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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XA116]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Gastineau Channel Historical Society Sentinel Island Moorage Float Project, Juneau, 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 Gastineau Channel Historical Society (GCHS) to incidentally harass, by Level B harassment only, marine mammals during construction activities associated with the Sentinel Island Moorage Float project near Juneau, Alaska.

DATES: This Authorization is effective from July 15, 2020 to September 20, 2020.

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

SUPPLEMENTARY INFORMATION:

Background

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

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

The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On 24 October 2019, NMFS received a request from GCHS for an IHA to take marine mammals incidental to Sentinel Island Moorage Float project near Juneau, Alaska. The application was deemed adequate and complete on February 7, 2020. GCHS's request is for take of seven species (consisting of eight stocks) of marine mammals by Level B harassment and/or Level A harassment. Neither GCHS nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of the Specified Activity

Overview

The project consists of the construction of an access float to more easily access Sentinel Island within Favorite Channel/Lynn Canal near Juneau, Alaska. GCHS would install a pile supported marine float with a metal gangway spanning from the float to a timber platform on Sentinel Island. The project includes the following in-water components: driving six 24-inch diameter steel pipe piles to support the float and seaward end of the gangway. Pile driving would be by vibratory pile driving to install the piles until down-the-hole (DTH) drilling is needed to rock socket the piles. Impact pile driving will only be used for piles that encounter soils too dense to penetrate with the vibratory equipment, which is not expected. A detailed description of the planned project is provided in the **Federal Register** notice for the proposed IHA (85 FR 18196; April 1, 2020). Since that time, no changes have been made to the planned activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

Comments and Responses

A notice of NMFS's proposal to issue an IHA to GCHS was published in the **Federal Register** on April 1, 2020 (85 FR 18196). That notice described, in detail, GCHS's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received comments from Defenders of Wildlife (Defenders). A comment letter from the Marine Mammal Commission (Commission) was received pursuant to the Commission's authority to recommend steps it deems necessary or desirable to protect and conserve marine mammals (16 U.S.C. 1402). We are obligated to respond to the Commission's recommendations within 120 days, and we do so below.

Comment: Defenders suggested that an additional local location where Steller sea lions aggregate is Poundstone Rock buoy which is 1.6 miles (2.6 km) from the southern end of Sentinel Island. They assert the buoy is in the Level B harassment zone and request we confirm this and state if take would occur at this location. They also request Protected Species Observers (PSOs) be notified of this resting area.

Response: We thank Defenders for noting this additional location. Poundstone Rock and buoy are several hundred meters to the west of the level B harassment zone so animals resting there would not be taken as a result of this project.

Comment: Defenders requests we ground truth the data of Wade *et al*. (2016) with regard to the proportion of humpback whales of the Endangered Species Act (ESA) listed Mexico Distinct Population Segment (DPS) in southeast Alaska.

Response: We thank Defenders for their comments. Our obligation under the MMPA is to issue incidental take authorizations for stocks of marine mammals (or species when stocks have not been assigned). The relevant stock in this area is the Central

North Pacific stock. The DPSs created under the ESA are only relevant for regulatory actions under that law. NMFS's Alaska Regional office conducted an ESA Section 7 consultation on this IHA which concluded that NMFS authorization of take of humpback whales under the MMPA is not likely to jeopardize continued existence of humpback whales (or any other ESA-listed species), and is not likely to destroy or adversely modify any critical habitat (specifically, western DPS Steller sea lion).

Comment: Defenders also encourages us to reference and discuss a new paper by Southall *et al*. (2019) regarding marine mammal noise exposure criteria.

Response: We appreciate Defenders comment. NMFS has reviewed the Southall *et al*. (2019) paper in the context of NMFS' 2018 Revised Technical Guidance. The paper recommends the same thresholds and weighting functions as NMFS' 2018 Technical Guidance and no changes are necessary in our analysis.

Comment: The Commission recommends that NMFS convey any concerns of local native Alaska communities in the **Federal Register** notices for draft and final authorizations regarding subsistence use and how those concerns will be addressed by either the applicant or NMFS.

Response: We agree with the Commission. 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. Sealaska Heritage Institute requested, and GCHS indicated that it would require the contractor to provide public notice 7 days in advance of the project and again 2 days before construction

commences in the local media and to post information signage on the board at the Amalga Harbor boat launch 7 days prior to commencement of construction activities.

Comment: The Commission recommends that for all authorizations involving DTH drilling, including GCHS's final IHA, NMFS (1) use source level data from Denes *et al*. (2019), its Level A harassment thresholds for impulsive sources, and the relevant expected operating parameters to estimate the extents of the Level A harassment zones, (2) use source level data from Denes *et al*. (2016) and its Level B harassment threshold of 120-decibels (dB) for continuous sources to estimate the extents of the Level B harassment zones, (3) ensure the shut-down zones are reasonable to minimize unnecessary delays and enable the activities to be completed in a timely manner, and (4) ensure that the numbers of Level A and B harassment takes are sufficient based on the resulting zones, including in GCHS's case the Level A harassment takes.

Response: NMFS acknowledges that DTH piling operations can, but may not always, include both impulsive and continuous noise components. The limited available data show that the specific acoustic characteristics of any particular DTH piling operation can vary significantly, based on the extent of the continuous non-pulse acoustic components of the drilling/pumping and the impulsive acoustic components of the hammering, as well as the nature of the environment (especially bottom characteristics). Currently, given the potential variation in the acoustic output from any specific operation and the limited in situ measurements of DTH piling available, NMFS is taking a conservative approach until more data are available. Specifically, we recommend estimating the potential impulsive components (and using the associated thresholds) of the operations for the purposes of predicting Level A harassment and estimating the

potential continuous components (and using the associated threshold) for the purposes of predicting Level B harassment. As recommended, we have used the Denes *et al*. (2016) source level as a proxy source level for the purposes of the Level B harassment assessment. For the purposes of the Level A harassment assessment, while using Denes *et al*. (2019) may be more appropriate for larger pile sizes, Denes *et al*. (2016), which shows a single strike source level of 154 dB SEL, is the most relevant and appropriate source level for the 24-inch pile size of this project.

we have recently received new analyses and data that provide us three references for source levels. For the 24-inch pile size of this project the most relevant source level is Denes *et al*. (2016), which new analyses show has a single strike source level of 154 dB (Sound Exposure Level) SEL.

We note that it is not a simple matter to estimate the strikes per pile needed as input to calculate Level A harassment isopleths. DTH equipment varies significantly in hammer rates both within and across hole sizes. For example, we note that the Commission's recommendation of 7 to 10 strikes per second is far below values we know to be applicable for equipment of this size (*e.g.,* the equipment used at Ward Cove (85 FR 12523; March 3, 2020), operated at 15 strikes per second). We further note that the Commission is under the impression that the appropriate pulse duration for DTH hammering is 100 milliseconds (msec), a standard value applied to impact hammers. There is no reason to assume DTH hammers have a similar pulse duration, and in fact Denes *et al*. (2019) provided data on pulse durations. We also note that Denes *et al*. (2019) used a 42-inch drill bit to drill much larger holes than the 24-inch drill holes of this project. The larger drill bits likely create louder sounds from the larger area of

contact with rock, which means that the Level A harassment zones would be overestimated to some degree for this project.

Finally, we have ensured that the shut-down zones are reasonable to minimize unnecessary delays and enable the activities to be completed in a timely manner, and that the numbers of Level A and B harassment takes are sufficient based on the new zones.

Comment: The Commission recommends that NMFS encourage action proponents to provide the necessary operational information and characteristics for DTH drilling, use consistent terminology regarding DTH drilling in all relevant applications, and use consistent terminology in all future **Federal Register** notices and draft and final authorizations that involve DTH drilling.

Response: We agree with the Commission that as knowledge of the variety of DTH methods and uses grows, more information from applicants on operational information and characteristics of DTH drills, and more consistent terminology, is beneficial. We note that many applicants do not know exactly what DTH equipment they will use at the time of application and that DTH equipment appears to have more variable operational parameters than impact or pile driving. The lack of data on the extremes of these operational parameters for DTH systems makes implementing even conservative assumptions challenging. The Commission could be of great service by helping to gather and publish the relevant information from literature and experts to increase our understanding of these systems.

Comment: The Commission recommends that NMFS require all applicants that propose to use a DTH hammer to install piles, including GCHS, to conduct in-situ

measurements, ensure that signal processing is conducted appropriately, and adjust the Level A and B harassment zones accordingly.

Response: We will evaluate the need to require such measures for future projects on a case-by-case basis, though we acknowledge the general need for more data on these sources.

Comment: The Commission recommends that NMFS (1) ensure that take estimates for all proposed IHAs and rulemakings and for GCHS's final authorization abide by its policy that an individual marine mammal can be taken only once on a given day and specify that policy on its webpage, (2) increase the haulout count from 134 to 849 seals based on the 95-percent CI for seals at CF13 and CF11 [Marine Mammal lab survey unit descriptors] and authorize at least 5,094 takes of harbor seals in the final authorization, and (3) specify that 849 individual seals could be taken and factor that number into the percentage of the stock taken and its small numbers determination.

Response: For the purposes of predicting and authorizing take, NMFS' general practice is to limit the enumeration of take of individual marine mammals to once per day and we plan to augment our application instructions on the web to indicate this. For the purposes of monitoring impacts, we clarify the difference between takes and potential daily number of observations that PSOs may or may not be able to attribute to single individuals throughout the course of a day. We disagree with the Commission that take be increased for unit CF11. Unit CF 11 is not within the level B harassment zone and the Commission provided no evidence that animals from CF11 enter the Level B harassment zone. CF12 and CF13 areas are larger than the project area so, regardless of whether animals from other areas move in and out, the total number of animals surveyed from

those areas represent a conservative estimate of the maximum number of individuals that might be present and taken during the course of a day.

Comment: The Commission recommends that NMFS ensure GCHS keeps a running tally of the total takes, based on observed and extrapolated takes, for Level A and B harassment.

Response: We agree that the applicant must ensure they do not exceed authorized takes. A condition for extrapolation of the estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible is included.

Comment: The Commission recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated **Federal Register** notice process. They further recommend that if NMFS uses renewals, we (1) stipulate in all **Federal Register** notices and authorizations that a renewal is a one-time opportunity and, (2) if NMFS refuses to stipulate a renewal being a one-time opportunity, explain why it will not do so. The Commission also claimed that NMFS' failure to address the Commission's comments and recommendations in the decision document runs counter to the requirements of the Administrative Procedures Act (APA).

Response: NMFS has changed their website and templates to reflect that Renewals are a one-time opportunity. Regarding the recommendation to refrain from using the Renewal process, NMFS does not agree with the Commission and, therefore, does not adopt the Commission's recommendation. NMFS has explained the rationale for this decision in multiple Federal Register notices (e.g., 84 FR 52464; October 02, 2019),

nonetheless, NMFS will also provide a separate detailed explanation of its decision within 120 days, as required by section 202(d) of the MMPA.

Comment: The Commission recommended that NMFS continue to include in all draft and final IHAs the explicit requirements to cease activities if a marine mammal is injured or killed during the proposed activities until NMFS reviews the circumstances involving any injury or death that has been attributed to the activities and determines what additional measures are necessary to minimize additional injuries or deaths.

Response: NMFS concurs with the Commission's recommendation as it relates to this IHA, and construction IHAs in general, and has added the referenced language to the **Monitoring and Reporting** section of this notice and the Reporting section of the issued IHA. We will continue to evaluate inclusion of this language in future IHAs.

Changes from the Proposed IHA to Final IHA

The vibratory pile driving source level for 16 inch piles from the U.S. Navy (2015) was corrected to 162 dB (SPL (root mean square) rms) from 161 dB in the proposed rule. We clarified the actual take is limited to one take per animal per day, and that calculations of total instances of sightings per day that may initially be made by observers cannot exceed more than 1 take per individual per day from the known population in the area (See **Estimated Take** section for revised description). The condition for extrapolation of the estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible was inadvertently omitted in the proposed IHA **Federal Register** notice and is now included.

As discussed above in the **Comments and Responses** section, we are changing the approach to DTH hammering so that we estimate the potential impulsive components (using the associated thresholds) of the operations for the purposes of predicting Level A harassment and estimate the potential continuous components (using the associated threshold) for the purposes of predicting Level B harassment. We use the Denes *et al*. (2016) source level of 154 dB single strike SEL as a proxy source level for the purposes of the Level A harassment assessment and continue to use the 166.2 dB RMS) source level for Level B calculations. As a result new Level A harassment zones (see **Estimated Take** section below) and shutdown zones (see **Mitigation** section below) are incorporated. These new zones are smaller than the existing zones for impact pile driving, and since the different pile driving activities are likely to occur on the same day, there is no change to estimated take. We add the explicit requirements to cease activities if a marine mammal is injured or killed during the proposed activities until NMFS reviews the circumstances to the **Monitoring and Reporting** section of this notice and the Reporting section of the issued IHA. Typographical errors were corrected.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.*, physical and

behavioral descriptions) may be found on NMFS's website (*https://www.fisheries.noaa.gov/find-species*).

Table 1 lists all species with expected potential for occurrence in Juneau, Alaska and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2019). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for 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's U.S. Alaska SARs (*e.g.*, Muto *et al*., 2019). All values presented in Table 1 are the most recent available at the time of publication and are available in the draft 2019 SARs (Muto *et al*., 2019).

Table 1 -- Marine Mammals Potentially Present in the Vicinity of the Study Areas

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, N_{min}, most recent abundance survey)[2]	PBR	Annual M/SI[3]
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Physeteridae						
Sperm whale	*Physeter macrocephalus*	North Pacific	-; N	N/A (see SAR, N/A, 2015), see text	See SAR	4.4
Family Balaenopteridae (rorquals)						
Humpback Whale	*Megaptera novaeangliae*	Central North Pacific	-;N (Hawaii DPS)	10,103 (0.3, 7,890, 2006)	83	25
		Central North Pacific	T,D,Y (Mexico DPS)	3264	N/A	N/A
Minke whale[4]	*Balaenoptera acutorostrata*	Alaska	-; N	N/A, see text	N/A	0
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Killer whale[5]	*Orcinus orca*	Alaska Resident Northern Resident West Coast transient	-; Y	2347 261 243	24 1.96 2.4	1 0 0
Family Phocoenidae (porpoises)						
Dall's porpoise[4]	*Phocoenoides dalli*	Alaska	-;N	83,400 (0.097, N/A, 1991)	N/A	38
Harbor porpoise	*Phocoena phocoena*	Southeast Alaska	-; Y	975 (2012)	8.9	34
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
Steller sea lion	*Eumetopias jubatus*	Eastern U.S.	-; N	41,638 (n/a; 41,638; 2015)	2,498	108
Steller sea lion	*Eumetopias jubatus*	Western U.S.	E,D,Y	54,268 (see SAR, 54,267, 2017)	326	247
Family Phocidae (earless seals)						
Harbor seal	*Phoca vitulina richardii*	Lynn Canal/Stephens Passage	-; N	9,478 (see SAR, 8,605, 2011)	155	50

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

[2]- NMFS marine mammal SARs 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

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

[4] - The most recent abundance estimate is >8 years old, there is no official current estimate of abundance available for this stock.

[5] - NMFS has preliminary genetic information on killer whales in Alaska which indicates that the current stock structure of killer whales in Alaska needs to be reassessed. NMFS is evaluating the new genetic information. A complete revision of the killer whale stock assessments will be postponed until the stock structure evaluation is completed and any new stocks are identified" (Muto, Helker *et al*. 2018). For the purposes of this IHA application, the existing stocks are used to estimate potential takes.

All species that could potentially occur in the proposed survey areas are included in Table 1. As described below, seven species (with eight managed stocks) temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur, and we have proposed authorizing it. Sperm whales are considered extra-limital and will not be considered further.

A detailed description of the of the species likely to be affected by the project, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (85 FR 18196; April 1, 2020); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (*https://www.fisheries.noaa.gov/find-species*) for generalized species accounts.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from GCHS's construction activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the survey area. The notice of proposed IHA (85 FR 18196; April 1, 2020) included a discussion of the effects of anthropogenic noise on marine mammals and the potential effects of underwater noise from GCHS's activities on marine mammals and their habitat. That information and analysis is incorporated by reference into this final IHA

determination and is not repeated here; please refer to the notice of proposed IHA (85 FR 18196; April 1, 2020).

Estimated Take

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

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

Authorized takes would primarily be by Level B harassment, as use of the acoustic source (*i.e.*, vibratory or impact pile driving or DTH drilling) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for mysticetes, high frequency species and pinnipeds because predicted auditory injury zones are larger than for mid-frequency species. Auditory injury is unlikely to occur for mid-frequency species and otariids. The proposed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

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

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

Acoustic Thresholds

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur Permanent Threshold Shift (PTS) of some degree (equated to Level A harassment).

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both

predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 microPascal (μPa) (rms) for continuous (*e.g.,* vibratory pile-driving, drilling) and above 160 dB re 1 μPa (rms) for non-explosive impulsive (*e.g.*, impact pile driving) or intermittent (*e.g.*, scientific sonar) sources.

GCHS's proposed activity includes the use of continuous (vibratory pile-driving and DTH drilling) and impulsive (impact pile-driving and DTH drilling) sources, and therefore the 120 and 160 dB re 1 μPa (rms) thresholds are applicable.

Level A harassment for non-explosive sources - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (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). GCHS's activity includes the use of impulsive (impact pile-driving) sources.

These thresholds are provided in Table 2. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*.

Table 2 -- Thresholds identifying the Onset of Permanent Threshold Shift

	PTS Onset Acoustic Thresholds*

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

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

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

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient. For DTH, as discussed above, we now estimate the potential impulsive components (using the associated thresholds) of DTH operations for the purposes of predicting Level A harassment using relevant impulsive source levels, and we estimate the potential continuous components of DTH (using the

associated threshold) for the purposes of predicting Level B harassment using relevant continuous source levels.

For vibratory pile driving we determined a source level of 162 dB (RMS SPL) at 10m was most appropriate. The closest known measurements of sound levels for vibratory pile installation of 24-inch steel piles are from the U.S. Navy Proxy Sound Source Study for projects in Puget Sound (U.S. Navy 2015). Based on the projects analyzed it was determined that 16- to 24-inch piles exhibited similar sound source levels. For DTH drilling we use a source level of 166.2 dB (RMS SPL) for Level B harassment zones; this is derived from Denes *et al*. (2016), where they drilled 24-inch piles near Kodiak, AK. For Level A harassment zones for DTH drilling we use the single strike source level of 154 dB SEL that was recently calculated from the same Kodiak project. To be conservative, since DTH drilling and vibratory pile driving would occur on the same day, the applicant used the higher of the vibratory and DTH source levels (162 dB ssSEL for level A and 166.2dB rms for level B harassment) for both Level A and Level B calculations and assumed all drilling/driving time in a day was at this higher level. For impact pile driving of 24-inch piles, sound measurements were used from the literature review in Appendix H of the Alaska Department of Transportation (AKDOT&PF) study (Yurk *et al*. 2015) for 24-inch piles driven in the Columbia River with a diesel impact hammer (190 dB RMS, 205 dB Peak, 175 dB SS SEL).

We assumed no more than two piles per day with DTH drilling as the duration per pile was assumed to be 6 hours. For impact pile driving activities we also assumed no more than 2 piles per day and 250 strikes per pile. In all cases we used a propagation loss coefficient of 15 logR as most appropriate for these stationary, in-shore sources.

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

NMFS User spreadsheet input scenarios for vibratory pile driving/DTH drilling and impact pile driving are shown in Table 3. These input scenarios lead to PTS isopleth distances (Level A thresholds) of anywhere from 7 to 220 meters (22 to 720 ft), depending on the marine mammal group and scenario (Table 4).

Table 3 -- NMFS User Spreadsheet Inputs

USER SPREADSHEET INPUT			
	Vibratory pile driving/DTH drilling - continuous	**DTH drilling - impulsive**	**Impact pile driving**
Spreadsheet Tab Used	A.1) Vibratory pile driving	E.1-2) Impact pile driving	E.1) Impact pile driving

Source Level	166.2 dB RMS	154 dB SS SEL	175 dB SS SEL
Weighting Factor Adjustment (kHz)	2.5	2	2
a) Number of strikes per pile	N/A	10,000	250
a) Activity Duration (h:min) within 24-h period	12:00	N/A	N/A
Propagation (xLogR)	15	15	15
Distance of source level measurement (meters)	10	10	10
Number of piles per day	2	2	2

Table 4 -- NMFS User Spreadsheet Outputs: Level B and Level A (PTS) Isopleths

Activity	**Behavioral Disturbance (Level B)**	**PTS isopleths (meters) (Level A)**				
	All Species	**Humpback + Minke Whales**	**Killer Whales**	**Harbor + Dall's Porpoise**	**Harbor Seals**	**Stellar Sea Lions**
Vibratory Driving/ DTH drilling - continuous	12.1 km (7.5 miles)*	80 m (263 ft)	7 m (23 ft)	118 m (387 ft)	48 m (158 ft)	4 m (13 ft)
DTH drilling - impulsive	N/A	137 m (447 ft)	5 m (16 ft)	163 m (532 ft)	73 m (239 ft)	6 m (17 ft)
Impact Driving	1 km (3280 ft)	184 m (605 ft)	7 m (23 feet)	220 m (720 ft)	99 m (325 ft)	8 m (25 ft)

*Lynn Canal is smaller than this, therefore extent of actual impacts will be constrained by land.

The distances to the Level B harassment threshold of 120 dBrms are 12.1 kilometers (km) (7.5 miles (mi)) for vibratory pile driving/DTH drilling and 1 km (3280 feet (ft)) for impact driving. The enclosed nature of the area restricts the propagation of noise in most directions before noise levels reduce below the Level B harassment threshold for vibratory pile driving/DTH) Therefore, the area ensonified to the Level B

harassment threshold is truncated by land in most directions. The ensonified area of the vibratory/drilling Level B harassment zone is 47km^2 (18.15 mi^2). Note that thresholds for behavioral disturbance are unweighted with respect to marine mammal hearing and therefore the thresholds apply to all species.

Marine Mammal Occurrence and Take Calculation and Estimation

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. We have density information for two species: Dall's porpoise and harbor porpoise. For the other five species we have information on presence, group size, and dive durations that we use to derive take estimates.

In this section we then describe for each species how the marine mammal occurrence and/or density information is brought together to produce a quantitative take estimate. Level A harassment takes are requested for Dall's porpoise and harbor porpoise only as they are more cryptic and could enter a Level A harassment zone undetected. For the other species, the Level A harassment zones are small and shutdown measures can be implemented prior to any individual entering the Level A harassment zones. Take estimates for all stocks are shown in Table 5.

Humpback Whale

Based on local information and Dahlheim *et al*. (2009) we estimate that up to eight individuals could be exposed to underwater noise each day. Our take estimate is then the product of the number of individuals per day times the 6 days of the project, or 48 Level B takes.

For purposes of estimating effects and ESA takes of the Mexico DPS of humpback whales, we acknowledge that Mexico DPS whales cannot be readily distinguished from non-listed humpback whales in the project area. Based on Wade *et al*. (2016) we estimate that 3 of the 48 takes will be of the Mexico DPS.

While individual humpback whales can generally be identified, due to the size of the monitoring zone it is possible this won't be the case in some instances. Further, it is possible that different monitors will sight the same whale, given the size of the monitoring zones and the distances humpback whales can move in a day. Thus it is conservatively assumed that there could be up to three interactions with each individual daily. PSOs may thus initially record more sightings than allowed takes until individuals being observed multiple time per day can be verified.

Steller Sea Lions

As discussed above Steller sea lions are typically absent in the project area from mid-July through September. On the off chance that Steller sea lions will be present during construction for this project we used an average of the three sightings discussed above from 2005 and 2013 to estimate the possible number of animals in the area. This average was 248 individuals. We assume that no more than 248 individual Steller sea lions will enter the action area on a given day of the project and calculate expected take as 248 times the 6 days of the project, or 1,488 takes. As discussed above, some of these takes will be eastern DPS Steller sea lions and some will be western DPS. We use the estimate from Hastings *et al*. (2020) that 1.4 percent of the animals in the project area are from the western DPS to allot 21 of the 1,488 Level B takes to the western DPS and 1,467 of the takes to the eastern DPS.

Harbor Seal

As discussed above, researchers estimate that they are 95 percent confident the population size of harbor seals in the area is not greater than 134 individuals. We use that estimate as the number of animals expected in the Level B harassment zone daily. Our take estimate is then the product of the number of individuals per day times the 6 days of the project, or 804 Level B takes.

We know from Klinkhart *et al*. (2008) that animals dive and resurface every 4 minutes. That translates to potentially 15 sightings per hour. We also use the estimate that they spend 50 percent of their time hauled out. The project involved 36 hours of pile driving/drilling total. Individual sightings is estimated to be 134 seals times 7.5 in-water sightings per hour times 36 hours of work, or 36,180 sightings. PSOs may thus initially record more sightings than allowed takes until individuals being observed multiple time per day can be verified.

Dall's Porpoise

Density estimates were determined for Dall's porpoises for areas in Southeast Alaska, however densities specific to the Lynn Canal/Favorite Channel area are not available. However, surveys occurred closest to the project area in 1991, 1992, and 2007. These surveys found densities (porpoises/100km^2) during summer months of 18.5, 14.3, and 17.8 (Dahlheim *et al*., 2009). We used the average of these densities (16.9 porpoises/100 km^2) to calculate take. As noted above the ensonified area is 47 km^2. Thus estimated take is 16.9/100 km^2 times 47 km^2 times 6 days, or 48 takes.

Due to the size of the Level A harassment zone associated with drilling, and the cryptic nature of Dall's porpoises, it is possible Dall's porpoises may enter the Level A

harassment zones undetected. It is conservatively assumed that up to four harbor porpoises (the mean group size from Dahlheim *et al.* 2009) may enter the Level A harassment once during the duration of the project. Thus we allot the 48 takes above to 4 Level A takes and 44 Level B takes.

Harbor Porpoise

Density was estimated for harbor porpoises in Lynn Canal by Dahlhein *et al*. (2015) to be 0.2 individuals/km^2. As noted above the ensonified area is 47 km^2. Thus estimated take is 0.2/km^2 times 47 km^2 times 6 days, or 57 takes.

Due to the size of the Level A harassment zone associated with drilling, and the stealthy nature of harbor porpoises with no visible blow and a low profile, it is possible harbor porpoises may enter the Level A harassment zone undetected. Because they are most commonly observed in pairs (Dahlheim *et al.* 2009), it is conservatively assumed that one pair of harbor porpoises may enter the Level A harassment zone every other day of pile driving. Thus we allot the 57 takes above to 6 Level A takes and 51 Level B takes.

Killer Whale

Based on the information available as discussed above, it is conservatively estimated that 2 interactions with the average group size of residents (33) and 2 interactions with the average group size of transients (5) may be occur during the 6 days of the project. Thus we expect 76 Level B takes of killer whales.

Minke Whale

There are no known occurrences of minke whales within the project area, however since their ranges extend into the project area and they have been observed in southeast Alaska (Dahlheim *et al.,* 2009), it is possible minke whales could occur near

the project. It is estimated up to one minke whale could be exposed to elevated noise levels from the project. Therefore, 1 Level B take is proposed to be authorized.

Table 5 -- Proposed Authorized Level A and B Take and Percent of MMPA Stock Proposed to Be Taken

	Proposed Authorized Take		
Species	**Level B**	**Level A**	**% of Stock**
Humpback Whale[1]	48	0	1.4
Minke Whale	1	0	N/A
Killer Whale	76	0	2.9
Harbor Porpoise	51	6	5.9
Dall's Porpoise	44	4	N/A
Harbor Seal	804	0	8.5
Steller Sea Lion (Eastern DPS)[2]	1467	0	3.5
Steller Sea Lion (Western DPS)[2]	21	0	0.04

[1] – Distribution of proposed take by ESA status is 36 Level B takes for Hawaii DPS and 12 Level B take for Mexico DPS.
[2] – Total estimated take of Steller sea lions was 1488. Distribution between the stocks was calculated assuming 1.4% Western DPS and rounding to nearest whole number.

Effects of Specified Activities on Subsistence Uses of Marine Mammals

The availability of the affected marine mammal stocks or species for subsistence uses may be impacted by this activity. The subsistence uses that may be affected and the potential impacts of the activity on those uses are described below. The information from this section is analyzed to determine whether the necessary findings may be made in the **Unmitigable Adverse Impact Analysis and Determination** section.

Subsistence harvest of harbor seals and Steller sea lions by Alaska Natives is not prohibited by the MMPA. No records exist of subsistence harvests of whales and porpoises in Lynn Canal (Haines, 2007). The Alaska Department of Fish and Game

(ADF&G) has regularly conducted surveys of harbor seal and Steller sea lion subsistence harvest in Alaska and the number of Steller sea lions taken for subsistence in this immediate area from 1992-2008, and 2012 is only two (Wolfe *et al*. 2013). Subsequent to the 2012 reporting year through 2017, an estimated one to three Steller sea lions have been taken annually outside Sitka Sound (personal communication with Lauren Sill, ADF&G, 83 FR 52394; October 17, 2018). Based upon data for harbor seal harvests, hunters in Southeast Alaska took from 523 to 719 harbor seals annually in the years 1992-2008. In 2012 an estimated 595 harbor seals were taken for subsistence uses (Wolfe *et al.* 2013). Seals were harvested across the year, with peak harvests in March, May, and October. Most recent reported data for the Juneau area indicates that in 2012, an estimated 26 harbor seal were harvested for food (Wolfe *et al.* 2013). From 2013 through 2019, Juneau area harbor seal hunting has continued, with several cultural heritage programs teaching students how to harvest, cut and store seal meat. However, there is no information on take numbers from 2013-2019 (personal communication with Lauren Sill, ADF&G).

Since there is very little sea lion hunting in the Juneau area, short term displacement of animals from the project area is anticipated to have no effect on abundance or availability of Steller sea lions to subsistence hunters. Further, due to the project timing, Steller sea lions are typically absent from the project area and it is likely none will be displaced. The Douglas Indian Association, Sealaska Heritage Institute, and the Central Council of the Tlingit and Haida Indian Tribes of Alaska (Central Council) were contacted during December 2019 to discuss this project. The Douglas Indian Association responded that they did not see any impacts that may affect their subsistence

use. Chuck Smythe, with the Sealaska Heritage Institute, responded indicating that there is known harbor seal hunting in the project area. The other groups have not responded.

Construction activities at the project site would be expected to cause only short term, non-lethal disturbance of marine mammals. Construction activities are localized and temporary, mitigation measures will be implemented to minimize disturbance of marine mammals in the action area, and, the project will not result in significant changes to availability of subsistence resources. Impacts on the abundance or availability of either species to subsistence hunters in the region are thus not anticipated.

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, we carefully consider two primary factors:

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

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

The following mitigation measures are in the IHA:

- *Schedule*: Pile driving or removal would occur during daylight hours. If poor environmental conditions restrict visibility (*e.g.*, from excessive wind or fog, high Beaufort state), pile installation would be delayed. No pile driving would occur from March 1 through May 31 to avoid peak marine mammal abundance periods and critical foraging periods;

- *Pile Driving Delay/Shut-Down*: For use of in-water heavy machinery/vessel (*e.g.*, dredge), GCHS will implement a minimum shutdown zone of 10 m radius around the pile/vessel. For vessels, GCHS must cease operations and reduce vessel speed to the minimum required to maintain steerage and safe working conditions. In addition, if an animal comes within the shutdown zone (see Table 6) of a pile being driven or removed, GCHS would shut down. The shutdown zone would only be reopened

when a marine mammal has not been observed within the shutdown zone for a 15 minutes have passed without subsequent detections of small cetaceans and pinnipeds; or 30 minutes have passed without subsequent detections of large cetaceans. If pile driving is stopped, pile installation would not commence if pile any marine mammals are observed anywhere within the Level A harassment zone. Pile driving activities would only be conducted during daylight hours when it is possible to visually monitor for marine mammals. If a species for which authorization has not been granted, or if a species for which authorization has been granted but the authorized takes are met, GCHS would delay or shut-down pile driving if the marine mammal approaches or is observed within the Level A and/or B harassment zones;

- *Soft-start*: For all impact pile driving, a ‘‘soft start’’ technique will be used at the beginning of each pile installation day, or if pile driving has ceased for more than 30 minutes, to allow any marine mammal that may be in the immediate area to leave before hammering at full energy. The soft start requires GCHS to provide an initial set of three strikes from the impact hammer at reduced energy, followed by a 30 second waiting period, then two subsequent 3–strike sets. If any marine mammal is sighted within the Level A shutdown zone prior to pile-driving, or during the soft start, GCHS will delay pile-driving until the animal is confirmed to have moved outside and is on a path away from the Level A harassment zone or if 15 minutes have passed without subsequent detections of small cetaceans and pinnipeds; or 30 minutes have passed without subsequent detections of large cetaceans; and

- *Other best management practices*: GCHS will drive all piles with a vibratory hammer to the maximum extent possible (*i.e.,* until a desired depth is achieved

or to refusal) prior to using an impact hammer and will use DTH drilling prior to using an impact hammer. GCHS will also use the minimum hammer energy needed to safely install the piles.

Based on our evaluation of the applicant's proposed measures, NMFS has determined that the 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, and on the availability of such species or stock for subsistence uses.

Table 6 -- Shutdown Zones for Each Activity Type and Stock

Source	Shutdown Zone – Permitted Species					Level B Harassment Zone
	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocids	Otariids	All Species
Vibratory	80 m (265 ft)	10 m (35 ft)	120 m (395 ft)	50 m (165 ft)	10 m (35 ft)	12.1 km (7.5 miles)
DTH drilling	140 m (460 ft)	10 m (35 ft)	165 m (213 ft)	75 m (246 ft)	10 m (35 ft)	12.1 km (7.5 miles)
Impact Pile Driving	185 m (605 ft)	10 m (35 ft)	220 m (720 ft)	100 m (325 ft)	10 m (35 ft)	1000 m (3280 ft)

Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected

to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

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

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

Visual Monitoring

Monitoring would be conducted 30 minutes before, during, and 30 minutes after pile driving activities. In addition, observers shall record all incidents of marine mammal occurrence, regardless of distance from activity, and shall document any behavioral reactions in concert with distance from piles being driven or removed. Pile driving activities include the time to install a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

A primary PSO would be placed at the project site where pile driving would occur. The primary purpose of this observer is to monitor and implement the Level A shutdown zones. Two additional observers would focus on monitoring large parts of the Level B harassment zone as well as visible parts of the Level A shutdown and harassment zones. The locations are shown in Figure 2 of the monitoring plan. Since not all of the Level B harassment zone will be observable by PSOs, they will calculate take for the project by extrapolating the observable area for each stock to the total size of the Level B harassment zone. PSOs would scan the waters using binoculars, and/or spotting scopes, and would use a handheld GPS or range-finder device to verify the distance to each sighting from the project site. All PSOs would be trained in marine mammal identification and behaviors and are required to have no other project-related tasks while conducting monitoring. The following measures also apply to visual monitoring:

(1) Monitoring will be conducted by qualified observers, who will be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. Qualified observers are trained biologists, with the following minimum qualifications;

(a) Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance; use of binoculars may be necessary to correctly identify the target;

(b) Advanced education in biological science or related field (undergraduate degree or higher required);

(c) Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience);

(d) Experience or training in the field identification of marine mammals, including the identification of behaviors;

(e) Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;

(f) Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates and times when in-water construction activities were suspended to avoid potential incidental injury from construction sound of marine mammals observed within a defined shutdown zone; and marine mammal behavior; and

(g) 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; and

(2) GCHS shall submit observer Curriculum Vitaes for approval by NMFS.

A draft marine mammal monitoring report would be submitted to NMFS within 90 days after the completion of pile driving activities, or 60 days prior to a requested date of issuance of any future IHAs for projects at the same location, whichever comes first. It

will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated marine mammal observation 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 how many and what type of piles were driven or removed and by what method (*i.e.,* impact or vibratory);
- Weather parameters and water conditions during each monitoring period (*e.g.,* wind speed, percent cover, visibility, sea state);
- The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting;
- Age and sex class, if possible, of all marine mammals observed;
- PSO locations during marine mammal monitoring;
- Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting);
- Description of any marine mammal behavior patterns during obsevation, including direction of travel and estimated time spent within the Level A and Level B harassment zones while the source was active;
- Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate;

- Detailed information about any implementation of any mitigation triggered (*e.g.,* shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any;
- Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals;
- An extrapolation of the estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible; and
- Submit all PSO datasheets and/or raw sighting data (in a separate file from the Final Report referenced immediately above).

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

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the IHA-holder shall report the incident to the Office of Protected Resources (OPR) (301-427-8401), NMFS and to the Alaska Regional Stranding Coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, the IHA-holder 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 responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS's implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*,

as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the discussion of our analyses applies to all the species listed in Table 5, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar. There is little information about the nature or severity of the impacts, or the size, status, or structure of any of these species or stocks that would lead to a different analysis for this activity. Pile driving and drilling activities have the potential to disturb or displace marine mammals. Specifically, the project activities may result in take, in the form of Level A harassment and Level B harassment from underwater sounds generated from pile driving and DTH drilling. Potential takes could occur if individuals of these species are present in the ensonified zone when these activities are underway.

The takes from Level A and Level B harassment would be due to potential behavioral disturbance, Temporary Threshold Shift (TTS), and PTS. No mortality is anticipated given the nature of the activity and measures designed to minimize the possibility of injury to marine mammals. Level A harassment is only authorized for Dall's porpoise and harbor porpoise. The potential for harassment is minimized through the construction method and the implementation of the planned mitigation measures (see **Mitigation** section).

Behavioral responses of marine mammals to pile driving at the project site, if any, are expected to be mild and temporary. Marine mammals within the Level B harassment zone may not show any visual cues they are disturbed by activities (as noted during modification to the Kodiak Ferry Dock) or could become alert, avoid the area, leave the

area, or display other mild responses that are not observable such as changes in vocalization patterns. Given the short duration of noise-generating activities per day and that pile driving would occur on no more than 4 days, any harassment would be temporary. In addition, GCHS would not conduct pile driving during the spring eulachon and herring runs, when marine mammals are in greatest abundance and engaging in concentrated foraging behavior. There are no other areas or times of known biological importance for any of the affected species.

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

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

- No mortality is anticipated or authorized;
- Authorized Level A harassment would be very small amounts and of low degree for two cryptic species;

- GCHS would avoid pile driving during peak periods of marine mammal abundance and foraging (*i.e.*, March 1 through May 31 eulachon and herring runs);
- GCHS would implement mitigation measures such as vibratory driving piles to the maximum extent practicable, soft-starts, and shut downs; and
- Monitoring reports from similar work in Alaska 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 proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

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

The amount of take NMFS proposes to authorize is less than one-third of any stock's best population estimate (and in fact, no more than 10 percent for any stock).

These are all likely conservative estimates because we assume all takes are of different individual animals which is likely not the case, especially for harbor seals and Steller sea lions, which have the largest take. The Alaska stock of Dall's porpoise has no official NMFS abundance estimate as the most recent estimate is greater than eight years old. Nevertheless, the most recent estimate was 83,400 animals and it is highly unlikely this number has drastically declined. Therefore, the 48 authorized takes of this stock clearly represent small numbers of this stock. The Alaska stock of minke whale has no stock-wide abundance estimate. The stock ranges from the Bering and Chukchi seas south through the Gulf of Alaska. Surveys in portions of the range have estimated abundances of 2,020 on the eastern Bering Sea shelf and 1,233 from the Kenai Fjords in the Gulf of Alaska to the central Aleutian Islands. Thus there appears to be thousands of animals at least in the stock and clearly the 1 authorized takes of this stock represent small numbers of this stock.

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

Unmitigable Adverse Impact Analysis and Determination

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.

As discussed above in the subsistence uses section, subsistence harvest of harbor seals and other marine mammals is rare in the area and local subsistence users have not expressed concern about this project. All project activities will take place within the Favorite Channel area where subsistence activities do not generally occur. The project also will not have an adverse impact on the availability of marine mammals for subsistence use at locations farther away, where these construction activities are not expected to take place. Some minor, short-term harassment of the harbor seals and Steller sea lions could occur, but any effects on subsistence harvest activities in the region will be minimal, and not have an adverse impact.

Based on the effects and location of the specified activity, and the mitigation and monitoring measures, NMFS has determined that there will not be an unmitigable adverse impact on subsistence uses from GCHS's planned activities.

National Environmental Policy Act

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

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for 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 proposed IHA qualifies to be categorically excluded from further NEPA review.

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, in this case with the Alaska Region Protected Resources Division Office, whenever we propose to authorize take for endangered or threatened species.

NMFS is proposing to authorize take of Western DPS Steller sea lion (*Eumetopias jubatus*) and Mexico DPS of humpback whales (*Megaptera novaeangliae*), which are listed under the ESA. The NMFS Alaska Regional Office Protected Resources Division issued a Biological Opinion on June 25, 2020 under section 7 of the ESA, on the issuance of an IHA to GCHS under section 101(a)(5)(D) of the MMPA by the NMFS Permits and Conservation Division. The Biological Opinion concluded that the proposed

action is not likely to jeopardize the continued existence of the above species, and is not likely to destroy or adversely modify western DPS Steller sea lion critical habitat.

Authorization

NMFS has issued an IHA to GCHS for the potential harassment of small numbers of seven marine mammal species incidental to conducting the Sentinel Island Moorage Float project near Juneau, Alaska between July 15, 2020 and September 20, 2020, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: July 9, 2020.

Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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