



**BILLING CODE 3510-22-P**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**RIN 0648-XG644-X**

**Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the O'Connell Bridge Lightering Float Pile Replacement Project in Sitka, 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 City and Borough of Sitka (CBS) to incidentally harass, by Level B harassment only, marine mammals during the O'Connell Bridge Lightering Float Pile Replacement Project in Sitka, Alaska.

**DATES:** This Authorization is effective from June 1, 2019 through May 31, 2020.

**FOR FURTHER INFORMATION CONTACT:** Rob Pauline, Office of Protected Resources, NMFS, and (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at:

*<https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>*. In case of problems accessing these documents, please call the contact listed above.

**SUPPLEMENTARY INFORMATION:**

## **Background**

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

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

## **Summary of Request**

On November 18, 2018, NMFS received a request from CBS for an IHA to take marine mammals incidental to pile driving and removal activities associated with the O’Connell Bridge Lightering Float Pile Replacement Project in Sitka, Alaska. The application was deemed adequate and complete on February 5, 2019. CBS’s request is for take of small numbers of humpback whale (*Megaptera novaeangliae*), minke whale (*Balaenoptera acutorostrata*), killer

whale (*Orcinus orca*), harbor porpoise (*Phocoena phocoena*), harbor seal (*Phoca vitulina*), and Steller sea lion (*Eumetopias jubatus*) by Level A and Level B harassment. Neither CBS nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

## **Description of Specified Activity**

### *Overview*

CBS is repairing the O'Connell Bridge Lightering Float (float) located in Sitka Sound in Southeast Alaska. The applicant plans to remove existing piles and replace them with piles that are more deeply socketed so that the float can accommodate larger vessels including yachts, fish processors, and research vessels. Existing piles are not socketed deep enough to provide proper stability to safely support these vessels. Additionally, the float was damaged during a storm in June of 2017, and the existing piles are now leaning. This project will replace the existing piles with new piles that are socketed deeper into the ocean floor. Once the piles are replaced, the float will safely accommodate these larger vessels. Vibratory pile removal, vibratory pile driving, impact pile driving, and drilling will introduce sound into nearby waters at levels that could result in behavioral harassment of marine mammals.

A detailed description of the planned O'Connell Bridge project is provided in the *Federal Register* notice for the proposed IHA (84 FR 7023; March 1, 2019). Pile removal and installation is expected to occur for a total of approximately 13 hours over 3 days and is scheduled to take place in June 2019. As a contingency, the IHA is effective for a period of one year, from June 1, 2019 through May 31, 2020. Since that time, no changes have been made to the planned project activities. Therefore, a detailed description is not provided here. Please refer to that *Federal Register* notice for the description of the specific activity.

## Comments and Responses

A notice of NMFS' proposal to issue an IHA to CBS was published in the *Federal Register* on March 1, 2019 (84 FR 7023). That notice described, in detail, CBS's activity, the marine mammal species that may be affected by the activity, the anticipated effects on marine mammals and their habitat, proposed amount and manner of take, and proposed mitigation, monitoring and reporting measures. On March 18, 2019, NMFS received a comment letter from the Marine Mammal Commission (Commission); the Commission's recommendations and our responses are provided here, and the comments have been posted online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities>. The Commission recommended that NMFS issue the IHA, subject to inclusion of the proposed mitigation, monitoring, and reporting measures.

*Comment 1:* The Commission recommended that NMFS refrain from implementing its renewal process and instead use abbreviated *Federal Register* notices, reference existing documents, and provide a 30-day public comment period in order to streamline the incidental harassment authorization process. The Commission further recommended that if NMFS did not pursue a more general route, NMFS should provide the Commission and the public with a legal analysis supporting its conclusion that the process is consistent with the requirements under section 101(a)(5)(D) of the MMPA.

*Response 1:* The notice of the proposed IHA expressly notifies the public that under certain, limited conditions an applicant could seek a renewal IHA for an additional year. The notice describes the conditions under which such a renewal request could be considered and expressly seeks public comment in the event such a renewal is sought. Additional reference to this solicitation of public comment has recently been added at the beginning of *Federal*

*Register* notices that consider renewals. NMFS appreciates the streamlining achieved by the use of abbreviated *Federal Register* notices and intends to continue using them for proposed IHAs that include minor changes from previously issued IHAs, but which do not satisfy the renewal requirements. However, we believe our method for issuing renewals meets statutory requirements and maximizes efficiency. Importantly, such renewals would be limited to where the activities are identical or nearly identical to those analyzed in the proposed IHA, monitoring does not indicate impacts that were not previously analyzed and authorized, and the mitigation and monitoring requirements remain the same, all of which allow the public to comment on the appropriateness and effects of a renewal at the same time the public provides comments on the initial IHA.

Regarding the sufficiency of the public comment period, NMFS has taken a number of steps to ensure the public has adequate notice, time, and information to be able to comment effectively on renewal IHAs within the limitations of processing IHA applications efficiently. The *Federal Register* notice for the proposed initial IHA had previously identified the conditions under which a one-year renewal IHA might be appropriate. This information is presented in the *Request for Public Comments* section and thus encourages submission of comments on the potential of a one-year renewal as well as the initial IHA during the 30-day comment period. In addition, when we receive an application for a renewal IHA, we will publish notice of the proposed renewal IHA in the *Federal Register* and provide an additional 15 days for public comment, making a total of 45 days of public comment. We will also directly contact all commenters on the initial IHA by email, phone, or, if the commenter did not provide email or phone information, by postal service to provide them the opportunity to submit any additional comments on the proposed renewal IHA.

NMFS has also modified the language for future IHAs to clarify that all IHAs, including renewal IHAs, are valid for no more than one year and that the agency would consider only one renewal for a project at this time. In addition, notice of issuance or denial of a renewal IHA would be published in the *Federal Register*, as are all IHAs. Last, NMFS has published on our website a description of the renewal process before any renewal is issued utilizing the new process.

### **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 (SAR; <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 near the project area 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 (2018). 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' 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 SARs (e.g., Muto *et al.* 2018). All values presented in Table 1 are the most recent available at the time of publication and are available in the 2017 SARs (Muto *et al.* 2018) and draft 2018 SARs (available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>)

**Table 1. Marine mammals potentially present within Sitka Sound during the specified activity.**

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) <sup>1</sup>	Stock abundance (CV, N <sub>Min</sub> , most recent abundance survey) <sup>2</sup>	PBR	Annual M/SI <sup>3</sup>
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Balaenidae						
Humpback whale	<i>Megaptera novaeangliae</i>	Central North Pacific	- , - , Y	10,103 (0.3, 7,891, 2006)	83	26
Minke whale	<i>Balaenoptera acutorostrata</i>	Alaska	- , - , N	N/A (See SAR), N/A, See SAR	UND	0
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Killer whale	<i>Orcinus orca</i>	Alaska Resident	- , - , N	2,347 (N/A, 2,347, 2012) <sup>4</sup>	24	1
		Northern Resident	- , - , N	261 (N/A, 261, 2011) <sup>4</sup>	1.96	0
		Gulf of Alaska, Aleutian Islands, Bering Sea Transient	- , - , N	587 (N/A, 587, 2012) <sup>4</sup>	5.87	1
		West Coast Transient	- , - , N	243 (N/A, 243, 2009) <sup>4</sup>	2.4	0
Family Phocoenidae (porpoises)						

Harbor porpoise	<i>Phocoena phocoena</i>	Southeast Alaska	- , -, Y	975 (0.12-0.14, 897, 2012) <sup>5</sup>	8.9	34
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
Steller sea lion	<i>Eumetopias jubatus</i>	Western U.S.	E, D, Y	54,267 (N/A, 54,267, 2017)	326	252
		Eastern U.S.	- , D, Y	41,638 (N/A, 41,638, 2015)	2498	108
Family Phocidae (earless seals)						
Harbor seal	<i>Phoca vitulina richardii</i>	Sitka/Chatham Strait	- , -, N	14,855 (N/A, 13,212, 2011)	555	77

<sup>1</sup>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.

<sup>2</sup>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; N<sub>min</sub> is the minimum estimate of stock abundance. In some cases, CV is not applicable (N/A).

<sup>3</sup>These values, found in NMFS' 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.

<sup>4</sup>N is based on counts of individual animals identified from photo-identification catalogs.

<sup>5</sup>In the SAR for harbor porpoise, NMFS identified population estimates and PBR for porpoises within inland southeast Alaska waters (these abundance estimates have not been corrected for g(0); therefore, they are likely conservative).

A detailed description of the of the species likely to be affected by the O'Connell Bridge 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 (84 FR 7023; March 1, 2019); 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. 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>).

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

Underwater noise from impact and vibratory pile driving and down-the-hole drilling activities associated with the planned O'Connell Bridge project has the potential to result in harassment of marine mammals in the vicinity of the action area. The *Federal Register* notice for the proposed IHA (84 FR 7023; March 1, 2019) included a discussion of the potential effects of such disturbances on marine mammals and their habitat, therefore that information is not repeated in detail here; please refer to the *Federal Register* notice (84 FR 7023; March 1, 2019) for that information.

### **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 be by Level B harassment, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to impact and vibratory hammers and down-the-hole drilling. Limited take by Level A harassment, in the form of permanent threshold shift (PTS) is also authorized for harbor seals. Note that seals would have to remain in the Level A harassment zone for a long enough period to incur auditory injury.

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 calculated take estimate.

#### *Acoustic Thresholds*

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

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

uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1  $\mu$ Pa (rms) for continuous (e.g., vibratory pile-driving, drilling) and above 160 dB re 1  $\mu$ Pa (rms) for non-explosive impulsive (e.g., seismic airguns) or intermittent (e.g., scientific sonar) sources. CBS's planned activity includes the use of continuous (vibratory pile driving/removal and drilling) and impulsive (impact pile driving) sources, and therefore the 120 and 160 dB re 1  $\mu$ Pa (rms) thresholds are applicable.

Level A harassment for non-explosive sources - NMFS' *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing* (Version 2.0) (NMFS 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). CBS's planned activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving/removal and drilling) sources.

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

**Table 2. Thresholds identifying the onset of Permanent Threshold Shift.**

Hearing Group	PTS Onset Thresholds* (Received Level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	$L_{p,0-pk,flat}$ : 219 dB $L_{E,p, LF,24h}$ : 183 dB	$L_{E,p, LF,24h}$ : 199 dB
Mid-Frequency (MF)	$L_{p,0-pk,flat}$ : 230 dB	$L_{E,p, MF,24h}$ : 198 dB

<b>Cetaceans</b>	$L_{E,p, MF,24h}$ : 185 dB	
<b>High-Frequency (HF) Cetaceans</b>	$L_{p,0-pk,flat}$ : 202 dB $L_{E,p, HF,24h}$ : 155 dB	$L_{E,p, HF,24h}$ : 173 dB
<b>Phocid Pinnipeds (PW) (Underwater)</b>	$L_{p,0-pk.flat}$ : 218 dB $L_{E,p, PW,24h}$ : 185 dB	$L_{E,p, PW,24h}$ : 201 dB
<b>Otariid Pinnipeds (OW) (Underwater)</b>	$L_{p,0-pk,flat}$ : 232 dB $L_{E,p, OW,24h}$ : 203 dB	$L_{E,p, OW,24h}$ : 219 dB

\* 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.

Note: Peak sound pressure level ( $L_{p,0-pk}$ ) has a reference value of 1  $\mu\text{Pa}$ , and weighted cumulative sound exposure level ( $L_{E,p}$ ) has a reference value of 1  $\mu\text{Pa}^2\text{s}$ . 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.e.*, 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.e.*, 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.

### *Ensonified Area*

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

The sound field in the project area is the existing background noise plus additional construction noise from the 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 down-the-hole drilling). The maximum (underwater) ensonified area is truncated by land masses and largely confined to marine waters within Eastern Channel of Sitka Sound, extending approximately 7.7 kilometers through Crescent Bay, Middle Channel, and into Eastern Channel and encompassing approximately 7.26 square kilometers (see Figure 5 in the application).

The distances to the Level A and Level B harassment thresholds were calculated based on source levels from the Naval Base Kitsap at Bangor EHW-1 Pile Replacement Project, in Bangor, Washington (NAVFAC 2012) and the Kodiak Ferry Terminal Project in Kodiak, Alaska (Denes et. al. 2016) for a given activity and pile type (e.g., vibratory removal/installation, drilling, and impact pile driving of 24-inch diameter steel piles). The vibratory source level is proxy from 24-inch steel piles driven at the Naval Base Kitsap in Bangor, Washington (NAVFAC 2012) and from acoustic modeling of nearshore marine pile driving at Navy installations in Puget Sound (United States Navy 2015). The socketing source level is proxy from mean measured sources levels from drilling of 24-inch diameter piles to construct the Kodiak Ferry Terminal (Denes *et al.* 2016). Sound pressure level root-mean-square (SPL rms) values were used to calculate distance to Level A and B harassment isopleths for impact pile driving. The source levels of 168.2 SEL (for Level A harassment) and 181.3 SPL (for Level B harassment) are the mean measured levels from the Kodiak Ferry Terminal project (Denes *et al.* 2016).

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

$$TL = B * \text{Log}_{10} (R_1/R_2), \text{ where}$$

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

R<sub>1</sub>= the distance of the modeled SPL from the driven pile, and

R<sub>2</sub>= the distance from the driven pile of the initial measurement

A practical spreading value of 15 is often used under conditions, such as at the lightering dock location, where water increases with depth as the receiver moves away from the shoreline, resulting in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions. Practical spreading loss is assumed here.

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, NMFS User Spreadsheet predicts the closest distance at which, if a marine mammal remained at that distance the whole duration of the activity, it would not incur PTS. Inputs used in the User Spreadsheet, and the resulting isopleths are reported in Tables 3 and 4. Note that the distance of source level measurements for drilling were incorrect in the *Federal Register* notice of proposed IHA as they were sourced at 1 meter when they should have been sourced at 10 m. Additionally, we have revised the SL for drilling/socketing. Originally, we used an average SL of 167.7 dB RMS from (Denes et al. 2016). However, we recently determined it more appropriate to use the median value (166.2 dB RMS) rather than the mean. We also determined that we should be using Tab

A.1 of the User Spreadsheet instead of Tab A for down-the-hole drilling. The drilling associated with Tab A is more applicable to off-shore drilling while Tab A.1 better represents down-the-hole drilling.

Updated values are provided in Table 4 which presents the Level B harassment isopleth associated with impact pile driving (160 dB) and vibratory pile driving/removal and drilling (120 dB). The Level B harassment isopleth for drilling socketing has also been updated to reflect the use of a SL of 166.2 dB RMS.

**Table 3. User spreadsheet input parameters used for calculating harassment isopleths.**

Spreadsheet Tab Used	Vibratory Driving	Drilling/Socketing	Impact Driving
	A.1) Vibratory Driving -Stationary Source: Non-impulsive, Continuous	A.1) Vibratory Driving - Stationary Source: Non-impulsive, Continuous	E.1) Impact Pile Driving (Stationary Source: Impulsive, Intermittent)
Source Level (dB)	161 RMS SPL	166.2 RMS SPL	168.2 SEL
Weighting Factor Adjustment (kHz)	2.5	2	2
a) Number of piles in 24-hr	12	n/a	6
b) Number of strikes/pile	n/a	n/a	5
c) Duration of sound (hours) within 24-h period	n/a	6	n/a
d) Duration of drive single pile (minutes)	5	n/a	n/a
Propagation (xLogR)	15	15	15
Distance of source level measurement (meters)	10	10	10

\*n/a: not applicable

**Table 4. Calculated distances to Level A harassment and Level B harassment isopleths during pile installation and removal and drilling.**

Activity	Source Level at 10 meters (dB)	Distance (m) to Level A and Level B Thresholds					
		Level A					Level B
		Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid	Otariid	
<b>Vibratory Pile Driving/Removal</b>							
16-inch steel removal and installation (12 piles) (~1 hour on 1 day)	161 SPL	6.8	0.6	10.1	4.2	0.3	5,412
<b>Drilling/Socketing Pile Installation</b>							
16-inch steel installation (6 piles) (6 hours per day on 2 days)	166.2 SPL	50.1	4.4	74.1	30.5	2.1	12,022 *

Impact Pile Driving							
16-inch steel installation (6 piles) (~3 minutes per day on 1 day)	168.2 SEL/181.3 SPL	9.9	0.4	11.8	5.3	0.4	263

\* Ensonified area truncated by land masses with a maximum extent of 7.7 km.

### *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 and how this information is brought together to produce a quantitative take estimate.

Density information is not available for marine mammals in the project area. Potential exposures for marine mammals were estimated from several sources. Between the months of September through May from 1994 to 2002, weekly surveys were conducted from Sitka's Whale Park, located at the easternmost end of Eastern Channel as shown in Figure 5 in the application. More recent data (from 2002 to present) were collected from small vessels or Allen Marine 100-foot catamarans during school field trips in and around Eastern Channel. Additionally, marine mammal observational data was collected in the Sitka Channel as part of the Gary Paxton Industrial Park (GPIP) Multipurpose Dock Project (Turnagain 2017). Monitors were present during twenty-two days of in water work as part of this project. This included ten days between October 9th and 20<sup>th</sup>, 2017 for wooden pile removal, where only one monitor was present each day and twelve days between October 22nd and November 9th, where two observers were monitoring during new pile installation. Additionally, data was collected in January and October/November of 2017 in the Sitka Channel when Petro Marine Services removed and replaced a fuel float in the Sitka Channel and recorded marine mammal observations (Windward 2017). Finally, marine mammal observation reports covering the months of June through September, 2018 were also reviewed (Turnagain 2018).

### *Level B harassment calculations*

The estimation of takes by Level B harassment uses the following calculation:

Level B harassment estimate = N (number of animals in the ensounded area) \* Number of days of noise generating activities.

### *Humpback Whale*

Humpback whales are the most commonly observed baleen whale in Southeast Alaska, particularly during spring and summer months. Humpback whales frequent the action area and could be encountered during any given day of pile driving/removal activities. In the project vicinity, humpback whales typically occur in groups of 1 to 2 animals, with an estimated maximum group size of 4 animals. Most humpback whales observed in the area were solitary. When more than one whale was observed, available survey data reports a typical group size of 2-4 whales (Straley *et al.* 2018). During work on GPIP Dock, groups of 5 and 10 individuals were seen a few times, but most of the time, single whales were observed (Turnagain 2017). CBS conservatively estimates that a group of 5 humpback whales may occur within the Level B harassment zone every day of the 3-day construction window during active pile driving (5 animals in a group x 1 group each day x 3 days = 15 animals). Therefore, NMFS has authorized 15 takes by Level B harassment of humpback whales. Based on Wade *et al.* (2016), the probability is that 93.9 percent of the humpback whales taken would be from the Hawaii DPS (not listed under ESA) and 6.1 percent of the humpback whales taken would be from the ESA-listed threatened Mexico DPS.

### *Minke Whale*

After informal consultation with the Commission, NMFS opted to conservatively authorize three minke whale takes by Level B harassment based on monitoring data from Biorka

Island which reported observations of these whales on numerous days (Turnagain 2018). NMFS had not originally proposed take of this species in the *Federal Register* proposed IHA.

#### *Killer Whale*

Killer whales pass through the action area and could be encountered during any given day of pile removal and installation. In the project vicinity, typical killer whale pod sizes vary between 4-8 individuals, with an estimated maximum group size of 8 animals (Straley *et al.* 2018). A pod of three killer whales were observed during monitoring for the Petro Marine Dock, and a pod of eight whales were observed on one day near Biorka Island (Windward 2017; Turnagain 2018). CBS estimates that a group of 8 killer whales may occur within the Level B harassment zone every day of during active pile driving (8 animals in a group  $\times$  1 group each day  $\times$  3 days = 24 animals). Therefore, NMFS has authorized 24 killer whales takes by Level B harassment.

#### *Harbor Porpoise*

Harbor porpoises are seen infrequently in the action area, but they could be encountered during any given day of pile replacement activities. The mean group size of harbor porpoise in Southeast Alaska was estimated to be between two to three individuals (Dahlheim *et al.*, 2009). In the project vicinity, harbor porpoises typically occur in groups of 1-5 animals, with an estimated maximum group size of eight animals (Straley *et al.* 2018). No harbor porpoises were seen during the Petro Marine Dock construction monitoring in January 2017 or during monitoring for the GPIP dock between October and November of 2017 (Windward 2017 and Turnagain 2017). CBS conservatively estimates that a group of 5 harbor porpoise may occur within the Level B harassment zone once each day during the 3-day construction window during

active pile driving (5 animals in a group x 1 group each day x 3 days = 15 animals). Therefore, NMFS has authorized 15 Level B harassment takes of harbor porpoises.

### *Harbor Seal*

Harbor seals are common in the action area and are expected to be encountered during pile replacement activities. In the action area harbor seals typically occur in groups of 1-3 animals. Observations near Sitka Channel recorded only individual seals, and observations for GPIIP dock observed mostly individuals, however, a few groups with up to 3 seals were observed. Near Biorka Island, recent sightings ranged from 1 individual to a group of 9 (June and September 2018). At Biorka Island, up to 23 harbor seals were observed during a single day (Turnagain 2018). Therefore, after informal consultation with the Commission, NMFS has conservatively authorized 69 takes (23 per day over 3 days) of harbor seal which represents an increase over the 18 takes by Level B harassment proposed for authorization under the *Federal Register* proposed IHA. NMFS has also authorized the take of 30 seals by Level A harassment. CBS will employ a 10 meter shutdown zone for harbor seals. This will allow CBS to avoid repeated shutdowns due to the presence of seals in the immediate vicinity of the project site. The established Level A harassment zone for phocids will extend to 35 meters. Any harbor seal observed between 10 and 35 meters will be recorded as a take by Level A harassment. NMFS has authorized 30 harbor seal takes by Level A harassment by assuming 10 animals per day will enter into the injury zone. With total harbor seal exposures estimated at 69, NMFS has authorized the remaining 39 exposures as takes by Level B harassment.

### *Steller Sea Lion*

Steller sea lions are common in the action area and are expected to be encountered during pile removal and driving. In the project vicinity Steller sea lions typically occur in groups of 1-8

animals near the project area (Turnagain 2017 and Windward 2017), with an estimated maximum group size of 100 animals (Straley *et al.* 2018). Commission informally noted that Steller sea lions can occur in the action area every day during construction and that 11 sea lions were observed on multiple days at GPIP (Turnagain 2017) Therefore, NMFS has authorized 33 takes (11 animals per day over 3 days) of sea lion by Level B harassment. This represents an increase over the 24 takes that were described in the *Federal Register* notice of proposed IHA.

CBS intends to avoid Level A harassment take of marine mammals, other than harbor seals, by shutting down pile removal or installation activities at the approach of any animal into their identified Level A harassment (PTS onset) zone.

**Table 6. Estimated Take by level A and Level B Harassment, by Species, Stock and Percent of Stock.**

Species	Stock (Population)	Level A	Level B	Percent of Stock
Humpback Whale	Central North Pacific (10,103)	--	15	0.15
Minke Whale	Alaska (N.A.)	--	3	N.A.
Killer Whale	Alaska Resident (2,347)	--	24 <sup>1</sup>	1.02
	Northern Resident (261)			9.20
	West Coast Transient (243)			9.88
	Gulf of Alaska, Aleutian Islands, Bering Sea Transient (587)			4.09
Harbor Porpoise	Southeast Alaska (975)	--	15	1.54
Harbor Seal	Sitka/ Chatham Strait (14,855)	30	39	0.46
Steller Sea Lion	Western DPS (54,267)	--	33 <sup>1</sup>	0.06
	Eastern DPS (41,638)			0.08

<sup>1</sup>Assumes all takes come from each individual stock.

## 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 such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

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

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

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

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

- Conduct briefings between construction supervisors and crews and the marine mammal monitoring team prior to the start of all pile driving activity, and when new personnel join the work, to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures;
- For in-water heavy machinery work other than pile driving (*e.g.*, standard barges, etc.), if a marine mammal comes within 10 m, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions. This type of work could include the following activities: (1) Movement of the barge to the pile location; or (2) positioning of the pile on the substrate via a crane (*i.e.*, stabbing the pile);
- Work may only occur during daylight hours, when visual monitoring of marine mammals can be conducted;
- For those marine mammals for which take by Level B harassment has not been requested, in-water pile installation/removal and drilling will shut down immediately if such species are observed within or on a path towards the monitoring zone (*i.e.*, Level B harassment zone); and
- If take reaches the authorized limit for an authorized species, pile driving activities will be stopped as these species approach the Level B harassment zone to avoid additional take.

The following measures will apply to CBS's mitigation requirements:

*Establishment of Shutdown Zone*—For all pile driving/removal and drilling activities, CBS will establish a shutdown zone to avoid take by Level A harassment. 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). The shutdown zone will be 10 m in most cases. The shutdown zone for high-frequency cetaceans will be 15 m for vibratory pile driving/removal and impact pile driving. During drilling/socketing installation the shutdown zone for high-frequency cetaceans and low-frequency cetaceans has been increased from the values presented in the *Federal Register* notice of proposed IHA to 75 m and 55 m respectively (Table 7). These changes were made to account for the revised SL and sourcing data that was previously described for drilling/socketing activities (Table 7). These defined shutdown zones will be used to prevent incidental Level A harassment exposures of species authorized for take except for harbor seals. The Level A harassment zone for harbor seals extends to 35 m with a 10 m shutdown zone during all pile driving and drilling activities. The placement of Protected Species Observers (PSOs) during all pile driving and drilling activities (described in detail in the Monitoring and Reporting Section) will ensure shutdown zones are visible and adequately monitored.

**Table 7. Shut Down Zone for Each Project Activity.**

Noise Source	Low-Frequency Cetaceans (humpback whale)	Mid-Frequency Cetaceans (killer whale)	High-Frequency Cetaceans (harbor porpoise)	Phocid (harbor seal)	Otariid (sea lion)
Vibratory Pile Driving/Removal					
16-inch steel removal and installation (12 piles) (~1 hour on 1 day)	10	10	15	10	10
Drilling/Socketing Pile Installation					

16-inch steel installation (6 piles) (6 hours per day on 2 days)	55	10	75	10	10
Impact Pile Driving					
16-inch steel installation (6 piles) (~3 minutes on 1 day)	10	10	15	10	10

*Establishment of Monitoring Zones for Level B Harassment*—CBS will establish monitoring zones to correlate with Level B harassment disturbance zones or zones of influence which are areas where SPLs are equal to or exceed the 160 dB rms threshold for impact driving and the 120 dB rms threshold during vibratory driving and drilling. Monitoring zones provide utility for observing by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring zones enable observers to be aware of and communicate the presence of marine mammals in the project area outside the shutdown zone and thus prepare for a potential cease of activity should the animal enter the shutdown zone. The monitoring zones are described in Table 8. The monitoring zone for drilling activities extends 7,700 m from the noise source, corresponding to the maximum distance before landfall. It is likely that PSOs will not be able to effectively observe the entire monitoring zone. Therefore, Level B harassment exposures will be recorded and extrapolated based upon the number of observed takes and the percentage of the Level B harassment zone that was not visible.

**Table 8. Level B Harassment Monitoring Zones.**

<b>Pile Driving Noise Source</b>	<b>Monitoring Zones for Take by Level B Harassment (meters)</b>
<b>Vibratory Pile Driving</b>	
16-inch steel removal and installation (12 piles) (~1 hour on 1 day)	5,500
<b>Socketing Pile Installation</b>	
16-inch steel installation (6 piles) (6 hours per day on 2 days)	7,700
<b>Impact Pile Driving</b>	
16-inch steel installation (6 piles) (~3 minutes per day on 1 day)	265

*Use of Pile Caps/Cushions*—Pile driving softening material (*i.e.* pile caps/cushions) will be used to minimize noise during vibratory and impact pile driving. Much of the noise generated during pile installation comes from contact between the pile being driven and the steel template used to hold the pile in place. The contractor will use high-density polyethylene (HDPE) or ultra-high-molecular-weight polyethylene (UHMW) softening material on all templates to eliminate steel on steel noise generation

*Direct Pull*—To minimize construction noise levels as much as possible, the contractor will first attempt to direct pull old piles; if those efforts prove to be ineffective, they will proceed with a vibratory hammer.

*Reduced Energy*—To reduce noise production, the vibratory hammer will be operated at a reduced energy setting (30 to 50 percent of its rated energy).

*Soft Start*—The use of soft-start procedures are believed to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. For impact pile driving, contractors will be required to provide an initial set of strikes from the hammer at reduced energy, with each strike followed by a 30-second waiting period. This procedure will be conducted a total of three times

before impact pile driving begins. Soft start will be implemented at the start of each day's impact pile driving (if more than one day) and at any time following cessation of impact pile driving for a period of thirty minutes or longer. Soft start is not required during vibratory pile driving and removal activities.

*Pre-Activity Monitoring*—Prior to the start of daily in-water construction activity, or whenever a break in pile driving/removal or drilling of 30 minutes or longer occurs, PSOs will observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone will be cleared when a marine mammal has not been observed within the zone for the 30-minute period. If a marine mammal is observed within the shutdown zone, a soft-start cannot proceed until the animal has left the zone or has not been observed for 15 minutes. If the Level B harassment zone has been observed for 30 minutes and non-permitted species are not present within the zone, soft start procedures can commence and work can continue even if visibility becomes impaired within the Level B harassment monitoring zone. When a marine mammal permitted for Level B take is present in the Level B harassment zone, activities may begin and Level B take will be recorded. As stated above, if the entire Level B harassment zone is not visible at the start of construction, piling driving or drilling activities can begin. If work ceases for more than 30 minutes, the pre-activity monitoring of both the Level B harassment and shutdown zone will commence.

Based on our evaluation of the applicant's proposed 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 in the action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

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

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

- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Monitoring shall be conducted by NMFS-approved PSOs. Trained observers shall be placed from the best vantage point(s) practicable to monitor for marine mammals and implement shutdown or delay procedures when applicable through communication with the equipment operator. Observer training must be provided prior to project start, and shall include instruction on species identification (sufficient to distinguish the species in the project area), description and categorization of observed behaviors and interpretation of behaviors that may be construed as being reactions to the specified activity, proper completion of data forms, and other basic components of biological monitoring, including tracking of observed animals or groups of animals such that repeat sound exposures may be attributed to individuals (to the extent possible).

Monitoring will be conducted 30 minutes before, during, and 30 minutes after pile driving/removal and drilling 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/removal and drilling activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

PSOs will scan the waters using binoculars, and/or spotting scopes, and will use a handheld GPS or range-finder device to verify the distance to each sighting from the project site. All PSOs will be trained in marine mammal identification and behaviors and are required to have no other project-related tasks while conducting monitoring. In addition, monitoring will be

conducted by qualified observers, who will be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. CBS will adhere to the following observer qualifications:

1. Independent observers (*i.e.*, not construction personnel) are required.
2. At least one observer must have prior experience working as an observer.
3. Other observers may substitute education (degree in biological science or related field) or training for experience.
4. NMFS will require submission and approval of observer CVs.

CBS must ensure that observers have the following additional qualifications:

1. Ability to conduct field observations and collect data according to assigned protocols;
2. Experience or training in the field identification of marine mammals, including the identification of behaviors;
3. Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
4. Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and
5. 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.

Two land-based PSOs will be used to monitor the area during all pile driving and removal activities. One PSO will monitor from the O'Connell Bridge which features a high vantage point with unobstructed views of, and close proximity to, the project site. A second monitor will be stationed east of the construction site, likely off Islander Drive. PSOs will work in shifts lasting no longer than 4 hours with at least a 1-hour break between shifts, and will not perform duties as a PSO for more than 12 hours in a 24- hr period to reduce PSO fatigue.

A draft marine mammal monitoring report will be submitted to NMFS within 90 days after the completion of pile driving and removal and drilling activities. It 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 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 observation, including direction of travel.
- 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.

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

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury, serious injury or mortality, CBS will immediately cease the specified activities and report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinator. The report will include the following information:

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

- Photographs or video footage of the animal(s) (if equipment is available).

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

In the event that CBS discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (*e.g.*, in less than a moderate state of decomposition as described in the next paragraph), CBS will immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinator. The report will include the same information identified in the paragraph above. Activities will be able to continue while NMFS reviews the circumstances of the incident. NMFS will work with CBS to determine whether modifications in the activities are appropriate.

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

### **Negligible Impact Analysis and Determination**

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

Pile driving, pile removal and drilling activities as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take in the form of Level B harassment from underwater sounds generated from vibratory pile removal, vibratory pile driving, impact pile driving, and drilling over 3 days. Potential takes could occur if individuals of these species are present in the ensonified zone when these activities are underway. One day of work will be dedicated to removing 6 old and installing 6 new piles which will emit low levels of noise into the aquatic environment if removed via direct pull or vibratory

hammer and installed via vibratory hammer as planned. Vibratory removal and installation will take approximately one hour. Drilling will occur for only 6 hours per day over 2 days. Impact driving will be used to proof socketed piles and take place for a total of 3 minutes on a single day.

Effects on individuals that are taken by Level A harassment will likely include minor PTS to a limited number of animals, consisting of hearing loss of no more than a few dB. Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.*, Thorson and Reyff 2006; HDR, Inc. 2012; Lerma 2014; ABR 2016). Most likely, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving and drilling, although even this reaction has been observed primarily only in association with impact pile driving. The pile driving activities analyzed here are similar to, or less impactful than, numerous other construction activities conducted in southeast Alaska, which have taken place with no known long-term adverse consequences from behavioral harassment. Level A and Level B harassment will be reduced to the level of least practicable adverse impact through use of mitigation measures described herein and, if sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the area while the activity is occurring.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat. Project activities will not modify existing marine mammal habitat for a significant amount of time. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range. However, because of the short duration of the activities and the relatively small

area of the habitat that may be affected, and the decreased potential of prey species to be in the project area during the construction work window, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

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

- No mortality is anticipated or authorized;
- Limited take by Level A harassment, consisting of small degree of hearing loss;
- Level B harassment may consist of, at worst, temporary modifications in behavior (*e.g.* temporary avoidance of habitat or changes in behavior);
- The specified activity is temporary and of short duration;
- The ensonified area is very small relative to the overall habitat ranges of all species and does not include habitat areas of special significance (BIAs or ESA-designated critical habitat); and
- The presumed efficacy of the mitigation measures in reducing the effects of the specified activity to the level of least practicable adverse impact.

In addition, although 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 will 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 effects on individuals. The specified activities are not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

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

### **Small Numbers**

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

Table 6 presents the number of animals that could be exposed to received noise levels that may result in Level B take for the planned work at O'Connell Bridge. Our analysis shows that less than 10 percent of the best available population estimate of each affected stock could be taken. Furthermore, these percentages conservatively assume that all takes of killer whale and Steller sea lion will be accrued to a single stock, when multiple stocks are known to occur in the project area. There was one stock, minke whale, where the lack of an accepted stock abundance value did not allow for the calculation an expected percentage of the population that would be affected. The most relevant estimate of partial stock abundance is 1,233 minke whales for a portion of the Gulf of Alaska (Zerbini *et al.*, 2006). Given 3 authorized takes by Level B harassment for the stock, comparison to the best estimate of stock abundance shows less than 1 percent of the stock is expected to be impacted. Therefore, the numbers of animals authorized to

be taken for all species will be considered small relative to the relevant stocks or populations even if each estimated taking occurred to a new individual—an extremely unlikely scenario. For pinnipeds, especially harbor seals and Steller sea lions, occurring in the vicinity of the project site, there could be some overlap in individuals present day-to-day, and these takes are likely to occur only within some small portion of the overall regional stock.

Based on the analysis contained herein of the planned activity (including the required 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.

The peak hunting season in southeast Alaska occurs during the month of November and again over the March to April time frame (Wolfe *et al.*, 2013). The planned project is in an area where subsistence hunting for harbor seals or sea lions could occur (Wolfe *et al.*, 2013), but the area near the project location is not preferred for hunting.

During September 2018, CBS contacted the Alaska Harbor Seal Commission, the Alaska Sea Otter and Steller Sea Lion Commission, and the Sitka Tribe of Alaska. These organizations expressed no concerns about the impact of the action on subsistence marine mammals or their harvest by hunters near the project area. The Sitka Tribe did request that no pile driving occur between March 15 and May 31 to protect herring, as has been the case for past permitting in Sitka Sound. In response to this request, CBS will not commence in-water construction operations prior to June 1, 2019 or between March 15, 2020 and May 31, 2020.

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 CBS'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 incidental harassment authorization) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (incidental harassment authorizations 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.

## **Endangered Species Act (ESA)**

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

NMFS is authorizing take of two DPSs (*i.e.*, western DPS of Steller sea lions and Mexico DPS of humpback whales), which are listed under the ESA. The NMFS Alaska Regional Office issued a Biological Opinion in May 2019, under Section 7 of the ESA, on the issuance of an IHA to CBS under section 101(a)(5)(D) of the MMPA by the NMFS Office of Protected Resources. The Biological Opinion concluded that the proposed action is not likely to jeopardize the continued existence of western DPS Steller sea lions or Mexico DPS of humpback whales, and is not likely to destroy or adversely modify western DPS Steller sea lion critical habitat.

## **Authorization**

NMFS has issued an IHA to CBS for the incidental take of marine mammals due to in-water construction work associated with the O'Connell Bridge Lightering Float Pile Replacement project in Sitka, Alaska from June 1, 2019 through May 31, 2020, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: May 23, 2019.

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[FR Doc. 2019-12346 Filed: 6/11/2019 8:45 am; Publication Date: 6/12/2019]