	A.1) Vibratory Pile Driving	E.2) DTH Pile Driving	E.2) DTH Pile Driving	E.1) Impact Pile Driving	E.1) Impact Pile Driving
Source Level (SPL)	166 RMS	163 RMS	167 RMS, 159 SEL	156 RMS, 144 SEL	183 SEL	177 SEL
Transmission Loss Coefficient	15	15	19.5, 19.9	17.1, 17.1	15	15
Weighting Factor Adjustment (kHz)	2.5	2.5	2	2	2	2
Activity Duration (hours) within 24 hours	*0.5 - 6	*0.5 - 8	1 - 8	1 - 8		
Strike rate strike per second			10	19		
Number of strikes per pile					50 (temporary); 200 (permanent)	50 (temporary); 200 (permanent)
Number of piles per day	1-6	1-8	1	1	1-3	1-3
Distance of sound pressure level measurement	10	10	10	10	10	10

*A range of activity durations (vibratory and DTH), strikes per pile (impact), piles per day are listed because ADOT&PF anticipates that they can install or remove piles of the same size at different rates at different sites. Duration estimates for DTH assume that multiple rock sockets and tension anchors will be installed each day, with a maximum daily duration of 8 hours.

Level A harassment thresholds for impulsive sound sources (impact pile driving and DTH) are defined for both cumulative sound exposure level (SEL_{cum}) and Peak SPL with the threshold that results in the largest modeled isopleth for each marine mammal hearing group used to establish the Level A harassment isopleth. In this project, Level A harassment isopleths based on SEL_{cum} were always larger than those based on Peak SPL. It should be noted that there is a duration component when calculating the Level A harassment isopleth based on SEL_{cum}, and this duration depends on the number of piles that will be driven in a day and strikes per pile. For some activities, ADOT&PF plans to drive variable numbers of piles per day throughout the project (See “Average Piles per Day (Range)” in Table 1 of the **Federal Register** notice for the proposed IHA, (88 FR 46746, July 20, 2023)). NMFS accounted for this variability in its analysis. For each activity, ADOT&PF provided the minimum and maximum potential durations of the activity. In some cases the difference in the Level A harassment zone size between the minimum and maximum duration anticipated for an activity for a given hearing group is quite large. ADOT&PF expressed concerns about implementing the largest Level A harassment zones for an activity on days where activity levels would be much lower, particularly given that the shutdown zones for an activity (Table 9) are based upon the Level A harassment zone sizes. Therefore, for low frequency cetaceans and phocids, in order to provide flexibility while ensuring the number of Level A harassment zones and associated shutdown zones are manageable, NMFS has identified two Level A harassment isopleths for a given activity in cases where the differences between zone sizes associated with the minimum and maximum potential activity duration spans ≥ 100 m. At the beginning of each pile driving day, ADOT&PF will determine the maximum

number or duration that piles will be driven that day and implement the Level A harassment zone associated with that amount of activity.

Table 7 -- Distances to Level A Harassment Isopleths, by Hearing Group, and Level B Harassment Zones, During Pile Installation and Removal

Activity	Pile Diameter(s) (inches)	Max. Daily Duration/Number of Piles*	Level A Harassment Isopleths, by Hearing Group (m)					Level B Harassment Isopleth (m; hearing groups)
			LF	MF	HF	PW	OW	
			Minke Whale, Fin Whale, Humpback Whale, Gray Whale	Pacific White-Sided Dolphin, Killer Whale	Harbor Porpoise, Dall's Porpoise	Harbor Seal, Northern Elephant Seal	Steller Sea Lion	
Vibratory Installation or Removal	30	≤360	48.6	4.3	71.8	29.5	2.1	11,659
	24 or 14	≤480	37.1	3.3	54.9	22.6	1.6	7,356
DTH (Rock Socket)	24	≤120	210.3	27.8	392.8	107.1	29.8	2,572
		121 - 180				214.9		
		181 - 480	344.3					
DTH (Tension Anchor)	8	≤480	118.7	6.4	138.4	68.6	6.9	1,274
Impact, 200 strikes	30	1	542.1	25.3	846.2	182.8	27.7	2,154
		2				380.2		
		3	710.4					
	24 or 14	1	136.0	10.1	336.9	72.8	11.0	1,000
		2	282.8			151.4		
		3						
Impact, 50 strikes	24 or 14	1 - 3	112.2	4.0	133.7	60.1	4.4	1,000

*For low frequency cetaceans and phocids, in cases where the Level A harassment zone spanned ≥100 m between the minimum and maximum duration for the same activity, NMFS analyzed a shorter activity duration to allow for flexibility.

Marine Mammal Occurrence and Take Estimation

In this section we provide information about the occurrence of marine mammals, including density, or group dynamics of marine mammals, that will inform the take calculations. Additionally, we describe how the occurrence information is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and authorized. Note that take estimates included in ADOT&PF's application reflect 152 construction days rather than 131 (see **Summary of Request** section, in which it is described that one site has been completed since submission of the application). A summary of take, including a percentage of population for each of the species, is shown in Table 8.

Minke Whale

There are no known occurrences of minke whales within the project area. No minke whales were reported during ADOT&PF's previous construction activities at the project site (ADOT&PF 2021, 2023), nor during other recent projects in the Tongass Narrows (*e.g.*, City of Ketchikan (COK) Rock Pinnacle Blasting Project, Sitkiewicz 2020, Ward Cove Cruise Ship Dock in 2020, Power Systems and Supplies of Alaska, 2020). However, since their range extends into the project area, and they have been observed in southeast Alaska, including in Clarence Strait (Dahlheim *et al.*, 2009), it is possible the species could occur in the project area. Still, future observations of minke whale in the project area are expected to be rare.

ADOT&PF conservatively requested take by Level B harassment of three minke whales every 4 months across the 12 months that the IHA is active. NMFS concurs with ADOT&PF's estimated group size and frequency, but finds it more appropriate to estimate take according to the number of actual months in which construction is planned. As such, NMFS conservatively authorizes four takes by Level B harassment (3 minke whales x 1.25 months = 4 takes by Level B harassment).

ADOT&PF is planning to implement shutdown zones for low-frequency cetaceans that exceed the Level A harassment isopleth for all activities. Therefore, especially in combination with the infrequent occurrence of minke whales entering the project area, implementation of the established shutdown zones is expected to eliminate the potential for take by Level A harassment of minke whale. Therefore, ADOT&PF did not request take by Level A harassment of minke whale, nor is NMFS authorizing any.

Fin Whale

Fin whales typically inhabit deep, offshore waters and often travel in open seas away from coasts, and are often observed in social groups of two to seven. However, a single fin whale was recently observed in Clarence Strait (Scheurer, personal communication). Since the ensonified area extends to the mouth of Tongass Narrows, where it meets Clarence Strait, there is a chance that fin whale could occur in the project area during construction. As such, NMFS conservatively authorizes two takes by Level B harassment of fin whale.

ADOT&PF is planning to implement shutdown zones for low-frequency cetaceans that exceed the Level A harassment isopleth for all activities. Therefore, especially given the rare occurrence of fin whale in the surrounding area, implementation of the established shutdown zones is expected to eliminate the potential for take by Level A harassment of fin whale. Therefore, ADOT&PF did not request take by Level A harassment of fin whale, nor is NMFS authorizing any.

Humpback Whale

While no systematic studies have documented humpback whale abundance near Ketchikan, anecdotal information suggests that this species is present in low numbers year-round in Tongass Narrows. Additionally, during ADOT&PF's 215 days of monitoring associated with previous construction, 80 humpback whales were observed,

or 0.37 humpback whales per day (ADOT&PF 2021, 2023). According to ADOT&PF, the average group size was 1.25 humpback whales, and the maximum group size was 4.

ADOT&PF conservatively estimates, and NMFS concurs, that one humpback whale may occur in the Level B harassment zone each day of planned in-water work (1 humpback whale x 131 days = 131 takes by Level B harassment).

ADOT&PF is planning to implement shutdown zones for low-frequency cetaceans that exceed the Level A harassment isopleth for all activities. Therefore, implementation of the established shutdown zones is expected to eliminate the potential for take by Level A harassment of humpback whale. Therefore, ADOT&PF did not request take by Level A harassment of humpback whale, nor is NMFS authorizing any.

In the proposed IHA, NMFS anticipated that all takes of humpback whale would be of the Central North Pacific stock. Given the revised stock structure described in the **Description of Marine Mammals in the Area of Specified Activities** section, NMFS has reanalyzed the potential for take of each stock of humpback whale and anticipates that the authorized takes would be of the new Hawaii stock and new Mexico- North Pacific stock. To determine the number of estimated takes of each stock, NMFS assumes that two percent of humpback whales occurring in Southeast Alaska are from the Mexico – North Pacific stock and the remaining humpback whales are from the Hawai'i stock (Wade *et al.*, 2021).

Gray Whale

Gray whales are rare in the project area and unlikely to occur in Tongass Narrows. They were not observed during the Dahlheim *et al.* (2009) surveys of Alaska's inland waters with surveys conducted in the spring, summer and fall months. No gray whales were reported during ADOT&PF's previous construction activities at the project site (ADOT&PF 2021, 2023), nor during other recent projects in the Tongass Narrows (*e.g.*, COK Rock Pinnacle Blasting Project, Sitkiewicz 2020; Ward Cove Cruise Ship

Dock in 2020, Power Systems and Supplies of Alaska, 2020). However a gray whale could migrate through or near the project, during November especially. Gray whales are generally solitary and travel together, alone, or in small groups.

ADOT&PF requested 24 takes by Level B harassment of gray whales (1 group x 2 gray whales x 12 months that the IHA is active). NMFS concurs with ADOT&PF's estimated group size and frequency, but finds it more appropriate to base take estimates on planned duration of in-water work. As such, NMFS authorizes 10 takes by Level B harassment (1 group x 2 gray whales x 5 months = 10 takes by Level B harassment).

ADOT&PF is planning to implement shutdown zones for low-frequency cetaceans that exceed the Level A harassment isopleth for all activities. Therefore, especially in combination with the low occurrence of gray whales in the project area, implementation of the planned shutdown zones is expected to eliminate the potential for take by Level A harassment of gray whale. Therefore, ADOT&PF did not request take by Level A harassment of gray whale, nor is NMFS authorizing any.

Pacific White-Sided Dolphin

Pacific white-sided dolphins were not observed during the 215 days of marine mammal monitoring associated with ADOT&PF's previous construction activities at this site (ADOT&PF 2021, 2023). There were also no sightings of Pacific white-sided dolphins during previous monitoring conducted during other recent construction projects in the Tongass Narrows (Sitkiewicz 2020, Power Systems and Supplies of Alaska, 2020).

While rare in the inside passageways of Southeast Alaska, a group of 164 Pacific white-sided dolphins were observed in the Dixon entrance to the south of Tongass Narrows during aerial surveys in 1997 (Muto *et al.* 2018), and this species was also documented in Revillagigedo Channel, Behm Canal, and Clarence Strait during surveys conducted from April to May between 1991 and 1993 (Dahlheim and Towell 1994). Finally, Dalheim *et al.* (2009) frequently encountered Pacific white-sided dolphins in

Clarence Strait. Observations were noted most typically in open strait environments, near the open ocean. Mean group size was over 20, with no recorded winter observations nor observations made in the Nichols Passage or Behm Canal, located on either side of the Tongass Narrows. This observational data, combined with anecdotal information, indicates that while Pacific white-sided dolphins are rare in the area, they could occur in the project area during construction.

ADOT&PF requested Level B harassment take of one group of 50 Pacific white-sided dolphins. However, to remain consistent with mean groups sizes detected near Tongass Narrows (Dalheim *et al.*, 2009), NMFS is authorizing three groups of 20 Pacific white-sided dolphins (60 takes by Level B harassment of Pacific white-sided dolphin).

ADOT&PF is planning to implement shutdown zones for mid-frequency cetaceans that exceed the Level A harassment isopleth for all activities. Additionally, the Level A harassment isopleths for mid-frequency cetaceans are quite small, and therefore, shutdown zones should be easily implemented. Therefore, especially in combination with the low occurrence of Pacific white-sided dolphins in the project area, implementation of the established shutdown zones is expected to eliminate the potential for take by Level A harassment of Pacific white-sided dolphin. Therefore, ADOT&PF did not request take by Level A harassment of Pacific white-sided dolphin, nor is NMFS authorizing any.

Killer Whale

While no systematic studies of killer whales have been conducted in or around Tongass Narrows, killer whales are observed in Tongass Narrows year-round, and anecdotal reports suggest they are most common during the summer Chinook salmon run (May-July) (84 FR 36891, July 30, 2019). Across the 215 days of monitoring during ADOT&PF's previous Tongass Narrows construction activities, a total of 78 killer whales were observed, for an observation rate of 0.36 per day (ADOT&PF 2021, 2023).

According to ADOT&PF, the average group size observed was 4.6 killer whales and the maximum group size was 8.

While ADOT&PF requested 180 takes by Level B harassment ((1 group x 12 killer whales x 9 months) + (2 groups x 12 killer whales x 3 months) = 180 takes by Level B harassment)), NMFS finds it more appropriate to base take estimates off the maximum group size (8 killer whales) observed during monitoring of previous construction activities and the planned duration of in-water work (5 months). As such, NMFS authorizes 64 takes by Level B harassment ((2 pods x 8 killer whales x 3 months) + (1 pod x 8 killer whales x 2 months) = 64 takes by Level B harassment).

ADOT&PF is planning to implement shutdown zones for mid-frequency cetaceans that exceed the Level A harassment isopleth for all activities. Additionally, the Level A harassment isopleths for mid-frequency cetaceans are quite small and therefore shutdown zones should be easily implemented. Therefore, implementation of the established shutdown zones is expected to eliminate the potential for take by Level A harassment of killer whale. Therefore, ADOT&PF did not request take by Level A harassment of killer whale, nor is NMFS authorizing any.

Harbor Porpoise

Abundance data for harbor porpoise in Southeast Alaska were collected during 18 seasonal surveys spanning 22 years, from 1991 to 2012 (Dahlheim *et al.* 2015). The project area falls within the Clarence Strait to Ketchikan region, as identified by this study for the survey effort. Harbor porpoise densities in this region in summer were low, ranging from 0.01 to 0.02 harbor porpoises/kilometers². During ADOT&PF's 215 days of monitoring during previous construction activities at this project site, the daily average observations of harbor porpoise in the project area was 0.1 (ADOT&PF 2021, 2023). According to ADOT&PF, the maximum group size observed during this monitoring was five.

ADOT&PF estimates that two groups of five harbor porpoise may occur in the Level B harassment zone across the 12 months that the IHA is active. NMFS concurs with ADOT&PF's estimated group size but finds it appropriate to increase the frequency of occurrence estimate in the Level B harassment zone from two groups per month to three groups per month of work. Additionally, NMFS finds it more appropriate to estimate take by Level B harassment according to the planned duration of in-water work (3 groups x 5 harbor porpoises x 5 months = 75 takes by Level B harassment).

Additionally, ADOT&PF requested take by Level A harassment of one group of five harbor porpoise every 4 months across 12 months that the IHA is active. However, NMFS finds it more appropriate to estimate take by Level A harassment according to the number of months in which the Level A harassment zone may extend beyond the established shutdown zone (*i.e.*, 2.9 months, when DTH systems may be employed to install 24-inch piles, or 24-inch and 30-inch piles may be installed with an impact pile driver (200 strikes)). As such, NMFS authorizes 15 takes by Level A harassment of harbor porpoise (1 group x 5 harbor porpoise x 2.9 months = 15 takes by Level B harassment) and 60 takes by Level B harassment ((3 groups x 5 harbor porpoise x 5 months) – 15 takes by Level A harassment = 60 takes by Level B harassment).

In the proposed IHA, NMFS anticipated that all takes of harbor porpoise would be of the Southern Southeast Alaska Inland Water stock. Given the revised stock structure described in the **Description of Marine Mammals in the Area of Specified Activities** section, NMFS has reanalyzed the potential for take of each stock of harbor porpoise and anticipates that the authorized takes would be of the new Southern Southeast Alaska Inland Waters stock, as that is the only stock that overlaps the project area.

Dall's Porpoise

Dall's porpoise have occasionally been observed during previous construction projects completed in Tongass Narrows (Power Systems and Supplies of Alaska, 2020),

including during ADOT&PF's 215 days of monitoring (ADOT&PF 2021, 2023).

ADOT&PF reported that the average group size observed was 5.6 and the maximum group size was 10. To estimate take, ADOT&PF has assumed that Dall's porpoise may occur in pods of 15 and across the 12 months that the IHA is active. NMFS finds it more appropriate to base take estimates off the maximum group size (10 Dall's porpoise) observed during monitoring of previous construction activities and according to estimated duration of planned pile driving and DTH activities.

As such, while ADOT&PF estimates that one pod of 15 Dall's porpoise may occur within the Level B harassment zone across each of the 12 months that the IHA is active, NMFS finds it more appropriate to conservatively estimate that 2 pods of 10 Dall's porpoise may occur in the Level B harassment zone each month in which in-water work is planned (2 pod x 10 Dall's porpoise x 5 months = 100).

Additionally, ADOT&PF has estimated that one pod of 15 Dall's porpoise may occur within the Level A harassment zone across the 12 months that the IHA is active. However, NMFS finds it more appropriate to estimate 10 takes by Level A harassment of Dall's porpoise across the 2.9 months in which the Level A harassment zone may extend beyond the shutdown zone for this species, which could occur when DTH systems are employed to install 24-inch piles or an impact pile driver (200 strikes) is used to install 24-inch and 30-inch piles (1 group x 10 Dall's porpoise = 10 takes by Level A harassment). Therefore, NMFS is authorizing 10 takes by Level A harassment of Dall's porpoise. Finally, the authorized take by Level B harassment has been calculated as the total calculated Dall's porpoise takes by Level B harassment minus the authorized takes by Level A harassment (100 takes by Level B harassment - 10 takes by Level A harassment = 90 takes by Level B harassment). Therefore, NMFS is authorizing 90 takes by Level B harassment of Dall's porpoise.

Steller Sea Lion

Steller sea lions may be found in Tongass Narrows year-round, with anecdotal reports suggesting an increase in abundance from March to early May during the herring spawning season, and another increase in late summer associated with salmon runs. During the 215 days of marine mammal monitoring that took place during construction of previous components of the Tongass Narrows Project, a total of 322 Steller sea lions were observed (ADOT&PF 2021, 2023). According to ADOT&PF, the average group size was 1.25 individuals and maximum group size observed was five individuals. At least one Steller sea lion was observed during each month that monitoring took place. Monitoring during construction of the nearby Ward Cove Dock recorded 4.1 individuals per day (Power Systems & Supplies of Alaska, 2020).

ADOT&PF estimates that one group of 10 Steller sea lions may be taken by Level B harassment each day that in-water work is planned. Based on ADOT&PF's 215 days of project-related monitoring, NMFS finds it more appropriate to estimate that 1 group of 5 Steller sea lions may be present in the Level B harassment zone each day (1 group x 5 Steller sea lion x 131 construction days = 655 takes by Level B harassment).

ADOT&PF is required to implement a shutdown zone that exceeds the Level A harassment zone for Steller sea lions during all project activities. However, ADOT&PF expects that Steller sea lions could enter the Level A harassment zone undetected on rare occasions. As such, ADOT&PF requests take by Level A harassment of 5 percent of Steller sea lions authorized for take by Level B harassment. NMFS concurs that, given the various structures along the shoreline in the project area, Steller sea lions could enter the Level A harassment zone and remain in the zone undetected for a long enough duration to incur PTS before a shutdown occurs. However, NMFS anticipates that 5 percent of the take by Level B harassment would result in an overestimate of Level A harassment. NMFS anticipates that 10 Steller sea lions could enter the Level A harassment zone and remain in the zone undetected for a long enough duration to incur

PTS before a shutdown occurs across the 131 days of planned in-water work. As such, NMFS is authorizing 10 takes by Level A harassment and 645 takes by Level B harassment ((1 group x 5 individuals x 131 construction days) – 10 takes by Level A harassment = 645 takes by Level B harassment).

Northern Elephant Seal

Although northern elephant seals are known to visit the Gulf of Alaska to feed on benthic prey, they rarely occur on the beaches of Alaska. Despite the low probability of northern elephant seals entering the project area, there have been recent reports of elephant seals occurring in and near the Tongass Narrows, and two northern elephant seals were observed during ADOT&PF's Tongass Narrows construction in 2022. As such, ADOT&PF requested take by Level B harassment of one elephant seal per 6-day work week. NMFS concurs that one take by Level B harassment per work week is appropriate. However, because ADOT&PF plans 7-day work weeks, NMFS calculates the total number of work weeks to occur within 131 construction days as 19 weeks rather than ADOT&PF's planned 22 weeks (1 Northern elephant seal x 19 work weeks = 19 takes by Level B harassment).

For most project activities, the established shutdown zone will exceed the Level A harassment zone for Northern elephant seal. However, the Level A harassment zone may extend beyond the established shutdown zone for this species on 37 days (when DTH systems may be employed to install 24-inch piles or 30-inch piles may be installed with an impact pile driver (200 strikes)). While unlikely given the already low occurrence of Northern elephant seals, on those days, a Northern elephant seal could occur in the Level A harassment zone and remain in the zone for a long enough duration to incur PTS, and NMFS is conservatively authorizing five takes by Level A harassment. As such, NMFS is authorizing 14 takes by Level B harassment (1 Northern elephant seal x 19 work weeks - 5 takes by Level A harassment = 14 takes by Level B harassment).

Harbor Seal

During marine mammal monitoring associated with ADOT&PF's previous Tongass Narrows construction activities, 550 harbor seals were observed with an average of 1.2 harbor seals per day and a maximum group size of 5. The COK pinnacle rock blasting project recorded a total of 21 harbor seal sightings of 24 individuals over 76.2 hours of pre- and post-blast monitoring (Sitkiewicz 2020). Additionally, information from PSOs associated with on-going construction indicates that a small number of harbor seals are regularly sighted at about 820 ft (250 m) from the project location (Wyatt, personal communication). Additionally, there are two key harbor seal haulouts about 7.1 miles (11.5 kilometers) from the project area on a mid-channel island to the southeast of the project site. Each haulout was monitored in 2022 with 10 harbor seals observed at one haulout and 50 harbor seals observed at the other (Richland, personal communication).

ADOT&PF estimates, and NMFS concurs, that up to 2 groups of 3 harbor seals could enter the Level B harassment zone per day (2 groups x 3 harbor seals x 131 days = 786). Further, NMFS also estimates that half the harbor seals occurring at the haulout sites within the project area could enter the Level B harassment zone on days when the ensonified area (during 30" vibratory pile driving) reaches these haulout sites (30 harbor seals x 13 days = 390).

ADOT&PF also estimates that 1 harbor seal could be taken by Level A harassment on each day of in-water work (1 harbor seal x 131 days = 131 takes by Level A harassment). For most project activities, the shutdown zone exceeds the Level A harassment zone. However, when an impact pile driver (200 strikes) is used to install 30-inch piles, the Level A harassment zone exceeds the associated shutdown zone. This could occur on 13 days. NMFS anticipates that three harbor seals could be taken by Level A harassment on each day that the Level A harassment isopleth for this species extends beyond the shutdown zone. Therefore, NMFS is authorizing 39 takes by Level A

harassment (3 harbor seal x 13 days =39 takes by Level A harassment) and 1,137 takes by Level B harassment (786 takes by Level B harassment + 390 takes by Level B harassment – 39 takes by Level A harassment = 1,137 takes by Level B harassment).

Table 8 -- Authorized Take by Stock and Harassment Type and as a Percentage of Stock Abundance

Species	Stock	Authorized Take		Authorized take as a percentage of stock abundance
		Level B Harassment	Level A Harassment	
Minke whale	Alaska	4	0	--
Fin whale	Northeast Pacific	2	0	0.1
Humpback whale	Hawai'i ¹	128	0	1.1
	Mexico – North Pacific ¹	3	0	--
Gray whale	Eastern North Pacific	10	0	0.04
Pacific white-sided dolphin	North Pacific	60	0	0.2
Killer whale	Eastern North Pacific Alaska Resident	64	0	3.3
	Eastern North Pacific Northern Resident			21.2
	West Coast Transient			16.3
Harbor porpoise	Southern Southeast Alaska Inland ²	60	15	8.4
Dall's porpoise	Alaska	90	10	0.8
Steller sea lion	Eastern U.S	645	10	1.5
Northern Elephant seal	California Breeding	14	5	<0.1
Harbor seal	Clarence Strait	1,137	39	4.3

¹ Given the revised stock structure for humpback whale, described in the **Description of Marine Mammals in the Area of Specified Activities** section, NMFS assumes that two percent of humpback

whales occurring in Southeast Alaska are from the Mexico – North Pacific stock and the remaining humpback whales are from the Hawai'i stock (Wade *et al.*, 2021).

² Given the revised stock structure described in the **Description of Marine Mammals in the Area of Specified Activities** section, NMFS assumed all the authorized takes would be of the new Southern Southeast Alaska Inland Waters stock, as that is the only stock that overlaps the project area.

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, and their habitat (50 CFR 216.104(a)(11)).

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

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

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

ADOT&PF must ensure that construction supervisors and crews, the monitoring team and relevant ADOT&PF staff are trained prior to the start of all pile driving and DTH activity, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work.

Protected Species Observers

ADOT&PF must employ PSOs and establish monitoring locations as described in the NMFS-approved Marine Mammal Monitoring Plan and Section 5 of the IHA.

ADOT&PF must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions.

For all vibratory pile driving and removal, ADOT&PF must employ at least three PSOs.

For all impact pile driving and DTH, ADOT&PF must employ at least two PSOs. As

noted in the **Changes from the Proposed IHA to Final IHA** section, in the proposed

IHA, NMFS proposed to require ADOT&PF to employ three PSOs for DTH activities.

After publication of the proposed IHA, ADOT&PF requested for NMFS to revise this measure to require two PSOs for DTH activities, given that the zone sizes for DTH

activities were more commensurate with that of impact pile driving. NMFS concurred,

and therefore, the final IHA requires ADOT&PF to employ at least two PSOs for DTH

activities, rather than three. The placement of the PSOs during all pile driving and

removal and DTH activities will ensure that the entire shutdown zone is visible.

Pre- and Post-Activity Monitoring

Monitoring must take place from 30 minutes prior to initiation of pile driving or DTH activity (*i.e.*, pre-clearance monitoring) through 30 minutes post-completion of pile driving or DTH activity. Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in Table 9 are clear of marine mammals. Pile driving may commence following 30 minutes

of observation when the determination is made that the shutdown zones are clear of marine mammals. Further, while not a requirement in the IHA, the 2023 Biological Opinion requires that if a work stoppage occurs and PSOs do not monitor the boundaries of the Level B harassment zone continuously during the work stoppage, the entire Level B harassment zone must be surveyed again for the presence of ESA-listed species before work may resume. Additionally, the 2023 Biological Opinion requires that in-water activities take place only between civil dawn and civil dusk when PSOs can effectively monitor for the presence of marine mammals and when the entire shutdown zone and adjacent waters are visible (*e.g.*, monitoring effectiveness is not reduced due to rain, fog, snow, *etc.*). The 2023 Biological Opinion allows for pile driving to continue for up to 30 minutes after sunset during evening civil twilight, as necessary to secure a pile for safety prior to demobilization for the evening. PSOs will continue to observe shutdown and monitoring zones during this time. The length of the post-activity monitoring period may be reduced if darkness precludes visibility of the shutdown and monitoring zones.

Soft Start

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

Shutdown Zones

For all pile driving/removal and DTH activities, ADOT&PF will establish shutdown zones (Table 9). The purpose of a shutdown zone is generally to define an area

within which shutdown of activity will occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones vary based on the activity type and duration and marine mammal hearing group (Table 9). In most cases, shutdown zones are based on the estimated Level A harassment isopleth distances for each hearing group. However, in cases where ADOT&PF asserted that it would be impracticable to shut down at the Level A harassment isopleth due to excessive work stoppages, a smaller shutdown zone has been established (*e.g.*, for high-frequency cetaceans and phocids during DTH rock socketing of 24-inch piles). Note that some of the established shutdown zones differ from those proposed by the ADOT&PF in their application (see Table 6-5 of ADOT&PF's application) due to our incorporation of sound source levels and DTH TL coefficients from ADOT&PF's SSV report.

ADOT&PF anticipates that the maximum amount of activity within a given day may vary significantly (Table 6), with large differences in maximum zones sizes possible (Table 7). Given this uncertainty and concerns related to ESA-listed humpback whales and fin whales, and practicability concerns with shutting down, ADOT&PF plans a tiered system to identify and monitor the appropriate Level A harassment zones and shutdown zones for large frequency cetaceans and phocids. This tiered system is based on the maximum expected number of piles to be installed (impact or vibratory pile driving) or the maximum expected DTH duration in a given day. At the start of each work day, ADOT&PF will determine the maximum scenario possible for that day (according to the defined duration intervals in Tables 7 and 9), which will determine the appropriate Level A harassment isopleth and associated shutdown zone for that day. This Level A harassment zone (Table 7) and associated shutdown zone (Table 9) must be implemented for the entire work day.

The placement of PSOs during all pile installation and removal, and DTH activities (described in detail in the **Monitoring and Reporting** section) will ensure that

the entire shutdown zones are visible during pile driving. If a marine mammal is observed entering or within the shutdown zones indicated in Table 9, pile driving must be delayed or halted. If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone (Table 9) or 15 minutes (non-ESA-listed species) or 30 minutes (humpback whales and fin whales) have passed without re-detection of the animal. Further, pile driving activity must be halted upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or within the harassment zone.

ADOT&PF must also avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 m of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions.

Table 9 -- Shutdown Zones and Level B Harassment Zones

Activity	Pile Diameter(s) (inches)	Duration (min; vibratory/DTH)/ # of Piles (impact)	Shutdown distances (m)					Level B harassment isopleth (m)
			LF	M F	HF	P W	O W	
Vibratory Installation or Removal, temporary and permanent	30	≤ 360	50	10	80	30	10	11,659
	24 or 14	≤ 480	40	10	60	30	10	7,365
DTH (Rock Socket)	24	≤ 120	220	30	300	110	30	2,572
		121 – 180						
		181 – 480	350	220				
DTH (Tension Anchor)	8	≤ 480	170	10	140	70	10	1,274
Impact permanent	30	1	550	30	300	190	30	2,154
		2						

		3	72 0			0		
	24 or 14	1	14 0	10	30 0	80	20	1,000
		2	29			16		
		3	0			0		
Impact, temporary	24 or 14	1 - 3	12 0	10	14 0	60	10	1,000

Based on our evaluation of the applicant's planned measures, as well as other measures considered by NMFS, NMFS has determined that the required 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 while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

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

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better

understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the activity; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);

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

Visual Monitoring

Monitoring must be conducted by qualified, NMFS-approved PSOs, who will be present during all pile installation and removal activities, including vibratory, impact, and DTH methods, in accordance with the following:

- PSOs must be independent (*i.e.*, not construction personnel) and have no other assigned tasks during monitoring periods;
- At least one PSO must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued IHA;
- Other PSOs may substitute other relevant experience, education (degree in biological science or related field), or training for prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued IHA;
- Where a team of three or more PSOs is required, a lead observer or monitoring coordinator must be designated. The lead observer must have prior experience

performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization; and

- PSOs must be approved by NMFS prior to beginning any activity subject to this IHA.

PSOs should have the following additional qualifications:

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

A minimum of one PSO (the lead PSO) must be assigned to the active pile driving or DTH location to monitor the shutdown zones and as much of the harassment zones as possible. The observation points of the additional PSOs may vary depending on the construction activity and location of the piles. During impact pile driving or DTH activities, the second PSO will select the best location to observe as much of the Level A harassment and Level B harassment zones as possible. To select the best observation locations during vibratory installation and removal, prior to start of construction, the lead

PSO will stand at the construction site to monitor the shutdown zones while two or more PSOs travel in opposite directions from the project site along Tongass Narrows until they have reached the edge of the Level B harassment zone, where they will identify suitable observation points from which to observe. If visibility deteriorates so that the entire width of Tongass Narrows at the harassment zone boundary is not visible, additional PSOs may be positioned so that the entire width is visible, or work will be halted until the entire width is visible to ensure that any humpback whales or fin whales entering or within the harassment zone are detected by PSOs.

PSOs must record all observations of marine mammals, regardless of distance from the pile being driven. PSOs shall document any behavioral reactions in concert with distance from piles being driven or removed.

Reporting

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

Specifically, the report must include:

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including the number and type of piles driven or removed and by what method (*i.e.*, impact, vibratory or DTH), the total equipment duration for vibratory installation/removal or DTH for each pile or hole and total number of strikes for each pile (impact driving);
- PSO locations during marine mammal monitoring;
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea

state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;

- Upon observation of a marine mammal, the following information: Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting; Time of sighting; Identification of the animal(s) (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species; Distance and bearing of each marine mammal observed relative to the pile being driven for each sighting (if pile driving was occurring at time of sighting); Estimated number of animals (min/max/best estimate); Estimated number of animals by cohort (adults, juveniles, neonates, group composition, sex class, *etc.*); Animal's closest point of approach and estimated time spent within the harassment zone; Description of any marine mammal behavioral observations (*e.g.*, observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (*e.g.*, no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);
- Number of marine mammals detected within the harassment zones, by species;
- Detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.

ADOT&PF must also submit all PSO datasheets and/or raw sighting data with the draft report, as specified in condition 6(b) of this IHA.

If no comments are received from NMFS within 30 days, the draft 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.

Reporting Injured or Dead Marine Mammals

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the IHA-holder must immediately cease the specified activities and report the incident to the Office of Protected Resources (OPR), NMFS and to the NMFS 24-hour Stranding Hotline as soon as feasible. If the death or injury was clearly caused by the specified activity, ADOT&PF must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. The IHA-holder must not resume their activities until notified by NMFS. The report must include the following information:

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

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the

likely nature of any impacts or responses (*e.g.*, intensity, duration), the context of any impacts or responses (*e.g.*, critical reproductive time or location, foraging impacts affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338, September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

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

Pile driving and DTH 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 and, for some species Level A harassment, from underwater sounds generated by pile driving and DTH. Potential takes could occur if marine mammals are present in zones ensounded above the thresholds for Level B harassment or Level A harassment, identified above, while activities are underway.

NMFS does not anticipate that serious injury or mortality will occur as a result of ADOT&PF's planned activity given the nature of the activity, even in the absence of

required mitigation. Further, no take by Level A harassment is anticipated for Pacific white-sided dolphin, killer whale, humpback whale, gray whale, fin whale, or minke whale, due to the likelihood of occurrence and/or required mitigation measures. As stated in the mitigation section, ADOT&PF will implement shutdown zones that equal or exceed many of the Level A harassment isopleths shown in Table 9. Take by Level A harassment is authorized for some species (Steller sea lion, harbor seal, northern elephant seal, harbor porpoise, and Dall's porpoise) to account for the potential that an animal could enter and remain within the area between a Level A harassment zone and the shutdown zone for a duration long enough to be taken by Level A harassment, and in some cases, to account for the possibility that an animal could enter a shutdown zone without detection given the various obstructions along the shoreline, and remain in the Level A harassment zone for a duration long enough to be taken by Level A harassment before being observed and a shutdown occurring. Any take by Level A harassment is expected to arise from, at most, a small degree of PTS because animals would need to be exposed to higher levels and/or longer duration than are expected to occur here in order to incur any more than a small degree of PTS. Additionally, and as noted previously, some subset of the individuals that are behaviorally harassed could also simultaneously incur some small degree of TTS for a short duration of time. Because of the small degree anticipated, though, any PTS or TTS potentially incurred here is not expected to adversely impact individual fitness, let alone annual rates of recruitment or survival.

For all species and stocks, take is expected to occur within a limited, confined area (adjacent to the project site) of the stock's range. The intensity and duration of take by Level A harassment and Level B harassment will be minimized through use of mitigation measures described herein. Further the amount of take authorized is small when compared to stock abundance.

Behavioral responses of marine mammals to pile driving, pile removal, and DTH at the sites in Tongass Narrows are expected to be mild, short term, and temporary. Marine mammals within the Level B harassment zones may not show any visual cues they are disturbed by activities or they could become alert, avoid the area, leave the area, or display other mild responses that are not visually observable such as changes in vocalization patterns. Given that pile driving, pile removal, and DTH will occur for only a portion of the project's duration and often on nonconsecutive days, any harassment would be temporary. Additionally, many of the species present in Tongass Narrows would only be present temporarily based on seasonal patterns or during transit between other habitats. These species would be exposed to even shorter periods of noise-generating activity, further decreasing the impacts.

As previously described, a UME has been declared for gray whales. However, we do not expect the takes authorized herein to exacerbate the ongoing UME. No serious injury or mortality of gray whales is expected or authorized, and take by Level B harassment is limited (10 takes over the duration of the authorization). As such, the authorized take by Level B harassment of gray whale is not expected to exacerbate or compound upon the ongoing UME.

For all species except humpback whales, there are no known BIAs near the project zone that will be impacted by ADOT&PF's planned activities. For humpback whales, the inland waters of Southeast Alaska is a seasonal feeding BIA from May through September (Wild *et al.*, 2023), however, the mouth of Tongass Narrows is a small passageway and represents a very small portion of the total available habitat. Also, while southeast Alaska is considered an important area for feeding humpback whales during this time, it is not currently designated as critical habitat for humpback whales (86 FR 21082, April 21, 2021).

More generally, there are no known calving or rookery grounds within the project area, but anecdotal evidence from local experts shows that marine mammals are more prevalent in Tongass Narrows and Clarence Strait during spring and summer associated with feeding on aggregations of fish, meaning the area may play a role in foraging. Because ADOT&PF's activities could occur during any season, takes may occur during important feeding times. However, the project area represents a small portion of available foraging habitat and impacts on marine mammal feeding for all species, including humpback whales, should be minimal.

Any impacts on marine mammal prey that occur during ADOT&PF's planned activity are expected to have, at most, short-term effects on foraging of individual marine mammals, and likely no effect on the populations of marine mammals as a whole. Indirect effects on marine mammal prey during the construction are expected to be minor, and these effects are unlikely to cause substantial effects on marine mammals at the individual level, with no expected effect on annual rates of recruitment or survival.

In addition, it is unlikely that minor noise effects in a small, localized area of habitat will have any effect on the reproduction or survival of any individuals, much less the stocks' annual rates of recruitment or survival. 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.

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

- No serious injury or mortality is anticipated or authorized;

- Take by Level A harassment of Pacific white-sided dolphin, killer whale, humpback whale, fin whale, gray whale, or minke whale is not anticipated or authorized;
- ADOT&PF will implement mitigation measures including soft-starts for impact pile driving and shutdown zones to minimize the numbers of marine mammals exposed to injurious levels of sound, and to ensure that any take by Level A harassment is, at most, a small degree of PTS;
- The intensity of anticipated takes by Level B harassment is relatively low for all stocks and will not be of a duration or intensity expected to result in impacts on reproduction or survival;
- There are 10 known areas of specific biological importance, covering a broad area of southeast Alaska, for humpback whales. The project area overlaps a very small portion of one of these BIAs. No other known areas of particular biological importance to any of the affected species or stocks are impacted by the activity, including ESA-designated critical habitat;
- The project area represents a very small portion of the available foraging area for all potentially impacted marine mammal species and stocks and anticipated habitat impacts are minor; and
- Monitoring reports from similar work in Tongass Narrows have documented little to no effect on individuals of the same species impacted by the specified activities.

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 planned activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

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

The authorized number of instances of take is below one-third of the estimated stock abundance for all stocks (see Table 8). The number of animals authorized to be taken from these stocks would be considered small relative to the relevant stocks' abundances even if each estimated taking occurred to a new individual, which is an unlikely scenario. Some individuals may return multiple times in a day, but PSOs will count them as separate takes if they cannot be individually identified.

The Alaska stock of Dall's porpoise has no official NMFS abundance estimate, as the most recent estimate is greater than 8 years old. The most recent estimate was 13,110 animals for just a portion of the stock's range. Therefore, the 100 authorized takes of this stock clearly represent small numbers of this stock.

The Mexico – North Pacific stock of Humpback Whale has no official NMFS abundance estimate, as the most recent estimate is greater than 8 years old. The most recent estimate was 571 animals for just a portion of the stock's range (Revillagigedo Archipelago). Therefore, the three takes of this stock authorized clearly represent small numbers of this stock.

There is no current or historical estimate of the Alaska minke whale stock, but there are known to be over 1,000 minke whales in the Gulf of Alaska (Muto *et al.* 2018), so the 4 takes authorized is small relative to estimated survey abundance, even if each take occurred to a new individual. Additionally, the range of the Alaska stock of minke whales is extensive, stretching from the Canadian Pacific coast to the Chukchi Sea, and ADOT&PF's project area will impact a small portion of this range.

The best available abundance estimate for fin whale is not considered representative of the entire stock as surveys were limited to a small portion of the stock's range, but there are known to be over 2,500 fin whales in the northeast Pacific stock (Muto *et al.* 2021). As such, the two takes authorized is small relative to the estimated survey abundance, even if each take occurred to a new individual.

Based on the analysis contained herein of the planned activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals are expected to 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.

Harbor seals are the marine mammal species most regularly harvested for subsistence by households in Ketchikan and Saxman (a community a few miles south of Ketchikan, on the Tongass Narrows). Eighty harbor seals were harvested by Ketchikan residents in 2007, which ranked fourth among all communities in Alaska that year for harvest of harbor seals. Thirteen harbor seals were harvested by Saxman residents in 2007. In 2008, two Steller sea lions were harvested by Ketchikan-based subsistence hunters, but this is the only record of sea lion harvest by residents of either Ketchikan or Saxman. In 2012, the community of Ketchikan had an estimated subsistence take of 22 harbor seals and 0 Steller sea lion (Wolf *et al.* 2013). NMFS is not aware of more recent data. Hunting usually occurs in October and November (Alaska Department of Fish and Game (ADF&G) 2009), but there are also records of relatively high harvest in May (Wolfe *et al.* 2013). The ADF&G has not recorded harvest of cetaceans from Ketchikan or Saxman (ADF&G 2023).

All project activities are planned to take place within the industrial area of Tongass Narrows immediately adjacent to Ketchikan where subsistence activities do not generally occur. Both harbor seals and Steller sea lions may be temporarily displaced from the project area. The project will also not have an adverse impact on the availability of marine mammals for subsistence use at locations farther away where these construction activities are not expected to take place. Some minor, short-term harassment of the harbor seals could occur, but given the information above, we do not expect such harassment to have effects on subsistence hunting activities.

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

Endangered Species Act

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

NMFS is authorizing take of the Mexico – North Pacific stock of humpback whale, and fin whale, which are listed as threatened or endangered under the ESA. The NMFS AKRO issued a Biological Opinion under section 7 of the ESA on the issuance of an IHA to ADOT&PF under section 101(a)(5)(D) of the MMPA by NMFS OPR. The biological opinion concluded that the action is not likely to jeopardize the continued existence of the listed species.

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 proposed actions (*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

NMFS has issued an IHA to ADOT&PF for the potential harassment of small numbers of 11 marine mammal species incidental to ferry berth construction in Tongass Narrows in Ketchikan, Alaska, that includes the previously explained mitigation, monitoring, and reporting requirements.

Dated: September 11, 2023.

Kimberly Damon-Randall,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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