E 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XD743]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Sitka Seaplane Base Construction

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

ACTION: Notice; issuance of two incidental harassment authorizations.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued two consecutive incidental harassment authorizations (IHAs) to City and Borough of Sitka (CBS) to incidentally harass marine mammals during construction activities associated with the CBS' Sitka Seaplane Base project, in Sitka, Alaska.

DATES: The authorizations are effective from July 1, 2024 through June 30, 2025 and July 1, 2025 through June 30, 2026.

ADDRESSES: Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-city-and-borough-sitkas-seaplane-base-construction-activities*. In case of problems accessing these documents, please call the contact listed below.

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

SUPPLEMENTARY INFORMATION:

Background

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

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

Summary of Request

On September 1, 2023, NMFS received a request from CBS for two IHAs to take marine mammals incidental to the Sitka seaplane base construction project in Sitka, Alaska, over the course of 2 years. Following NMFS' review of the application and a revised version, CBS submitted a final version on November 15, 2023. The application was deemed adequate and complete on December 1, 2023. The notice of proposed IHAs published for public comment on January 11, 2024 (89 FR 1884). For both IHAs, CBS's request is for take of seven species of marine mammals by Level B harassment and, for a

subset of three of these species, Level A harassment. Neither CBS nor NMFS expect serious injury or mortality to result from this activity and, therefore, IHAs are appropriate.

Description of Activity

CBS plans to replace the existing seaplane base in the Sitka Channel in Sitka, Alaska. The purpose of this project is to construct a new seaplane base, which would address existing capacity, safety, and condition deficiencies for critical seaplane operations, and for all seaplanes to transit the Sitka Chanel more safely. The planned location of the new seaplane base in the Sitka Channel is located on the northern shore of Japonski Island in the Sitka Sound. Over the course of 2 years spanning July 2024–June 2025 and July 2025–June 2026, CBS would use a variety of methods, including vibratory and impact pile driving, and down-the-hole (DTH) drilling to install and remove piles.

Phase I would involve the installation and removal of temporary piles, and the installation of permanent piles. During Phase I, 10 16-inch (in, 0.4 meter (m)) and 16 24-in (0.6 m) permanent steel piles would be installed. The installation and removal of 12 temporary 16-in (0.4 m) steel pipe piles would be completed to support permanent pile installation. Vibratory hammers, impact hammers, and DTH drilling would be used for the installation and removal of the piles (table 1). The installation and removal of temporary piles would be conducted using impact and vibratory hammers. All permanent piles would be initially installed with a vibratory hammer. After vibratory driving, piles would be socketed into the bedrock with DTH drilling equipment. Finally, piles would be driven the final few inches of embedment with an impact hammer.

Phase II similarly would involve the installation and removal of temporary piles, and the installation of permanent piles. During Phase II six 24-in (0.6 m) steel piles would be installed. The installation and removal of six temporary 16-in (0.4 m) steel pipe piles would be completed to support the permanent pile installation. As in Phase I,

vibratory hammers, impact hammers, and DTH drilling would be used for the installation and removal of the piles (table 2). The installation and removal of temporary piles would be conducted using impact and vibratory hammers. All permanent piles would be initially installed with a vibratory hammer. After vibratory driving, piles would be socketed into the bedrock with DTH drilling equipment. Finally, piles would be driven the final few inches of embedment with an impact hammer.

A further detailed description of the planned construction project is provided in the **Federal Register** notice for the proposed IHAs (89 FR 1884, January 11, 2024). 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 specified activity. Mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Mitigation** and **Monitoring and Reporting**).

Comments and Responses

A notice of NMFS' proposal to issue two consecutive IHAs to CBS was published in the **Federal Register** on January 11, 2024 (89 FR 1884). That notice described, in detail, CBS' activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During that 30-day public comment period, no comments were received.

Changes From the Proposed IHAs for Final IHAs

Changes were made between publication of the notice of proposed IHAs and this notice of final IHAs. Changes have been made to correct typographical errors and inconsistences in the high frequency shutdown zones in both the Phase I and Phase II IHAs to reflect the correct shutdown zones included in the proposed **Federal Register** notice.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions, instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' 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' website (*https://www.fisheries.noaa.gov/find-species*).

Table 1 lists all species or stocks for which take is expected and authorized for this activity and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no serious injury or mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Alaska Marine Mammal SARs. All values presented in table 1 are the most recent available final SAR at

the time of publication of NMFS' proposed IHAs and are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*.

Table 1 -- Species Likely Impacted by the Specified Activities

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, Nmin, most recent abundance survey)[2]	PBR	Annual M/SI[3]
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Balaenopteridae (rorquals)						
Humpback Whale	*Megaptera novaeangliae*	Hawai'i	-,-,N	11,278 (0.56, 7,265, 2020)	127	27
		Mexico- North Pacific	T,D,Y	N/A (N/A, N/A, 2006)	UND	0.6
Minke Whale	*Balaenoptera acutorostrata*	Alaska	-,-,N	N/A (N/A, N/A, 2018)		0
Family Eschrichtiidae						
Gray Whale	*Eschrichtius robustus*	Eastern North Pacific	-,-,N	26,960 (0.05, 25,849, 2016)	801	131
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Killer whale	*Orca orcinus*	Northern Resident	-,-,N	302 (N/A, 302, 2018)	2.2	0.2
		Alaska Resident	-,-,N	1,920 (N/A, 1,920, 2019)	19	1.3
		Gulf of Alaska/Aleutian Islands/Bering Sea Transient	-,-,N	587 (N/A, 587, 2012)	5.9	0.8
		West Coast Transient	-,-,N	349 (N/A, 349, 2018)	3.5	0.4
Family Phocoenidae (porpoises)						
Harbor porpoise	*Phocoena phocoena*	Northern Southeast Alaska	-,-,N	1,619 (0.26, 1,250, 2019)	13	5.6
Order Carnivora – Superfamily Pinnipedia						

Family Otariidae (eared seals and sea lions)						
Steller sea lion	*Eumetopias jubatus*	Western Stock	E,D,Y	52,932 (N/A, 52,932, 2019)	318	254
		Eastern Stock	-,-,N	43,201 (N/A, 43,201, 2017)	2,592	112
Family Phocidae (earless seals)						
Harbor seal	*Phoca vituline richardii*	Sitka/Chatham	-,-,N	13,289 (N/A, 11,883, 2015)	356	77

1 - 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-assessment-reports* CV is coefficient of variation; Nmin is the minimum estimate of stock abundance.

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

As indicated above, all 7 species (with 12 managed stocks) in table 1 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. All species that could potentially occur in the action area are included in table 8 of the IHA application. While northern fur seal, Pacific white-sided dolphin, Dall's porpoise, North Pacific right whale, sperm whale, fin whale, and Cuvier's beaked whale have been documented in or near Sitka Sound and Sitka Channel, the temporal and/or spatial occurrence of these species is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here. These species are all considered to be rare (no sightings in recent years) or very rare (no local knowledge of sightings within the project vicinity) within Sitka Sound or near the action area. The take of these species has not been requested nor is authorized and these species are not considered further in this document. Additionally, the Northern Sea Otter may be found

in Sitka Sound. However, the Northern Sea Otter are managed by the U.S. Fish and Wildlife Service and are not considered further in this document.

A detailed description of the species likely to be affected by CBS' construction project, were provided in the **Federal Register** notice for the proposed IHAs (89 FR 1884, January 11, 2024). 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 the **Federal Register** notice for these descriptions. Please also refer to the NMFS website (*https://www.fisheries.noaa.gov/find-species*) for generalized species descriptions.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.*

(2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in table 2.

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

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

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

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

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

The effects of underwater noise from CBS' pile driving activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the project area. The notice of the proposed IHAs (89 FR 1884, January 11, 2024) included a discussion of the effects of anthropogenic noise on marine mammals and the potential effects of under noise from CBS' pile driving activities on marine mammals and their

habitat. Please refer to the notice of the proposed IHAs (89 FR 1884, January 11, 2024) for that information and analysis, which is not repeated here.

Estimated Take of Marine Mammals

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

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

Authorized takes would primarily be by Level B harassment, as vibratory or impact pile driving and 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 harbor porpoise, harbor seals and Steller sea lions. Harbor porpoise have larger predicted auditory injury zones and due to their small size, they could enter the Level A harassment zone and remain undetected for sufficient duration to incur auditory injury. While Steller sea lion do not have large Level A harassment zones, they are frequently sighted in the project area and therefor have some potential for auditory injury. Additionally harbor seals have larger Level A harassment zones and are common in the action area, and therefore have potential for auditory injury. Auditory injury is unlikely to occur for all other species, based on the unlikelihood of the species in the action area and the smaller Level A harassment zones. The mitigation and

monitoring measures are expected to minimize the severity of the taking to the extent practicable.

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

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

Acoustic Thresholds

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

Level B Harassment – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.*, frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.*, bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.*, Southall *et al.,* 2007, 2021; Ellison *et al.*,

2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1 μPa)) for continuous (*e.g.,* vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 μPa for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources. Generally speaking, Level B harassment take estimates based on these behavioral harassment thresholds are expected to include any likely takes by temporary threshold shift (TTS) as, in most cases, the likelihood of TTS occurs at distances from the source less than those at which behavioral harassment is likely. TTS of a sufficient degree can manifest as behavioral harassment, as reduced hearing sensitivity and the potential reduced opportunities to detect important signals (conspecific communication, predators, prey) may result in changes in behavior patterns that would not otherwise occur.

CBS's planned activity includes the use of continuous (vibratory hammer and DTH drilling) and impulsive (DTH drilling and impact pile driving) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1 μPa are applicable.

Level A harassment – NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). CBS's planned activity includes the use of impulsive (impact pile driving and DTH drilling) and non-impulsive (vibratory hammer and DTH 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 3 – 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 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 are used in estimating the area ensonified above the acoustic thresholds, including source levels and transmission loss coefficient.

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

In order to calculate distances to the Level A harassment and Level B harassment thresholds for the methods and piles being used in this project, NMFS used acoustic monitoring data from other locations to develop source levels for the various pile types, sizes and methods (table 4). This analysis uses practical spreading loss, a standard assumption regarding sound propagation for similar environments, to estimate transmission of sound through water. For this analysis, the transmission loss factor of 15 (4.5 dB per doubling of distance) is used. A weighting adjustment factor of 2.5 or 2, a standard default value for vibratory pile driving and removal or impact driving and DTH respectively, were used to calculate Level A harassment areas.

NMFS recommends treating DTH systems as both impulsive and continuous, non-impulsive sound source types simultaneously. Thus, impulsive thresholds are used to evaluate Level A harassment, and continuous thresholds are used to evaluate Level B harassment. With regards to DTH mono-hammers, NMFS recommends proxy levels for Level A harassment based on available data regarding DTH systems of similar sized piles and holes (Denes *et al.,* 2019; Guan and Miner, 2020; Reyff and Heyvaert, 2019; Reyff, 2020; Heyvaert and Reyff, 2021).

Table 4 -- Estimates Underwater Proxy Source Level for Pile Installation and Removal

Method and Pile Type	Sound Source at 10 meters	Source
Vibratory Hammer	**dB rms**	
16 in	161	NAVFAC 2015
24 in	161	NAVFAC 2015

DTH Drill	dB rms	dB SEL	dB peak	
16 in	167	146	172	Heyvaert and Reyff 2021, Guan and Miner 2020
24 in	167	159	184	Heyvaert and Reyff 2021
Impact Hammer	**dB rms**	**dB SEL**	**dB peak**	
16 in	185	175	200	Caltrans 2020
24 in	190	177	203	Caltrans 2015

Level B Harassment Zones

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

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

Where:

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

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

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

The recommended TL coefficient for most nearshore environments is the practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, which is the most appropriate assumption for CBS's planned underwater activities. The Level B harassment zones and approximate amount of area ensonified for the underwater activities are shown in table 5.

Level A Harassment Zones

The ensonified area associated with Level A harassment is more technically challenging to predict due to the need to account for a duration component. Therefore, NMFS developed an optional User Spreadsheet tool to accompany the Technical Guidance that can be used to relatively simply predict an isopleth distance for use in conjunction with marine mammal density or occurrence to help predict potential takes. We note that because of some of the assumptions included in the methods underlying this optional tool, we anticipate that the resulting isopleth estimates are typically going to be overestimates of some degree, which may result in an overestimate of potential take by Level A harassment. However, this optional tool offers the best way to estimate isopleth distances when more sophisticated modeling methods are not available or practical. For stationary sources such as pile installation or removal, the optional User Spreadsheet tool predicts the distance at which, if a marine mammal remained at that distance for the duration of the activity, it would be expected to incur PTS. The isopleths generated by the User Spreadsheet used the same TL coefficient as the Level B harassment zone calculations (*i.e.,* the practical spreading value of 15). Inputs used in the User Spreadsheet (*e.g.,* number of piles per day, duration and/or strikes per pile) are presented in tables 1 and 2. The maximum RMS SPL, sound exposure level (SEL), and resulting isopleths are reported in tables 4 and 5.

Table 5 -- Level A and Level B Harassment Isopleths for Pile Driving Activities

Activity	**Level A isopleth (m)**					**Level B isopleth (m)**
	LF	**MF**	**HF**	**Phocids**	**Otariids**	
Vibratory Pile Removal/Installation						
Phase I						
16- in temp install	6.8	0.6	10.1	4.2	0.3	5,411.7
16-in temp removal	6.8	0.6	10.1	4.2	0.3	5,411.7

16-in perm install	6.8	0.6	10.1	4.2	0.3	5,411.7
24-in perm install	6.8	0.6	10.1	4.2	0.3	5,411.7
Phase II						
16- in temp install	6.8	0.6	10.1	4.2	0.3	5,411.7
16-in temp removal	6.8	0.6	10.1	4.2	0.3	5,411.7
24-in perm install	6.8	0.6	10.1	4.2	0.3	5,411.7
DTH Pile Installation						
Phase I						
16-in perm install	59	2.1	70.3	31.6	2.3	8,500[1]
24-in perm install	568.9	20.2	677.6	304.4	22.2	8,500[1]
Phase II						
24-in perm install	568.9	20.2	677.6	304.4	22.2	8,500[1]
Impact Pile Installation						
Phase I						
16-in temp install	231	8.2	275	123	9	464.2
16-in perm install	231	8.2	275	123	9	464.2
24-in perm install	313	11.1	373	168	12.2	1,000
Phase II						
16-in temp install	231	8.2	275	123	9	464.2
24-in perm install	313	11.1	373	168	12.2	1,000

[1]The calculated Level B harassment zone is 13,594 m. However, the farthest distance that sound will transmit from the source is 8,500 m before transmission is stopped by landmasses.

Marine Mammal Occurrence

In this section we provide information about the occurrence of marine mammals, including density or other relevant information which will inform the take calculations.

Daily occurrence probability of each marine mammal species in the action area is based on consultation with previous monitoring reports, local researchers and marine professionals. Occurrence probability estimates are based on conservative density

approximations for each species and factor in historic data of occurrence, seasonality, and group size in Sitka Sound and Sitka Channel. A summary of species occurrence is shown in table 6. To accurately describe species occurrence near the action area, marine mammals were described as either common (species sighted consistently during all monitoring efforts in the project vicinity, assume one to two groups per day), frequent (species sighted with some consistency during most monitoring efforts in the project vicinity, assume one group per week), or infrequent (species sighted occasionally during a few monitoring efforts in the project vicinity, assume one group per 2 weeks).

Table 6 -- Estimated Occurrence of Group Sightings of Marine Mammal Species

Species	Frequency	Average Group Size	Expected occurrence
Humpback whale	Frequent	3.4	1 group/ week
Minke whale[1]	Infrequent	3.5	1 group/ 2 weeks
Gray whale	Infrequent	3.5	1 group/ 2 weeks
Killer whale	Frequent	6.6	1 group/ week
Harbor porpoise	Infrequent	5.0	1 group/ 2 weeks
Harbor seal[2]	Common	2.1	1-2 groups/ day
Steller sea lion[2]	Common	2.0	1-2 groups/ day

[1]Minke whale considered rare in Sitka Channel, but to be conservative they are treated as infrequent for take estimation as there is a small likelihood they could be in the area during the activity.
[2]Likelihood of one group/ day in the Level A harassment zone and likelihood of two groups/day in the level B harassment zone.

Take Estimation

Here we describe how the information provided above is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and authorized.

For the total underwater take estimate, the daily occurrence probability for a species was multiplied by the estimated group size and by the number of days of each

type of pile driving activity. Group size is based on the best available published research for these species and their presence in the action area.

Estimated take = Group size × Groups per day × Days of pile driving activity

Take by Level A harassment is anticipated for Steller sea lions and harbor seals. Although Steller sea lion Level A harassment zones are small, as previously discussed they are known to spend extended periods of time within the breakwaters in Sitka sound and in the project area. Harbor seals are also common in the project area and although their Level A harassment zones are farther from the project area, CBS has requested a maximum shutdown zone of 125 m for harbor seals and therefor there is likelihood for take by Level A harassment of harbor seals. Take by Level A harassment is also requested for harbor porpoise. We require a maximum shutdown zone for high frequency species of 300 m in this case and therefor there is likelihood for some take by Level A harassment. Even though they are not as common within the breakwaters, their Level A harassment zone extends beyond the breakwaters and they are elusive in nature. The take by Level A harassment for both pinniped species are based on a lower daily occurrence rate based on the frequency of sightings within the smaller Level A harassment zone of the breakwaters (table 6).

Additionally, for species that are large and/or infrequent (gray whale, minke whale, humpback whale, and harbor porpoise) in Sitka Sound and are unlikely to be within the breakwaters where the action will take place, take by Level B harassment is only anticipated to occur incidental to vibratory and DTH methods, given the larger Level B harassment zones which will extend beyond the breakwaters. Anticipated take by Level A harassment for harbor seal and harbor porpoise would likely occur only incidental to impact pile driving and DTH drilling, and anticipated take of Steller sea lion by Level A harassment would likely occur only incidental to DTH drilling, due to the larger Level A harassment zones for these activities. See table 5.

Table 7 -- Take of Marine Mammals by Level A and Level B Harassment and Percent of Stock to be Taken

Species	Stock	Phase 1			Phase 2		
		Level A	Level B	Percent of Stock	Level A	Level B	Percent of Stock
Humpback whale[1]	Hawai'i	0	11	0.1	0	4*	0
	Mexico-North Pacific[2]	0	0	0	0	0	0
Gray Whale	Eastern North Pacific	0	6	0	0	4*	0
Minke Whale	Alaska	0	6	NA	0	4*	NA
Killer whale	West Coast Transients	0	3	0.9	0	1	0.3
	Gulf, Aleutian, Bering Transient	0	6	0.9	0	2	0.3
	Northern Resident	0	3	0.9	0	1	0.3
	Alaska Resident	0	18	0.9	0	6	0.3
Harbor porpoise	Northern Southeast Alaska	5*	8	0.9	5*	5*	0.7
Harbor seal	Sitka/Chatham Alaska	48	130	1.3	13	38	0.4
Steller sea lion	Eastern US	16	121	0.3	6	35	0.1
	Western US	0	3	0	0	2*	0

[1]Take estimates are weighted based on calculated percentages of population for each distinct stock, assuming animals present would follow same probability of presence in project area. Humpback whale probability by stock based on Southeast Alaska estimates from NMFS 2021 (98 percent Hawaii distinct population segment (DPS); 2 percent Mexico DPS).

[2]ESA listed Mexico humpback whales take calculation resulted in less than 0.5 takes, therefore no takes are anticipated or authorized.

*Where calculated take was less than the average group size, the take was rounded up to a group size as that is likely what would be encountered.

Mitigation

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

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

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat, 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, and impact on operations.

Mitigation Measures

For each IHA, CBS must follow mitigation measures as specified below:

- Ensure that construction supervisors and crews, the monitoring team, and relevant CBS staff are trained prior to the start of all pile driving and DTH drilling activity, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work;
- Employ Protected Species Observers (PSOs) and establish monitoring locations as described in the application and the IHA. The Holder must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions. For all pile driving and removal at least one PSO must be used. The PSO will be stationed as close to the activity as possible;
- The placement of the PSOs during all pile driving and removal and DTH drilling activities will ensure that the entire shutdown zone is visible during pile installation;
- Monitoring must take place from 30 minutes prior to initiation of pile driving or DTH drilling activity (*i.e.,* pre-clearance monitoring) through 30 minutes post-completion of pile driving or DTH drilling activity;
- Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in table 10 are clear of marine mammals. Pile driving and DTH drilling may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals;
- CBS must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at

any time following cessation of impact pile driving for a period of 30 minutes or longer; and

- If a marine mammal is observed entering or within the shutdown zones indicated in table 10, pile driving and DTH drilling must be delayed or halted. If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone (table 11) or 15 minutes have passed without re-detection of the animal.

As planned by the applicant, in water activities will take place only between civil dawn and civil dusk when PSOs can effectively monitor for the presence of marine mammals; during conditions with a Beaufort sea state of four or less. Pile driving and DTH drilling may continue for up to 30 minutes after sunset during evening civil twilight, as necessary to secure a pile for safety prior to demobilization during this time. The length of the post-activity monitoring period may be reduced if darkness precludes visibility of the shutdown and monitoring zones.

Shutdown Zones

CBS will establish shutdown zones for all pile driving and DTH drilling activities. The purpose of a shutdown zone is generally to define an area within which shutdown of the activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones would be based upon the Level A harassment isopleth for each pile size/type and driving method where applicable, as shown in table 10.

For in-water heavy machinery activities other than pile driving, if a marine mammal comes within 10 m, work will stop and vessels will reduce speed to the minimum level required to maintain steerage and safe working conditions. A 10 m shutdown zone serves to protect marine mammals from physical interactions with project

vessels during pile driving and other construction activities, such as barge positioning or drilling. If an activity is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone indicated in table 10 or 15 minutes have passed without re-detection of the animal. Construction activities must be halted upon observation of a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met entering or within the harassment zone.

All marine mammals will be monitored in the Level B harassment zones and throughout the area as far as visual monitoring can take place. If a marine mammal enters the Level B harassment zone, construction activities including in-water work will continue and the animal's presence within the estimated harassment zone will be documented.

CBS would also establish shutdown zones for all marine mammals for which take has not been authorized or for which incidental take has been authorized but the authorized number of takes has been met. These zones are equivalent to the Level B harassment zones for each activity. If a marine mammal species not covered under this IHA enters the shutdown zone, all in-water activities will cease until the animal leaves the zone or has not been observed for at least 15 minutes, and NMFS will be notified about species and precautions taken. Pile driving will proceed if the non-IHA species is observed to leave the Level B harassment zone or if 15 minutes have passed since the last observation.

If shutdown and/or clearance procedures would result in an imminent safety concern, as determined by CBS or its designated officials, the in-water activity will be allowed to continue until the safety concern has been addressed, and the animal will be continuously monitored.

Table 8 -- Shutdown and Monitoring Zones

Activity	Level A isopleth (m)					Level B isopleth (m)
	LF	MF	HF[2]	Phocids[1]	Otariids	
Vibratory Pile Removal/Installation						
Phase I						
16- in temp install	10	10	20	10	10	5,415
16-in temp removal	10	10	20	10	10	5,415
16-in perm install	10	10	20	10	10	5,415
24-in perm install	10	10	20	10	10	5,415
Phase II						
16- in temp install	10	10	20	10	10	5,415
16-in temp removal	10	10	20	10	10	5,415
24-in perm install	10	10	20	10	10	5,415
DTH Pile Installation						
Phase I						
16-in perm install	60	10	75	35	10	8,500
24-in perm install	570	30	300	125	30	8,500
Phase II						
24-in perm install	570	30	300	125	30	8,500
Impact Pile Installation						
Phase I						
16-in temp install	235	10	275	125	10	465
16-in perm install	235	10	275	125	10	465
24-in perm install	315	20	300	125	20	1,000
Phase II						
16-in temp install	235	10	275	125	10	465

24-in perm install	315	20	300	125	20	1,000

[1]Maximum shutdown for phocids is reduced to 125 m as they are a common species within the breakwaters of Sitka Sound.
[2]Maximum shutdown for high frequency species is reduced to 300 m, given the difficulty observing harbor porpoise at greater distances.

Protected Species Observers

The placement of PSOs during all construction activities (described in the **Monitoring and Reporting** section) would ensure that the entire shutdown zone is visible. Should environmental conditions deteriorate such that the entire shutdown zone would not be visible (*e.g.,* fog, heavy rain), pile driving would be delayed until the PSO is confident marine mammals within the shutdown zone could be detected.

PSOs would monitor the full shutdown zones and the remaining Level A harassment and the Level B harassment zones to the extent practicable. 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 areas outside the shutdown zones and thus prepare for a potential cessation of activity should the animal enter the shutdown zone.

Pre-Activity Monitoring

Prior to the start of daily in-water construction activity, or whenever a break in pile driving or DTH drilling of 30 minutes or longer occurs, PSOs would observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone would be considered cleared when a marine mammal has not been observed within the zone for that 30-minute period. If a marine mammal is observed within the shutdown zones listed in table 10, pile driving activity would be delayed or halted. If work ceases for more than 30 minutes, the pre-activity monitoring of the shutdown zones would commence. A determination that the shutdown zone is clear must be made during a period of good visibility (*i.e.,* the entire shutdown zone and surrounding waters must be visible to the naked eye).

Soft-Start Procedures

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

Based on our evaluation of the applicant's measures NMFS has determined that the mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

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

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);

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

Visual Monitoring

Marine mammal monitoring must be conducted in accordance with the conditions in this section and the IHA. Marine mammal monitoring during pile driving activities would be conducted by PSOs meeting NMFS' following requirements:

- PSOs must be independent of the activity contractor (for example, employed by a subcontractor) and have no other assigned tasks during monitoring periods;
- At least one PSO would have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- Other PSOs may substitute education (degree in biological science or related field) or training for experience; and

- Where a team of three or more PSOs is required, a lead observer or monitoring coordinator would be designated. The lead observer would be required to have prior experience working as a marine mammal observer during construction.

PSOs should have the following additional qualifications:

  - Ability to conduct field observations and collect data according to assigned protocols;
  - Experience or training in the field identification of marine mammals, including the identification of behaviors;
  - Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
  - Writing skills sufficient to prepare a report of observations including but not limited to the number 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
  - 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.

- CBS must employ up to five PSOs depending on the size of the monitoring and shutdown zones. A minimum of two PSOs (including the lead PSO) must be assigned to the active pile driving location to monitor the shutdown zones and as much of the Level B harassment zones as possible.
- CBS must establish monitoring locations with the best views of monitoring zones as described in the IHA and Monitoring Plan posted on our website.
- Up to four monitors will be used at a time depending on the size of the monitoring area. PSOs would be deployed in strategic locations around the area of potential

effects at all times during in-water pile driving and removal. PSOs will be positioned at locations that provide full views of the monitoring zones and the Level A harassment Shutdown Zones. All PSOs would have access to high-quality binoculars, range finders to monitor distances, and a compass to record bearing to animals as well as radios or cells phones for maintaining contact with work crews.

- Up to four PSOs will be stationed at the following locations: the project site, Sandy Beach Day use site, O'Connell lightering float, and Whale Park. Monitoring would be conducted 30 minutes before, during, and 30 minutes after all in water construction activities. In addition, PSOs would record all incidents of marine mammal occurrence, regardless of distance from activity, and would document any behavioral reactions in concert with distance from piles being driven or removed. Pile driving activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

CBS shall conduct briefings between construction supervisors and crews, PSOs, CBS staff prior to the start of all pile driving activities and when new personnel join the work. These briefings would explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

Reporting

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

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including the number and type of piles driven or removed and by what method (*i.e.,* impact, vibratory, or DTH drilling) and the total equipment duration for vibratory removal for each pile or total number of strikes for each pile (impact driving);
- PSO locations during marine mammal monitoring;
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;
- Upon observation of a marine mammal, the following information:
- Name of PSO who sighted the animal(s) and PSO location and activity at the time of sighting;
- Time of sighting;
- Identification of the animal(s) (*e.g.,* genus/species, lowest possible taxonomic level, or unidentifiable), PSO confidence in identification, and the composition of the group if there is a mix of species;
- Distance and bearing of each marine mammal observed relative to the pile being driven for each sightings (if pile driving was occurring at time of sighting);
- Estimated number of animals (min/max/best estimate);
- Estimated number of animals by cohort (adults, juveniles, neonates, group composition, sex class, *etc.*);
- Animal's closest point of approach and estimated time spent within the harassment zone;
- Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral

responses thought to have resulted from the activity (*e.g.,* no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);

- Number of marine mammals detected within the harassment zones and shutdown zones; by species; and
- Detailed information about any implementation of any mitigation triggered (*e.g.,* shutdowns and delays), a description of specific actions that ensured, and resulting changes in behavior of the animal(s), if any.

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

Reporting Injured or Dead Marine Mammals

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

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);

- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

Negligible Impact Analysis and Determination

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

To avoid repetition, the discussion of our analysis applies to all species listed in table 3, 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. In addition, because both the number and nature of the estimated takes anticipated to occur are identical in Phase I and II, the analysis below applies to both of the IHAs.

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

No serious injury or mortality would be expected, even in the absence of required mitigation measures, given the nature of the activities. Further, no take by Level A harassment is anticipated for killer whales, humpback whales, gray whales, or minke whales due to the application of planned mitigation measures, such as shutdown zones that encompass the Level A harassment zones for the species, the rarity of the species near the action area, and the small Level A harassment zones (for killer whales only). The potential for harassment would be minimized through the construction method and the implementation of the planned mitigation measures (see **Mitigation** section).

Take by Level A harassment is authorized for three species (harbor porpoise, Steller sea lion, and harbor seal) as the Level A harassment isopleths exceed the size of the shutdown zones for specific construction scenarios, the Level A harassment zones are large, and/or the species is frequent near the action area. Therefore, there is the possibility that an animal could enter a Level A harassment zone and remain within that zone for a duration long enough to incur PTS. Level A harassment of these species is therefore authorized. Any take by Level A harassment is expected to arise from, at most, a small degree of PTS (*i.e.,* minor degradation of hearing capabilities within regions of hearing that align most completely with the energy produced by impact pile driving such as the

low-frequency region below 2 kHz), not severe hearing impairment or impairment within the ranges of greatest hearing sensitivity. Animals would need to be exposed to higher levels and/or longer duration than are expected to occur here in order to incur any more than a small degree of PTS.

Further, the amount of take authorized by Level A harassment is very low for the marine mammal stocks and species. If hearing impairment occurs, it is most likely that the affected animal would lose only a few decibels in its hearing sensitivity. Due to the small degree anticipated, any PTS potential incurred would not be expected to affect the reproductive success or survival of any individuals, much less result in adverse impacts on the species or stock.

The Level A harassment zones identified in table 7 are based upon an animal exposed to pile driving or DTH drilling of several piles per day (six piles per day for vibratory removal and installation, four piles per day of impact driving, and two piles per day of DTH drilling). Given the short duration to impact drive or vibratory install or remove, or use DTH drilling, each pile and break between pile installations (to reset equipment and move piles into place), an animal would have to remain within the area estimated to be ensonified above the Level A harassment threshold for multiple hours. This is highly unlikely given marine mammal movement patterns in the area. If an animal was exposed to accumulated sound energy, the resulting PTS would likely be small (*e.g.,* PTS onset) at lower frequencies where pile driving energy is concentrated, and unlikely to result in impacts to individual fitness, reproduction, or survival.

Additionally, some subset of the individuals that are behaviorally harassed could also simultaneously incur some small degree of TTS for a short duration of time. However, since the hearing sensitivity of individuals that incur TTS is expected to recover completely within minutes to hours, it is unlikely that the brief hearing impairment would affect the individual's long-term ability to forage and communicate

with conspecifics, and would therefore not likely impact reproduction or survival of any individual marine mammal, let alone adversely affect rates of recruitment or survival of the species or stock.

The nature of the pile driving project precludes the likelihood of serious injury or mortality. For all species and stocks, take would occur within a limited, confined area (adjacent to the project site) of the stock's range. The intensity and duration of take by Level A and Level B harassment would be minimized through use of mitigation measures described herein. Further, the amount of take authorized is extremely small when compared to stock abundance.

Behavioral responses of marine mammals to pile driving, pile removals, and DTH drilling in Sitka Channel and the surrounding Sitka Sound are expected to be mild, short term, and temporary. Marine mammals within the Level B harassment zones may not show any visual cues they are disturbed by activities or they could become alert, avoid the area, leave the area, or display other mild responses that are not observable such as changes in vocalization patterns. Given that pile driving, pile removal, and DTH drilling are temporary activities and effects would cease when equipment is not operating, any harassment occurring would be temporary. Additionally, many of the species present in the region would only be present temporarily based on seasonal patterns or during transit between other habitats. These species would be exposed to even smaller periods of noise-generating activity, further decreasing the impacts.

Nearly all inland waters of southeast Alaska, including Sitka Sound, are included in the southeast Alaska humpback whale feeding Biologically Important Area (BIA) (Wild *et al*., 2023), though humpback whale distribution in southeast Alaska varies by season and waterway (Dahlheim *et al.,* 2009). Humpback whales could be present within Sitka Sound year round, however the action area is within the breakwaters where humpback whales are not commonly found and therefore, the BIA is not expected to be

affected. Therefore, the planned project is not expected to have significant adverse effects on the foraging of humpback whales.

Sitka Sound is also within a gray whale migratory corridor BIA (Wild *et al*., 2023). Construction is expected to occur while the BIA is active during the southbound migration (November to January) and northbound migration (March to May). The Sound is also a Gray whale feeding BIA. Construction is expected to overlap with the feeding BIA (March to June). However, as noted for humpback whales, project activities will only overlap seasonally in the gray whale migratory and feeding BIAs, and the overall 2 year project (Phase I and Phase II) is expected to occur over just 40 in-water workdays, further reducing the temporal overlap with the BIAs. Additionally, the area of the feeding BIA in which impacts of the planned project may occur is small relative to both the overall area of the BIA and the overall area of suitable gray whale habitat outside of this BIA. The area of Sitka Sound affected by this project is also small relative to the rest of the Sound, such that it allows animals within the migratory corridor to still utilize Sitka Sound without necessarily being disturbed by the construction. Specifically, all Level A harassment isopleths for gray whale are within the breakwaters where gray whales are not expected. Therefore, take of gray whales using the feeding and migratory BIAs is not expected to impact feeding or migratory behavior and, therefore, would not impact reproduction or survivorship.

As noted previously, since January 1, 2019, elevated gray whale strandings have occurred along the west coast of North America from Mexico through Alaska. The event has been declared an unusual mortality event (UME), though a cause has not yet been determined. While six takes by Level B harassment in phase I and four takes by Level B harassment in phase II of gray whale are authorized for each year this is an extremely small portion of the stock (<1 percent), and CBS will be required to implement a

shutdown zone that includes the entire Level A harassment zone for low-frequency cetaceans such as gray whales.

The same regions are also a part of the Western DPS Steller sea lion ESA critical habitat. While Steller sea lions are common in the project area, there are no essential physical and biological habitat features, such as haulouts or rookeries, within the project area. The nearest haulout is approximately 25 kilometers away from the project area. Therefore, the project is not expected to have significant adverse effects on the critical habitat of Western DPS Steller sea lions. No areas of specific biological importance (*e.g.,* ESA critical habitat, other BIAs, or other areas) for any other species are known to co-occur with the project area.

In addition, it is unlikely that minor noise effects in a small, localized area of habitat would have any effect on each stock's 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 would have only minor, short-term effects on individuals. The specified activities are not expected to impact rates of recruitment or survival and would therefore not result in population-level impacts.

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

- No serious injury or mortality is anticipated or authorized;
- Level A harassment would be very small amounts and of low degree;
- Level A harassment takes of only harbor porpoise, Steller sea lions and harbor seals;

- For all species, the Sitka Sound and channel are a very small and peripheral part of their range;
- Anticipated takes by Level B harassment are relatively low for all stocks. Level B harassment would be primarily in the form of behavioral disturbance, resulting in avoidance of the project areas around where impact or vibratory pile driving is occurring, with some low-level TTS that may limit the detection of acoustic cues for relatively brief amounts of time in relatively confined footprints of the activities;
- Effects on species that serve as prey for marine mammals from the activities are expected to be short-term and, therefore, any associated impacts on marine mammal feeding are not expected to result in significant or long-term consequences for individuals, or to accrue to adverse impacts on their populations;
- The ensonified areas are very small relative to the overall habitat ranges of all species and stocks, and would not adversely affect ESA-designated critical habitat for any species or any areas of known biological importance;
- The lack of anticipated significant or long-term negative effects to marine mammal habitat; and
- CBS would implement mitigation measures including soft-starts and shutdown zones to minimize the numbers of marine mammals exposed to injurious levels of sound, and to ensure that take by Level A harassment is, at most, a small degree of PTS.

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, specific to each of the 2 consecutive years of planned activity, would have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

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

The amount of take NMFS authorized, for each of the 2 consecutive years of the activity, is below one third of the estimated stock abundance for all species (in fact, take of individuals is less than 2 percent of the abundance of the affected stocks, see table 9). This is likely a conservative estimate because we assume all takes are of different individual animals, which is likely not the case. Some individuals may return multiple times in a day, but PSOs would count them as separate takes if they cannot be individually identified.

There is no current or historical estimate of the Alaska minke whale stock, but there are known to be over 1,000 minke whales in the Gulf of Alaska (Muto *et al.,* 2018), so the 10 takes by Level B harassment over the 2 years of the project duration is small relative to estimated survey abundance, even if each take occurred to a new individual. Additionally, the range of the Alaska stock of minke whales is extensive, stretching from

the Canadian Pacific coast to the Chukchi Sea, and CBS's project would only impact a small portion of this range.

Based on the analysis contained herein of the planned activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that, for each of the two IHAs, small numbers of marine mammals would 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.

Sitka Channel and other nearby areas are within the traditional territory of the Sheet'ká Ḵwáan. Alaska natives have traditionally harvested marine mammals in Sitka, however today a majority of the subsistence harvest is of species other than marine mammals. Alaska Department Fish and Game reported that in 2013, around 11 percent of Sitka households used subsistence-caught marine mammals (ADF&G, 2023), however this is the most recent data available and there has not been a survey since.

The project is not likely to adversely impact the availability of any marine mammal species or stocks that are commonly used for subsistence purposes or impact subsistence harvest of marine mammals in the region because:

- There is no recent recorded subsistence harvest of marine mammals in the area;
- Construction activities are temporary and localized primarily within Sitka Channel;
- Construction will not take place during the herring spawning season when subsistence species are more active;
- 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.

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, specific to each of the 2 consecutive years of planned activity, there will not be an unmitigable adverse impact on subsistence uses from CBS's activities.

Endangered Species Act

There are two marine mammals (western DPS Steller sea lion and Mexico- North Pacific DPS humpback whale) with the potential to occur in the project area that are listed as endangered or threatened under the ESA. The NMFS Alaska Regional Office issued a Biological Opinion under section 7 of the ESA on the issuance of two IHAs to CBS under section 101(a)(5)(D) of the MMPA by the NMFS OPR. The Biological Opinion concluded that this action is not likely to jeopardize the continued existence of either DPS. In addition, the action authorized no take of the Mexico- North Pacific DPS humpback whale and is not likely to adversely affect any critical habitat.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq*.) and NOAA Administrative Order (NAO) 216-6A, NMFS must

review our action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment.

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

Authorization

NMFS has issued two consecutive IHAs to CBS for conducting Seaplane Base construction in Sitka, Alaska, starting in July 2024 for Phase I and July 2025 for Phase II, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. The issued IHAs can be found at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-city-and-borough-sitkas-seaplane-base-construction-activities*.

Dated: May 6, 2024.

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National Marine Fisheries Service.

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