BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XR029

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Erickson Residence Marine Access Project in Juneau, Alaska

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

ACTION: Notice; proposed incidental harassment authorization; request for comments on proposed authorization and possible renewal.

SUMMARY: NMFS has received a request from Jim Erickson for authorization to take marine mammals incidental to the Erickson Residence Marine Access Project in Juneau, Alaska. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-year renewal that could be issued under certain circumstances and if all requirements are met, as described in *Request for Public Comments* at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorizations and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service.

Physical comments should be sent to 1315 East-West Highway, Silver Spring, MD 20910 and electronic comments should be sent to *ITP.Fowler@noaa.gov*.

Instructions: NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period. Comments received electronically, including all attachments, must not exceed a 25-megabyte file size. Attachments to electronic comments will be accepted in Microsoft Word or Excel or Adobe PDF file formats only. All comments received are a part of the public record and will generally be posted online at https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act without change. All personal identifying information (*e.g.*, name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

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

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than

commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

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

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 preliminarily determined that the issuance of the proposed IHA qualifies to be categorically excluded from further NEPA review.

We will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

Summary of Request

On May 8, 2019, NMFS received a request from Jim Erickson for an IHA to take marine mammals incidental to pile driving activities associated with a dock replacement project in Auke Bay, north of Juneau, Alaska. The application was deemed adequate and complete on August 13, 2019. Mr. Erickson's request is for take of a small number of eight species of marine mammal by Level A and Level B harassment. Neither Mr. Erickson nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Proposed Activity

Overview

Mr. Erickson is proposing to replace his private moorage facility in Auke Bay in Juneau, Alaska to provide a safer, more accessible and secure dock. The old, deteriorated dock structure will be replaced with a new, modern moorage facility. Six timber piles will be removed using a vibratory hammer, and six steel pipe piles will be installed using vibratory and impact hammers. Drilling may be required to install the larger diameter steel piles. Vibratory pile removal and installation, impact pile installation, and drilling would introduce underwater sounds at levels that may result in take, by Level A and Level B harassment, of marine mammals in Auke Bay.

Dates and Duration

Construction is expected to begin in the spring of 2020 but may occur up to December 2020. Pile driving may be intermittent during this period, depending on weather, construction

and mechanical delays, and logistical constraints. Construction is expected to take up to eight days. Of those eight days, impact pile driving may occur on up to four days, vibratory pile removal and installation may occur on up to six days, and drilling may occur on up to two days. Work will occur during daylight hours only.

Specific Geographic Region

Auke Bay is an estuary at the southern end of Lynn Canal, located approximately 18 kilometers (km) (11 miles (mi)) north-northwest of downtown Juneau. The bay is one of many that lead to a larger system of glacial fjords connecting various channels with the open ocean. Auke Bay is approximately 130 km (80.7 mi) inland from the Gulf of Alaska (Figure 1). Auke Bay contains several small islands and reefs within the 11 square kilometer (km^2) (4.25 square mile (mi^2)) embayment. While most of the bay is relatively shallow, reaching depths of 40 to 60 meters (m) (131 to 197 feet (ft)), depths of more than 100 m (328 ft) are found near Coghland Island on the western side of the bay. Mr. Erickson's dock is located on the eastern shore of Auke Bay, on the Mendenhall Peninsula (see Figure 1).

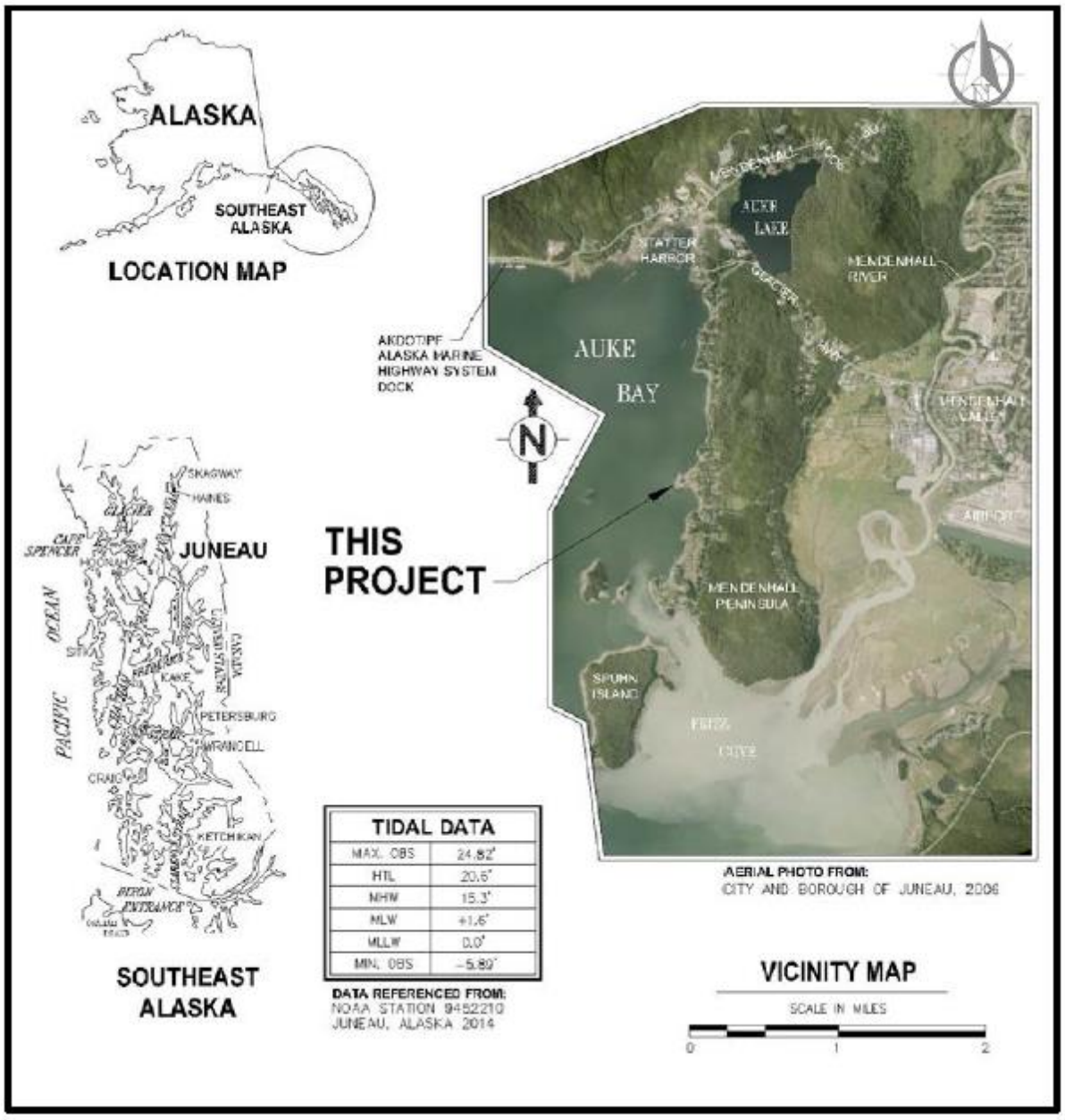

Figure 1. Project Location in Southeast Alaska.

Detailed Description of Specific Activity

The Erickson Residence Marine Access Project involves demolishing an existing private moorage facility and replacing it with a new, modern facility consisting of a concrete retaining wall, an aluminum approach structure, and steel gangway leading to a new timber moorage float supported by steel piles. The six existing 12- to 16-inch (in) timber support piles will be extracted using a vibratory hammer. Four 12.75-in steel pipe piles and two 20-in steel pipe piles will be installed in their place. All pile removal and installation activities will be conducted from a stationary barge platform. Pile installation will primarily be done using a vibratory hammer. Due to a rock outcropping in the project vicinity, drilling may be required for the two 20-in piles, as they require more embedment to reach the necessary capacity to withstand the high lateral loads on the float. No drilling is anticipated for the four 12.75-in approach bearing piles. Impact hammers will only be used for piles that encounter soils too dense to penetrate with the vibratory hammer. Table 1 provides a summary of the expected pile removal and installation parameters.

Table 1. Numbers and Types of Piles to be Installed and Removed.

Pile type	Method	Number of piles	Strikes per pile (impact driving)	Duration per pile (minutes) (vibratory driving, drilling)	Piles per day (range)	Days of activity
Pile installation						
12.75-in steel	Vibratory installation	4	N/A	30	2 – 4	1 - 2
12.75-in steel	Impact installation		150	N/A	2 – 4	1 – 2
20-in steel	Vibratory installation	2	N/A	120	1 – 2	1 – 2
20-in steel	Impact installation		150	N/A	1 – 2	1 – 2
20-in steel	Drilling		N/A	300	1 – 2	1 – 2

Pile removal						
12- to 16-in timber	Vibratory removal	6	N/A	15	3 – 6	1 – 2
Total piles		12			**Total days**	8

Demolition of the existing float and approach structures, and installation of the new float, approach, and concrete retaining wall are not expected to result in take of marine mammals and will therefore not be discussed further in this document.

Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see *Proposed Mitigation* and *Proposed Monitoring and Reporting*).

Description of Marine Mammals in the Area of Specified Activities

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

Table 2 lists all species with expected potential for occurrence in Auke Bay 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's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. Alaska and U.S. Pacific SARs. All values presented in Table 2 are the most recent available at the time of publication and are available in the 2018 SARs (Muto *et al.*, 2019; Caretta *et al.*, 2019).

Table 2. Marine Mammals That Could Occur in the Project Area.

Common name	**Scientific name**	**Stock**	**ESA/MMPA status; Strategic (Y/N)[1]**	**Stock abundance (CV, N_{min}, most recent abundance survey)[2]**	**PBR**	**Annual M/SI[3]**
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						
Gray whale	Eschrichtius robustus	Eastern North Pacific	-/-; N	26,960 (0.05, 25,849, 2016)	801	138
Family Balaenopteridae (rorquals)						
Humpback whale	Megaptera novaeangliae	Central North Pacific	T/D; Y	10,103 (0.3, 7,890, 2006)	83	26
Minke whale	Balaenoptera acutorostrada	Alaska	-/-; N	N/A (see SAR, N/A, see SAR)	UND	0
Fin whale	Balaenoptera physalus	Northeast Pacific	E/D; Y	see SAR (see SAR, see SAR,	5.1	0.6

				2013)		
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Killer whale	Orcinus orca	Alaska Resident	-/-; N	2,347 (N/A, 2347, 2012)	24	1
Killer whale	Orcinus orca	Northern Resident	-/-; N	261 (N/A, 261, 2011)	1.96	0
Killer whale	Orcinus orca	West Coast Transient	-/-; N	243 (N/A, 243, 2009)	2.4	0
Family Phocoenidae (porpoises)						
Harbor porpoise	Phocoena phocoena	Southeast Alaska	-/-; Y	975 (0.10; 896; 2012)	8.9	34
Dall's porpoise	Phocoenoides dalli	Alaska	-/-; N	83,400 (0.097, N/A, 1991)	UND	38
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
Steller sea lion	Eumetopias jubatus	Eastern DPS	E/D; Y	54,267 (see SAR, 54,267, 2017)	326	252
Steller sea lion	Eumetopias jubatus	Western DPS	-/-; N	41,638 (see SAR, 41,638, 2015)	2,498	108
California sea lion	Zalophus californianus	U.S.	-/-; N	257,606 (N/A, 233,515, 2014)	14,011	> 321
Family Phocidae (earless seals)						
Harbor seal	Phoca vitulina	Lynn Canal/Stephens Passage	-/-; N	9,478 (see SAR, 8,605, 2011)	155	50

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

2 - NMFS marine mammal stock assessment reports online at: www.nmfs.noaa.gov/pr/sars/. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable.

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

All species that could potentially occur in the proposed survey areas are included in Table 2. However, the spatial and temporal occurrence of gray whales and fin whales in the area is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here. Sightings of gray whales and fin whales are uncommon in the inland waters of southeast Alaska. These species are typically seen closer to the open waters of the Gulf of Alaska. Take of gray whales and fin whales has not been requested nor proposed to be authorized and these species are not considered further in this document.

Steller Sea Lion

Steller sea lions are found throughout the northern Pacific Ocean, including coastal and inland waters from Russia (Kuril Islands and the Sea of Okhotsk), east to Alaska, and south to California. Steller sea lions were listed as threatened range-wide under the ESA on November 26, 1990 (55 FR 49204) but were subsequently partitioned into the eastern and western Distinct Population Segments (eDPS and wDPS, respectively). The eDPS remained classified as threatened (62 FR 24345; May 5, 1997) until it was delisted in 2013 (78 FR 66139; November 4, 2013). The wDPS (those individuals west of 144° W longitude, or Cape Suckling, AK) was upgraded to endangered status following separation of the stocks, and it remains listed as endangered.

Steller sea lions in southeast Alaska are overwhelmingly part of the eDPS; however, NMFS (2013) reports that an average of 917 individuals from the wDPS move into southeast Alaska annually. Within southeast Alaska, abundance of wDPS individuals is higher to the north and west, and lower toward the south and east. Cape Ommaney and Frederick Sound are

considered the southern limit of the range for wDPS animals. While it is not possible to estimate the number of wDPS animals that are present east of the 144° W longitude boundary at any time, recent studies indicate that 18.1 percent of Steller sea lions in the Lynn Canal area may be from the wDPS (Hastings *et al.*, 2019).

Steller sea lions are opportunistic predators, feeding primarily on a wide variety of fishes and cephalopods, including Pacific herring (*Clupea pallasi*), walleye pollock (*Gadus chalogramma*), capelin (*Mallotus villosus*), Pacific sand lance (*Ammodytes hexapterus*), Pacific cod (*Gadus machrocephalus*), salmon (*Oncorhynchus* spp.), and squid (*Teuthida* spp.) (Jefferson *et al.*, 2008; Wynne *et al.*, 2011). Steller sea lions do not generally eat every day, but tend to forage every one to two days and return to haulouts to rest between foraging trips (Merrick and Loughlin 1997; Rehberg *et al.*, 2009). Most individuals that frequent Auke Bay haul out at Benjamin Island in Lynn Canal, but several other haulouts are located within 20 to 30 km (12 to 19 mi) of the project area.

The action area is not located in or near designated critical habitat for the wDPS of Steller sea lions. In southeast Alaska, critical habitat for the wDPS includes a terrestrial zone, an aquatic zone, and an in-air zone that extends 3,000 ft (0.9 km) landward, seaward, and above, respectively, any designated major rookery and major haulout. The nearest designated major haulout is located at Benjamin Island.

California Sea Lion

California sea lions typically breed on islands in southern California, western Baja California and the Gulf of California (Carretta et al 2017). During the winter, males commonly migrate to feeding grounds off California, Oregon, Washington, British Columbia and recently Southeast Alaska. Females and pups typically stay close to breeding colonies until the pups have

weened. The furthest north females have been observed is off the coast of Washington and Oregon during warm water years (NMFS 2019f). California sea lions feed primarily offshore in coastal waters. They are opportunistic predators and eat a variety of prey including squid, anchovies, mackerel, rockfish and sardines (NMFS 2019f). A single California sea lion hauled out on the Statter Harbor boat ramp in Auke Bay in September of 2017.

Harbor Seal

Harbor seals range from Baja California north along the west coasts of California, Oregon, Washington, British Columbia, and southeast Alaska; west through the Gulf of Alaska, Prince William Sound, and the Aleutian Islands; and north in the Bering Sea to Cape Newenham and the Pribilof Islands. Harbor seals occur year-round in the inside passages of southeast Alaska and are regularly sighted in Auke Bay, including Statter Harbor. Groups ranging from 10 to 52 seals may be present in Auke Bay, hauled out on the western side of Coghlan Island and on Battleship Island.

Harbor seals forage on fish and invertebrates, including capelin, eulachon (*Thaleichthys pacificus*), cod, Pollock, flatfish, shrimp, octopus, and squid (Wynne 2012). They are opportunistic feeders that forage in marine, estuarine, freshwater habitats, adjusting their foraging behavior to take advantage of prey that are seasonally and locally abundant (Payne and Selzer 1989). Depending on prey availability, harbor seals conduct both shallow and deep dives while foraging (Tollit *et al.*, 1997). Harbor seals usually give birth to a single pup between May and mid-July. Birthing locations are dispersed over several haulout sites and are not confined to major rookeries (Klinkhart *et al.*, 2008).

Harbor Porpoise

The Southeast Alaska stock of harbor porpoises ranges from Cape Suckling to the Canada border (Muto *et al.*, 2018). Harbor porpoises frequent primarily coastal waters in southeast Alaska (Dalheim *et al.*, 2009) and occur most frequently in waters less than 100 m (328 ft) deep (Hobbs and Waite 2010). Harbor porpoises forage in waters less than 200 m (656 ft) deep on small pelagic schooling fish such as herring, cod, pollock, octopus, smelt, and bottom-dwelling fish, occasionally feeding on squid and crustaceans (Bjørge and Tolley 2009; Wynne *et al.*, 2011). Calving generally occurs from May to August, but can vary by region.

Dall's Porpoise

Dall's porpoises are found throughout the north Pacific, from southern Japan to southern California and north to the Bering Sea. Dall's porpoises can be found in offshore, inshore, and nearshore habitat, but prefers waters more than 183 m (600 ft) deep (Dahlheim *et al.*, 2009; Jefferson 2009). Waters over 183 m (600 ft) do not occur in Auke Bay but Dall's porpoises have been consistently observed in Lynn Canal, Stephens Passage, upper Chatham Strait, Frederick Sound, and Clarence Strait (Dahlheim *et al.*, 2000). Dall's porpoises may migrate between inshore and offshore areas and make latitudinal movements or short seasonal migrations, but these movements are generally not consistent (Jefferson 2009). If Dall's porpoises were to occur in Auke Bay, they would likely be present in March or April, given seasonal patterns observed in nearby areas of southeast Alaska (Dahlheim *et al.*, 2009). Dall's porpoises often bow-ride with vessels and may occur in Auke Bay incidentally a few times per year.

Dall's porpoises generally occur in groups of 2 to 20 individuals, but have also been recorded in groups numbering in the hundreds. Common prey include a variety of small, schooling fishes (such as herring and mackerels) and cephalopods.

Killer Whale

Killer whales have been observed in all oceans, but the highest densities occur in colder and more productive waters found at high latitudes (NMFS 2016a). Killer whales occur along the entire Alaska coast, in British Columbia and Washington inland waterways, and along the outer coasts of Washington, Oregon, and California (NMFS 2016a). There are three distinct ecotypes, or forms, of killer whales recognized in the north Pacific: resident, transient, and offshore. The three ecotypes differ morphologically, ecologically, behaviorally, and genetically. Eight stocks of killer whales are recognized within the Pacific U.S. Exclusive Economic Zone. Of those, the Alaska Resident stock, Northern Resident stock, and West Coast Transient stock may occur in the project area (Muto *et al.*, 2018).

The Alaska Resident stock occurs from southeast Alaska to the Aleutian Islands and Bering Sea. Photo-identification studies between 2005 and 2009 identified 2,347 individuals in this stock, including approximately 121 in southeast Alaska (Muto *et al.*, 2018). The Northern Resident stock occurs from Washington north through part of southeast Alaska and consists of 261 individuals (Muto *et al.*, 2018). The West Coast Transient stock occurs from California north through southeast Alaska. Between 1975 and 2012, surveys identified 521 individual West Coast Transient killer whales but the minimum population estimate for the stock is 243 individuals (Muto *et al.*, 2018). Dahlheim *et al.*, (2009) noted a 5.2 percent annual decline in transient killer whales observed in southeast Alaska between 1991 and 2007.

No systematic studies of killer whales have been conducted in or around Auke Bay. Killer whales were observed infrequently (on 11 of 135 days) during monitoring in Hoonah, and most were recorded in deeper, offshore waters (Berger ABAM 2016). Both resident and transient killer whales were observed in southeast Alaska during all seasons during surveys between 1991 and 2007, in a variety of habitats and in all major waterways, including Lynn Canal, Icy Strait,

Stephens Passage, Frederick Sound, and upper Chatham Strait (Dahlheim *et al.*, 2009). There does not appear to be strong seasonal variation in abundance or distribution of killer whales, but Dahlheim *et al.*, (2009) observed substantial variability between years during the study.

Transient killer whales hunt and feed primarily on marine mammals, including harbor seals, Dall's porpoises, harbor porpoises, and sea lions. Resident killer whale populations in the eastern north Pacific feed mainly on salmonids, showing a strong preference for Chinook salmon (NMFS 2016a). Transient killer whales are often found in long-term stable social units (pods) of 1 to 16 whales. Pod sizes in southeast Alaska vary by season, averaging 6 animals in spring, 5 in summer, and 4 in fall. Group sizes of transient whales are generally smaller than those of resident killer whales. Resident killer whales occur in pods ranging from seven to 70 whales that are seen in association with one another more than 50 percent of the time (Dahlheim *et al.*, 2009; NMFS 2016b).

Humpback Whale

Humpback whales in the project area are from the Central North Pacific stock but may be of the Hawaii or Mexico DPS. The population of the Hawaii DPS is currently estimated at 11,398 individuals (95% confidence interval (CI) = 10,503 – 12,370) and the Mexico DPS is estimated at 3,264 individuals (95% CI = 2,912 – 3,659). The population of humpback whales from both the Hawaii and Mexico DPSs that are found in the summer feeding grounds of southeast Alaska is approximately 6,137 individuals (95% CI = 5,352 – 7,038) (Wade *et al.*, 2016). Humpback whales found in the project area are predominantly members of the Hawaii DPS, which is not listed under the ESA. However, based on a comprehensive photo-identification study, members of the Mexico DPS, which is listed as threatened, are known to occur in southeast Alaska. Approximately 6.1 percent (fewer than one in every 16) of all

humpback whales in southeast Alaska and northern British Columbia are members of the Mexico DPS, while all others are assumed to be members of the Hawaii DPS (Wade *et al.*, 2016).

Humpback whales migrate to southeast Alaska in spring to feed after months of fasting in equatorial breeding grounds in Hawaii and Mexico. Peak abundance of humpback whales in southeast Alaska typically occurs during late summer to early fall. Most humpback whales begin returning to southern breeding grounds in fall or winter. However, due to temporal overlap between whales departing and returning, humpbacks can be found in Alaskan feeding grounds in every month of the year (Baker *et al.*, 1985; Straley 1990; Wynne and Witteveen 2009). It is also common for some humpback whales to overwinter in areas of southeast Alaska. It is thought that those humpbacks that remain in southeast Alaska do so in response to the availability of winter schools of fish, such as herring (Straley 1990).

The waters of southeast Alaska (including Auke Bay) are considered a biologically important area for feeding humpback whales between March and November (Ferguson *et al.*, 2015). In Alaska, humpback whales filter feed on small crustaceans, plankton, and small fish such as walleye pollock, Pacific sand lance, herring, eulachon, and capelin (Witteveen *et al.*, 2012). It is common to observe groups of humpback whales cooperatively bubble feeding.

Humpback whales' utilization of Auke Bay is intermittent and irregular year-round. Recent anecdotal accounts by the Juneau Deputy Harbormaster indicate that humpback whale abundance in Auke Bay has been lower over the last 18 months than in past years (Creswell, M., pers. comm.). Specific micro-habitat features of Auke Bay attract forage fish, specifically herring, and are frequented by humpback whales. Although abundance is generally higher in the summer months, the presence of prey fish is a greater determinant of the presence of humpback

whales than season. Teerlink (2017) identified 179 individual humpback whales in the Juneau area based on fluke identification.

Minke Whale

Minke whales are found throughout the northern hemisphere in polar, temperate, and tropical waters (Jefferson *et al.*, 2008). The International Whaling Commission has identified three minke whale stocks in the North Pacific: one near the Sea of Japan, a second in the rest of the western Pacific (west of 180° W), and a third, less concentrated stock throughout the eastern Pacific. NMFS further splits this third stock between Alaska whales and resident whales of California, Oregon, and Washington (Muto *et al.*, 2018). Minke whales are found in all Alaska waters though there are no population estimates for minke whales in southeast Alaska.

In Alaska, minke whales feed primarily on euphausiids and walleye pollock. Minke whales are generally found in shallow, coastal waters within 200 m (656 ft) of shore (Zerbini *et al.*, 2006). No information appears to be available on the winter occurrence of minke whales in southeast Alaska. Anecdotal observations suggest that minke whales do not enter Auke Bay, and so are expected to rarely occur in the project area.

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. Current data indicate that 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) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of

available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. 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 3.

Table 3. Marine Mammal Hearing Groups (NMFS, 2018).

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, *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 and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Eight marine mammal species (five cetacean and three pinniped (two otariid and one phocid) species) have the reasonable potential to co-occur with the proposed survey activities. Please refer to Table 2. Of the cetacean species that may be present, two are classified as low-frequency cetaceans (*i.e.*, all mysticete species), one is classified as mid-frequency cetaceans (*i.e.*, all delphinid and ziphiid species and the sperm whale), and two are classified as high-frequency cetaceans (*i.e.*, harbor porpoise and Kogia spp.).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The *Estimated Take by Incidental Harassment* section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The *Negligible Impact Analysis and Determination* section considers the content of this section, the *Estimated Take by Incidental Harassment* section, and the *Proposed Mitigation* section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

Description of Sound Sources

The marine soundscape is comprised of both ambient and anthropogenic sounds. Ambient sound is defined as the all-encompassing sound in a given place and is usually a composite of sound from many sources both near and far. The sound level of an area is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.*, waves, wind, precipitation, earthquakes, ice, atmospheric sound),

biological (*e.g.*, sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (*e.g.*, vessels, dredging, aircraft, construction).

The sum of the various natural and anthropogenic sound sources at any given location and time – which comprise "ambient" or "background" sound – depends not only on the source levels (as determined by current weather conditions and levels of biological and shipping activity) but also on the ability of sound to propagate through the environment. In turn, sound propagation is dependent on the spatially and temporally varying properties of the water column and sea floor, and is frequency-dependent. As a result of the dependence on a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10-20 dB from day to day (Richardson *et al*. 1995). The result is that, depending on the source type and its intensity, sound from the specified activity may be a negligible addition to the local environment or could form a distinctive signal that may affect marine mammals.

In-water construction activities associated with the project would include impact pile driving, vibratory pile driving, vibratory pile removal, and DTH drilling. The sounds produced by these activities fall into one of two general sound types: impulsive and non-impulsive. Impulsive sounds (*e.g.*, explosions, gunshots, sonic booms, impact pile driving) are typically transient, brief (less than 1 second), broadband, and consist of high peak sound pressure with rapid rise time and rapid decay (ANSI 1986; NIOSH 1998; ANSI 2005; NMFS 2018). Non-impulsive sounds (*e.g.* aircraft, machinery operations such as drilling or dredging, vibratory pile driving, and active sonar systems) can be broadband, narrowband or tonal, brief or prolonged (continuous or intermittent), and typically do not have the high peak sound pressure with raid rise/decay time that impulsive sounds do (ANSI 1995; NIOSH 1998; NMFS 2018). The

distinction between these two sound types is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.*, Ward 1997 in Southall *et al.* 2007).

Two types of pile hammers would be used on this project: impact and vibratory. Impact hammers operate by repeatedly dropping a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is characterized by rapid rise times and high peak levels, a potentially injurious combination (Hastings and Popper 2005). Vibratory hammers install piles by vibrating them and allowing the weight of the hammer to push them into the sediment. Vibratory hammers produce significantly less sound than impact hammers. Peak sound pressure levels (SPLs) may be 180 dB or greater, but are generally 10 to 20 dB lower than SPLs generated during impact pile driving of the same-sized pile (Oestman *et al.* 2009). Rise time is slower, reducing the probability and severity of injury, and sound energy is distributed over a greater amount of time (Nedwell and Edwards 2002; Carlson *et al.* 2005).

Drilling would be conducted using a DTH drill inserted through the hollow steel piles. A DTH drill is a drill bit that drills through the bedrock using a pulse mechanism that functions at the bottom of the hole. This pulsing bit breaks up rock to allow removal of debris and insertion of the pile. The head extends so that the drilling takes place below the pile. The pulsing sounds produced by the down-the-hole drilling method are continuous, however this method likely increases sound attenuation because the noise is primarily contained within the steel pile and below ground rather than impact hammer driving methods which occur at the top of the pile (R&M 2016).

The likely or possible impacts of Mr. Erickson's proposed activity on marine mammals could involve both non-acoustic and acoustic stressors. Potential non-acoustic stressors could

result from the physical presence of the equipment and personnel; however, any impacts to marine mammals are expected to primarily be acoustic in nature. Acoustic stressors include effects of heavy equipment operation during pile installation and removal.

Acoustic Impacts

The introduction of anthropogenic noise into the aquatic environment from pile installation, removal, and drilling is the primary means by which marine mammals may be harassed from Mr. Erickson's specified activity. In general, animals exposed to natural or anthropogenic sound may experience physical and psychological effects, ranging in magnitude from none to severe (Southall *et al.* 2007). In general, exposure to pile driving and drilling noise has the potential to result in auditory threshold shifts and behavioral reactions (*e.g.*, avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior). Exposure to anthropogenic noise can also lead to non-observable physiological responses such an increase in stress hormones. Additional noise in a marine mammal's habitat can mask acoustic cues used by marine mammals to carry out daily functions such as communication and predator and prey detection. The effects of pile driving and drilling noise on marine mammals are dependent on several factors, including, but not limited to, sound type (*e.g.*, impulsive vs. non-impulsive), the species, age and sex class (*e.g.*, adult male vs. mom with calf), duration of exposure, the distance between the pile and the animal, received levels, behavior at time of exposure, and previous history with exposure (Wartzok *et al.* 2004; Southall *et al.* 2007). Here we discuss physical auditory effects (threshold shifts) followed by behavioral effects and potential impacts on habitat.

NMFS defines a noise-induced threshold shift (TS) as a change, usually an increase, in the threshold of audibility at a specified frequency or portion of an individual's hearing range

above a previously established reference level (NMFS 2018). The amount of threshold shift is customarily expressed in dB. A TS can be permanent or temporary. As described in NMFS (2018), there are numerous factors to consider when examining the consequence of TS, including, but not limited to, the signal temporal pattern (*e.g.*, impulsive or non-impulsive), likelihood an individual would be exposed for a long enough duration or to a high enough level to induce a TS, the magnitude of the TS, time to recovery (seconds to minutes or hours to days), the frequency range of the exposure (*i.e.*, spectral content), the hearing and vocalization frequency range of the exposed species relative to the signal's frequency spectrum (*i.e.*, how animal uses sound within the frequency band of the signal; *e.g.*, Kastelein *et al.* 2014), and the overlap between the animal and the source (*e.g.*, spatial, temporal, and spectral).

Permanent Threshold Shift (PTS) - NMFS defines PTS as a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Available data from humans and other terrestrial mammals indicate that a 40 dB threshold shift approximates PTS onset (see Ward *et al.* 1958, 1959; Ward 1960; Kryter *et al.* 1966; Miller 1974; Ahroon *et al.* 1996; Henderson *et al.* 2008). PTS levels for marine mammals are estimates, as with the exception of a single study unintentionally inducing PTS in a harbor seal (Kastak *et al.* 2008), there are no empirical data measuring PTS in marine mammals largely due to the fact that, for various ethical reasons, experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS 2018).

Temporary Threshold Shift (TTS) - A temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Based on data from cetacean TTS measurements (see

Southall *et al.* 2007), a TTS of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability (Schlundt *et al.* 2000; Finneran *et al.* 2000, 2002). As described in Finneran (2015), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level ($SEL_{cum)}$ in an accelerating fashion: At low exposures with lower SEL_{cum}, the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher higher SEL_{cum}, the growth curves become steeper and approach linear relationships with the noise SEL.

Depending on the degree (elevation of threshold in dB), duration (*i.e.*, recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in auditory masking, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during time when communication is critical for successful mother/calf interactions could have more serious impacts. We note that reduced hearing sensitivity as a simple function of aging has been observed in marine mammals, as well as humans and other taxa (Southall *et al.* 2007), so we can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

Currently, TTS data only exist for four species of cetaceans (bottlenose dolphin (*Tursiops truncatus*), beluga whale (*Delphinapterus leucas*), harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*)) and five species of pinnipeds exposed to a limited number of sound sources (*i.e.*, mostly tones and octave-band noise) in laboratory settings (Finneran 2015).

TTS was not observed in trained spotted (*Phoca largha*) and ringed (*Pusa hispida*) seals exposed to impulsive noise at levels matching previous predictions of TTS onset (Reichmuth *et al.* 2016). In general, harbor seals and harbor porpoises have a lower TTS onset than other measured pinniped or cetacean species (Finneran 2015). Additionally, the existing marine mammal TTS data come from a limited number of individuals within these species. No data are available on noise-induced hearing loss for mysticetes. For summaries of data on TTS in marine mammals or for further discussion of TTS onset thresholds, please see Southall *et al.* (2007), Finneran and Jenkins (2012), Finneran (2015), and Table 5 in NMFS (2018). Installing piles requires a combination of impact pile driving and vibratory pile driving, and may require DTH drilling. For the project, these activities would not occur at the same time and there would likely be pauses in activities producing the sound during each day. Given these pauses and that many marine mammals are likely moving through the action area and not remaining for extended periods of time, the potential for TS declines.

Behavioral Harassment - Exposure to noise from pile driving and removal also has the potential to behaviorally disturb marine mammals. Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.*, Lusseau and Bejder 2007; Weilgart 2007; NRC 2005).

Disturbance may result in changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where sound sources are located. Pinnipeds may increase their haul out time, possibly to avoid in-water disturbance (Thorson and Reyff 2006). Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.*, species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.*, Richardson *et al.* 1995; Wartzok *et al.* 2003; Southall *et al.* 2007; Weilgart 2007; Archer *et al.* 2010). Behavioral reactions can vary not only among individuals but also within an individual, depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al.* 2012), and can vary depending on characteristics associated with the sound source (*e.g.*, whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. Please see Appendices B-C of Southall *et al.* (2007) for a review of studies involving marine mammal behavioral responses to sound.

Disruption of feeding behavior can be difficult to correlate with anthropogenic sound exposure, so it is usually inferred by observed displacement from known foraging areas, the appearance of secondary indicators (*e.g.*, bubble nets or sediment plumes), or changes in dive behavior. As for other types of behavioral response, the frequency, duration, and temporal pattern of signal presentation, as well as differences in species sensitivity, are likely contributing

factors to differences in response in any given circumstance (*e.g.*, Croll *et al.* 2001; Nowacek *et al.* 2004; Madsen *et al.* 2006; Yazvenko *et al.* 2007). A determination of whether foraging disruptions incur fitness consequences would require information on or estimates of the energetic requirements of the affected individuals and the relationship between prey availability, foraging effort and success, and the life history stage of the animal.

In 2016, ADOT&PF documented observations of marine mammals during construction activities (*i.e.*, pile driving and down-hole drilling) at the Kodiak Ferry Dock (see 80 FR 60636 for Final IHA **Federal Register** notice). In the marine mammal monitoring report for that project (ABR 2016), 1,281 Steller sea lions were observed within the behavioral disturbance zone during pile driving or drilling (*i.e.*, documented as Level B harassment take). Of these, 19 individuals demonstrated an alert behavior, 7 were fleeing, and 19 swam away from the project site. All other animals were engaged in activities such as milling, foraging, or fighting and did not change their behavior. In addition, two sea lions approached within 20 meters of active vibratory pile driving activities. Three harbor seals were observed within the disturbance zone during pile driving activities; none of them displayed disturbance behaviors. Fifteen killer whales and three harbor porpoise were also observed within the Level B harassment zone during pile driving. The killer whales were travelling or milling while all harbor porpoises were travelling. No signs of disturbance were noted for either of these species. Given the similarities in activities and habitat and the fact the same species are involved, we expect similar behavioral responses of marine mammals to the specified activity. That is, disturbance, if any, is likely to be temporary and localized (*e.g.*, small area movements). Monitoring reports from other recent pile driving projects have observed similar behaviors.

Masking - Sound can disrupt behavior through masking, or interfering with, an animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.*, those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation) (Richardson *et al.* 1995). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.*, snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.*, pile driving, shipping, sonar, seismic exploration) in origin. The ability of a noise source to mask biologically important sounds depends on the characteristics of both the noise source and the signal of interest (*e.g.*, signal-to-noise ratio, temporal variability, direction), in relation to each other and to an animal's hearing abilities (*e.g.*, sensitivity, frequency range, critical ratios, frequency discrimination, directional discrimination, age or TTS hearing loss), and existing ambient noise and propagation conditions. Masking of natural sounds can result when human activities produce high levels of background sound at frequencies important to marine mammals. Conversely, if the background level of underwater sound is high (*e.g.* on a day with strong wind and high waves), an anthropogenic sound source would not be detectable as far away as would be possible under quieter conditions and would itself be masked. Auke Bay is home to a busy ferry terminal as well as moorage for small private vessels that transit the area on a regular basis; therefore, background sound levels in the harbor are already elevated.

Airborne Acoustic Effects - Pinnipeds that occur near the project site could be exposed to airborne sounds associated with pile driving and removal that have the potential to cause behavioral harassment, depending on their distance from pile driving activities. Cetaceans are not expected to be exposed to airborne sounds that would result in harassment as defined under the MMPA.

Airborne noise would primarily be an issue for pinnipeds that are swimming or hauled out near the project site within the range of noise levels exceeding the acoustic thresholds. We recognize that pinnipeds in the water could be exposed to airborne sound that may result in behavioral harassment when looking with their heads above water. Most likely, airborne sound would cause behavioral responses similar to those discussed above in relation to underwater sound. For instance, anthropogenic sound could cause hauled-out pinnipeds to exhibit changes in their normal behavior, such as reduction in vocalizations, or cause them to temporarily abandon the area and move further from the source. However, these animals would previously have been 'taken' because of exposure to underwater sound above the behavioral harassment thresholds, which are in all cases larger than those associated with airborne sound. Thus, the behavioral harassment of these animals is already accounted for in these estimates of potential take. Therefore, we do not believe that authorization of incidental take resulting from airborne sound for pinnipeds is warranted, and airborne sound is not discussed further here.

Marine Mammal Habitat Effects

Mr. Erickson's construction activities could have localized, temporary impacts on marine mammal habitat by increasing in-water sound pressure levels and slightly decreasing water quality. Construction activities are of short duration and would likely have temporary impacts on marine mammal habitat through increases in underwater sound. Increased noise levels may affect acoustic habitat (see masking discussion above) and adversely affect marine mammal prey in the vicinity of the project area (see discussion below). During pile driving and drilling, elevated levels of underwater noise would ensonify the bay where both fish and mammals may occur and could affect foraging success.

In-water pile installation, pile removal, and drilling would also cause short-term effects on water quality due to increased turbidity. Local currents are anticipated to disburse suspended sediments produced by project activities at moderate to rapid rates depending on tidal stage. Mr. Erickson would employ standard construction best management practices, thereby reducing any impacts. Considering the nature and duration of the effects, combined with the measures to reduce turbidity, the impact from increased turbidity levels is expected to be discountable.

In-water Construction Effects on Potential Foraging Habitat

The area likely impacted by the project is relatively small compared to the available habitat in the surrounding waters of Lynn Canal. Although Auke Bay is included in the designated Biologically Important Area for feeding humpback whales, humpback foraging efforts within Auke Bay itself are intermittent and irregular across seasons. Construction activities may temporarily increase turbidity resulting from suspended sediments. Any increases would be temporary, localized, and minimal. Mr. Erickson must comply with state water quality standards during these operations by limiting the extent of turbidity to the immediate project area. In general, turbidity associated with pile installation is localized to about a 25-foot radius around the pile (Everitt *et al.* 1980). Cetaceans are not expected to enter the harbor and be close enough to the project pile driving areas to experience effects of turbidity, and any pinnipeds would likely be transiting the area and could avoid localized areas of turbidity. Therefore, the impact from increased turbidity levels is expected to be discountable to marine mammals. Furthermore, pile driving and removal at the project site would not obstruct movements or migration of marine mammals.

Avoidance by potential prey (*i.e.*, fish) of the immediate area due to the temporary loss of this foraging habitat is also possible. The duration of fish avoidance of this area after pile driving

stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity in Lynn Canal.

The duration of the construction activities is relatively short, with pile driving activities expected to take only eight days. Each day, construction would occur for only a few hours during the day. Impacts to habitat and prey are expected to be temporary and minimal based on the short duration of activities.

In-water Construction Effects on Potential Prey (Fish)

Construction activities would produce continuous (*i.e*., vibratory pile driving) and pulsed (*i.e*. impact driving) sounds. Fish react to sounds that are especially strong and/or intermittent low-frequency sounds. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. Hastings and Popper (2005) identified several studies that suggest fish may relocate to avoid certain areas of sound energy. Additional studies have documented effects of pile driving on fish, although several are based on studies in support of large, multiyear bridge construction projects (*e.g*., Scholik and Yan 2001, 2002; Popper and Hastings 2009). Sound pulses at received levels of 160 dB may cause subtle changes in fish behavior. SPLs of 180 dB may cause noticeable changes in behavior (Pearson *et al.* 1992; Skalski *et al.* 1992). SPLs of sufficient strength have been known to cause injury to fish and fish mortality.

The most likely impact to fish from pile driving and drilling activities at the project area would be temporary behavioral avoidance of the area. The duration of fish avoidance of this area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and

behavior is anticipated. In general, impacts to marine mammal prey species are expected to be minor and temporary due to the short timeframe for the project.

Construction activities, in the form of increased turbidity, have the potential to adversely affect fish in the project area. Increased turbidity is expected to occur in the immediate vicinity (on the order of 10 feet or less) of construction activities. However, suspended sediments and particulates are expected to dissipate quickly within a single tidal cycle. Given the limited area affected and high tidal dilution rates any effects on fish are expected to be minor or negligible. In addition, best management practices would be in effect, which would limit the extent of turbidity to the immediate project area.

In summary, given the short daily duration of sound associated with individual pile driving and drilling events and the relatively small areas being affected, pile driving activities associated with the proposed action are not likely to have a permanent, adverse effect on any fish habitat, or populations of fish species. Thus, we conclude that impacts of the specified activity are not likely to have more than short-term adverse effects on any prey habitat or populations of prey species. Further, any impacts to marine mammal habitat are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations.

Estimated Take

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

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment"

as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would primarily be by Level B harassment, as use of the vibratory and impact pile hammers and drill has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for high frequency cetacean species and phocids because predicted auditory injury zones are larger than for other hearing groups. Auditory injury is unlikely to occur for other groups. The proposed mitigation and monitoring measures are expected to minimize the severity of such taking to the extent practicable.

As described previously, no mortality is anticipated or proposed to be 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 proposed 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 µPa (rms) for continuous (*e.g.*, vibratory pile-driving, drilling) and above 160 dB re 1 µPa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

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

Level A harassment for non-explosive sources – NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (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). Mr. Erickson's proposed activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving and removal, drilling) source.

These thresholds are provided in Table 4. 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 4. 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 1µPa²s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript "flat" is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Ensonified Area

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

The sound field in the project area is the existing background noise plus additional construction noise from the proposed project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.*, impact pile driving, vibratory pile driving and removal). The area ensonified above the thresholds for harassment is governed by the topography of Auke Bay and the various islands located within and around the bay. The eastern part of Auke Bay is acoustically shadowed by Auke Cape, while Portland Island, Coghlan Island, Suedla Island, and Spuhn Island would inhibit sound transmission from reaching the more open waters toward Mansfield Peninsula (see Figure 2 in the IHA application). Additionally, vessel traffic and other commercial and industrial activities in the project area may contribute to elevated background noise levels which may mask sounds produced by the project.

The project includes vibratory removal of timber piles, vibratory and impact installation of steel pipe piles, and drilling. Source levels for these activities are based on reviews of

measurements of the same or similar types and dimensions of piles available in the literature. Source levels for each activity are presented in Table 5. The source level for vibratory removal of timber piles is from in-water measurements generated by the Greenbusch Group (2018) from the Seattle Pier 62 project (83 FR 39709; April 10, 2018). Hydroacoustic monitoring results from Pier 62 determined unweighted rms ranging from 140 dB to 169 dB. NMFS analyzed source measurements at different distances for all 63 individual timber piles that were removed at Pier 62 and normalized the values to 10 m. The results showed that the median is 152 dB SPLrms. There are no literature source levels for vibratory installation of 12.75-in steel piles so source levels from vibratory installation of 12-in steel piles from the Caltrans Compendium of Pile Driving Sound Data were used as a proxy (Caltrans 2015). Similarly, as no literature source levels exist for vibratory installation of 20-in steel piles, hydroacoustic measurements of vibratory installation of 24-in steel piles from the U.S. Navy's Test Pile Project were used as a proxy (Navy 2015). Source levels for impact installation of 12.75-in piles were determined by using Caltrans measurements of impact installation of 12-in steel piles as a proxy (Caltrans 2015). Source levels for impact installation of 20-in piles are from installation of 20-in piles in the Columbia River, in similar water depths (Yurk *et al.*, 2016). Source levels for drilling are proxy from median measured source level from drilling of 24-in diameter piles at the Kodiak Ferry Terminal (Denes et al., 2016, Table 72).

Table 5. Sound Source Levels for Pile Sizes and Driving Methods.

Pile size	Method	Source level			Literature source
		dB RMS	dB Peak	dB SEL	
12.75-in steel	Vibratory	155	171	155	Caltrans 2015 (proxy from 12-in)
20-in steel	Vibratory	161	--	--	Navy 2015 (proxy from 24-in)
12- to 16-in timber	Vibratory	152	--	--	Greenbusch Group 2018
20-in steel	Drilling	166.2	--	--	Denes *et al.*, 2016 (proxy from

					24-in)
12.75-in steel	Impact	177	192	--	Caltrans 2015 (proxy from 12-in)
20-in steel	Impact	190	205	175	Yurk *et al.*, 2016

-- indicates source level not reported

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

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

TL = transmission loss in dB

B = transmission loss coefficient

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

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

A practical spreading value of fifteen is often used under conditions, such as Auke Bay, 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.

Table 6. Pile Driving Source Levels and Distances to Level B Harassment Thresholds.

Pile Size and Type	Method	Source Level at 10 m (dB re 1 µPa rms)	Level B Threshold (dB re 1 µPa rms)	Distance to Level B Threshold (m)
12.75-in steel	Vibratory	155	120	2,154
20-in steel	Vibratory	161	120	5,412
12- to 16-in timber	Vibratory	152	120	1,359
20-in steel	Drilling	166.2	120	12,023
12.75-in steel	Impact	177	160	136
20-in steel	Impact	190	160	1,000

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 drivers), 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 below (Table 7). Mr. Erickson anticipates that the number of piles installed or removed per day may vary due to environmental conditions and equipment availability. To calculate the Level A harassment isopleths in the User Spreadsheet, Mr. Anderson conservatively entered the maximum number of piles that may be installed in a day.

Table 7. User Spreadsheet Input Parameters Used for Calculating Level A Harassment Isopleths.

Activity	Spreadsheet Tab Used	Weighting factor adjustment (kHz)	Source level at 10 m	Propagation (xLogR)	Strike Duration (sec)	Strikes per pile	Driving duration for single pile (hours)	Max piles per day
Timber vibratory removal	A.1	2.5	152 dB rms	15	N/A	N/A	0.25	6
12.75-in vibratory	A.1	2.5	155 dB rms	15	N/A	N/A	1	4

install								
20-in vibratory install	A.1	2.5	161 dB rms	15	N/A	N/A	2	2
DTH Drilling	A.1	2.5	166.2	15	N/A	N/A	5	2
12.75-in impact	E.1	2	177 dB rms	15	0.05	150	N/A	4
20-in impact	E.1	2	175 dB SEL	15	N/A	150	N/A	2

N/A indicates not applicable

Table 8. Calculated Distances to Level A Harassment Isopleths

Activity	Level A Harassment Zone (m)				
	LF cetaceans	MF cetaceans	HF cetaceans	Phocids	Otariids
Timber vibratory removal	2.2	0.2	3.3	1.4	0.1
12.75-in vibratory install	6.9	0.6	10.1	4.2	0.3
20-in vibratory install	17.2	1.5	25.4	10.5	0.7
DTH Drilling	70.4	6.2	104.1	42.8	3.0
12.75-in impact	38.4	1.4	45.7	20.5	1.5
20-in impact	131.1	4.7	156.1	70.1	5.1

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 and describe how it is brought together with the information above to produce a quantitative take estimate. When available, peer-reviewed scientific publications were used to estimate marine mammal abundance in the project area. However, scientific surveys and resulting data such as population estimates, densities, and other quantitative information are lacking for most marine mammal populations and most areas of southeast Alaska, including Auke Bay. Therefore, Mr. Erickson gathered qualitative information from discussions with knowledgeable local people in the Auke Bay area, including biologists, the harbormaster, a tour operator, and other individuals familiar with marine mammals in the Auke Bay area.

Here we describe how the information provided above is brought together to produce a quantitative take estimate. Because reliable densities are not available, the applicant requests take based on the maximum number of animals that may occur in the harbor per day multiplied by the number of days of the activity.

Steller Sea Lion

Steller sea lions are common within Auke Bay but generally only occur in the area during winter. Most individuals that frequent Auke Bay haul out at Benjamin Island in Lynn Canal. The Auke Bay boating community observes Steller sea lions transiting between Auke Bay and Benjamin Island regularly during winter. Steller sea lions are not known to haul out on any beaches or structures within Auke Bay, but animals have been observed foraging within Auke Bay, and may rest in large raft groups in the water. Groups as large as 121 individuals have been observed in Auke Bay (Ridgway pers. observ.).

Mr. Erickson estimates that one large group (121 individuals) may be exposed to project-related underwater noise daily on 8 days of pile installation and removal activities, for a total of 968 exposures. As stated above, approximately 18.1 percent of Steller sea lions present in Auke Bay are expected to belong to the wDPS, for a total of 175 exposures of wDPS Steller sea lions and 793 exposures of eDPS Steller sea lions.

The largest Level A harassment zone for otariid pinnipeds extends 5.1 m from the source (Table 8). Mr. Erickson is planning to implement a minimum shutdown zone of 10 m during all pile driving activities, (see *Proposed Mitigation* section), which is expected to eliminate the potential for Level A take of Steller sea lions. Therefore, no takes of Steller sea lions by Level A harassment were requested or are proposed to be authorized.

California Sea Lion

California sea lions are rare in Southeast Alaska, but a single California sea lion was observed hauled out in Statter Harbor in September of 2017. While Statter Harbor is acoustically shadowed by the topography of Auke Bay and will not be ensonified above the Level B behavioral harassment threshold, a California sea lion could enter the Level B harassment zone within Auke Bay to forage. Therefore, Mr. Erickson estimates that a single California sea lion may enter the Level B harassment zone on each of the eight days of pile driving, for a total of eight exposures.

The largest Level A harassment zone for otariid pinnipeds extends 5.1 m from the source (Table 8). Mr. Erickson is planning to implement a minimum shutdown zone of 10 m during all pile driving activities, (see *Proposed Mitigation* section), which is expected to eliminate the potential for Level A take of California sea lions. Therefore, no takes of California sea lions by Level A harassment were requested or are proposed to be authorized.

Harbor Seal

Harbor seals are commonly sighted in the waters of the inside passages throughout southeast Alaska. Seals occur year-round within the project area and are regularly sighted in Auke Bay, including Statter Harbor.

Up to 52 seals have been observed hauled out on a dock at Fisherman's Bend within Statter Harbor (Ridgway unpubl. data) which is acoustically sheltered from the proposed pile driving activities, but it is assumed that these animals may leave the dock to forage within Auke Bay and may be exposed to noise levels in excess of the Level B harassment thresholds upon entering the water. Mr. Erickson estimates up to 52 harbor seals could be exposed to elevated sound levels on each day of pile driving, for a total of 416 exposures.

The largest Level A harassment zone for phocid pinnipeds results from impact installation of 20-in piles and extends 70.1 m from the pile (Table 8). There are no haulouts located within the Level A harassment zone and although it is unlikely that harbor seals will enter this area without detection while pile driving activities are underway, it is possible that harbor seals may approach and enter the Level A harassment zone undetected. Mr. Erickson has observed up to four harbor seals in the water near the existing dock. Therefore, Mr. Erickson estimates that up to four harbor seals may approach the site within 70 m of the source each day. Impact pile driving is expected to occur on up to four days (Table 1). For this reason, Mr. Erickson has requested take of 16 harbor seals by Level A harassment.

Harbor Porpoise

Although there have been no systematic studies or observations of harbor porpoises specific to Auke Bay, there is the potential for them to occur within the project area. Abundance data for harbor porpoises in southeast Alaska were collected during 18 seasonal surveys spanning 22 years, from 1991 to 2012. During that study, a total of 398 harbor porpoises were observed in the northern inland waters of southeast Alaska, including Lynn Canal (Dahlheim *et al.*, 2015). Mean group size of harbor porpoises in southeast Alaska varies by season. In the fall, mean group size was determined to be 1.88 harbor porpoises (Dahlheim *et al.*, 2009). However, groups of five to six harbor porpoises have been observed in Auke Bay (B. Lambert, pers. comm.). Therefore, Mr. Erickson estimates that up to six harbor porpoises may enter the Level B harassment zone on each of the eight days of pile driving, for a total of 48 exposures.

The largest Level A harassment zone extends 156.1 m from the source (Table 8). Mr. Erickson is planning to implement shutdown zones that encompass the Level A harassment zones (see *Proposed Mitigation* section). However, harbor porpoises are known to be an

inconspicuous species and are challenging for protected species observers (PSOs) to sight, making any approach to a specific area potentially difficult to detect. Because harbor porpoises move quickly and elusively, it is possible that they may enter the Level A harassment zone without detection. Mr. Erickson estimates that one pair of harbor porpoises may enter the Level A harassment zone on each of the four days of impact pile driving for a total of eight potential takes by Level A harassment.

Dall's Porpoise

Dall's porpoises are not expected to occur within Auke Bay because the shallow water habitat of the bay is atypical of areas where Dall's porpoises usually occur. However, Dall's porpoises may opportunistically inhabit nearshore habitat. The largest group of Dall's porpoises observed in Auke Bay was 10 individuals in 1994. Therefore, Mr. Erickson estimates that one group of ten Dall's porpoises may enter the Level B harassment zone once during construction, for a total of ten exposures.

Mr. Erickson will implement shutdown zones for porpoises that encompass the Level A harassment zones for each pile driving activities. The largest Level A harassment zone for Dall's porpoise extends 156.1 m from the source during impact installation of 20-in steel piles (Table 8). Given the larger group size and more conspicuous rooster-tail generated by swimming Dall's porpoises, which makes them more noticeable than harbor porpoises, PSOs are expected to detect Dall's porpoises prior to them entering the Level A harassment zone. Therefore, takes of Dall's porpoises by Level A harassment have not been requested and are not proposed to be authorized.

Killer Whale

Killer whales are known visitors of the Lynn Canal area, and occasionally enter Auke Bay. Oceanus Alaska compiled sightings records reported by Juneau residents and reported an average of 25 killer whales in the area per year between 2010 and 2017. Killer whales in the project area may be of the Northern Resident, Alaska Resident, or West Coast Transient stocks. The Alaska Resident group AG pod is known to frequent the Juneau Area in groups of up to 25 individuals (B. Lambert, pers. comm.). Mr. Erickson estimates that one group of up to 25 killer whales may enter the Level B harassment zone during the eight days of pile driving for a total of 25 exposures.

Mr. Erickson will implement shutdown zones that encompass the largest Level A harassment zones for killer whales during all pile driving activities. Killer whales are generally conspicuous and PSOs are expected to detect killer whales and implement a shutdown before the animals enter the Level A harassment zone. Therefore, takes by Level A harassment have not been requested and are not proposed to be authorized.

Humpback Whale

Use of Auke Bay by humpback whales is intermittent and irregular year-round. During winter, researchers have documented 1 to 19 individual humpback whales per month in waters close to the project area, including Lynn Canal (Moran *et al.*, 2018a; Straley *et al.*, 2018). Group sizes in southeast Alaska generally range from one to four individuals (Dahlheim *et al.*, 2009). Mr. Erickson estimates that one group of up to four individuals may be present in the Level B harassment zone per day during the eight days of pile driving, for a total of 32 takes by Level B harassment.

The largest Level A harassment zone for humpback whales extends 131.1 m from the source during impact installation of 20-in piles (Table 8). Given the irregular and small presence

of humpback whales in Auke Bay, along with the fact that PSOs are expected to detect humpback whales before they enter the Level A harassment zone and implement shutdowns to prevent take by Level A harassment, no Level A takes have been requested nor proposed to be authorized.

Minke Whale

Dedicated surveys for cetaceans in southeast Alaska found that minke whales were scattered throughout inland waters from Glacier Bay and Icy Strait to Clarence Strait, with small concentrations near the entrance of Glacier Bay. All sightings were of single minke whales, except for a single sighting of multiple minke whales. Surveys took place in spring, summer, and fall, and minke whales were present in low numbers in all seasons and years (Dahlheim *et al.*, 2009). Anecdotal reports have not included minke whales near Auke Bay. However, minke whales are distributed throughout a wide variety of habitats and have been observed in nearby Glacier Bay, indicating they may potentially occur within the Level B harassment zone. Therefore, Mr. Erickson estimates that one minke whale may enter the Level B harassment zone once during the eight days of pile driving activities, for a total of one take by Level B harassment.

The Level A harassment zones for minke whales are the same as for humpback whales, and the shutdown protocols will be the same as well. Therefore, given the low occurrence of minke whales combined with the mitigation, takes by Level A harassment have not been requested and are not proposed to be authorized.

Table 9. Estimated Take by Level A and Level B Harassment, by Species and Stock.

Common name	Stock	Stock abundance[a]	Level A	Level B	Total proposed take	Proposed take as percentage of stock
Humpback whale	Central North Pacific	10,103	0	32	32[b]	0.32

Minke Whale	Alaska	N/A	0	1	1	N/A
Killer whale	Alaska Resident	2,347	0	25	25	1.06[d]
	Northern Resident	261				9.58[d]
	West Coast Transient	243				10.3[d]
Harbor porpoise	Southeast Alaska	975	8	40	48	4.92
Dall's porpoise	Alaska	83,400	0	10	10	< 0.1
Steller sea lion	Western U.S.	54,267	0	175	175[c]	0.32
	Eastern U.S.	41,638	0	793	793	1.90
California sea lion	U.S.	257,606	0	8	8	< 0.01
Harbor seal	Lynn Canal/ Stephens Passage	9,478	16	400	416	4.39

[a] Stock or DPS size is N_{best} according to NMFS 2018 Draft Stock Assessment Reports.
[b] For ESA section 7 consultation purposes, 6.1 percent are designated to the Mexico DPS and the remaining are designated to the Hawaii DPS; therefore, we assigned 2 Level B takes to the Mexico DPS.
[c] Based on numbers reported in Hastings *et al.* (2019) and in consultation with the Alaska Regional Office, we used an 18.1 percent distinction factor to determine the number of animals potentially from the western DPS.
[d] These percentages assume all 25 takes may occur to each individual stock, thus the percentage of one or more stocks are likely inflated as the takes would be divided among multiple stocks

Proposed 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, as well as subsistence uses. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned); and

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

Mitigation for Marine Mammals and their Habitat

In addition to the measures described later in this section, Mr. Erickson 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 Level B harassment take 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 installation will be stopped as these species approach the Level B harassment zone to avoid additional take.

The following measures would apply to ADOT&PF's mitigation requirements:

Establishment of Shutdown Zone for Level A Harassment - For all pile driving/removal and drilling activities, Mr. Erickson would establish a shutdown zone. The purpose of a shutdown zone is generally to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). These shutdown zones would be used to prevent incidental Level A exposures from impact pile driving for Steller sea lions, California sea lions, Dall's porpoises, killer whales, humpback whales, and minke whales, and to reduce the potential for such take for harbor seals and harbor porpoises. During all pile driving and removal activities, a minimum shutdown zone of 20 m would be enforced (Table 10). Shutdown zones for each specific activity are based on the Level

A harassment zones and therefore vary by pile-size, type, driving method, and marine mammal hearing group (Table 10).

Table 10. Shutdown Zones for Pile Driving Activities.

Activity	Shutdown Zone (m)				
	LF Cetaceans	**MF Cetaceans**	**HF Cetaceans**	**Phocid Pinnipeds**	**Otariid Pinnipeds**
Vibratory Timber Pile Removal	10	10	10	10	10
Vibratory Pile Driving (12.75-in)	10	10	10	10	10
Vibratory Pile Driving (20-in)	20	10	30	15	10
Drilling	75	10	105	45	10
Impact Pile Driving 12.75-in	40	10	50	20	10
Impact Pile Driving 20-in	135	10	160	75	10

Establishment of Monitoring Zones for Level B Harassment – Mr. Erickson would establish monitoring zones to correlate with Level B 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 proposed monitoring zones are described in Table 11. Should PSOs determine the monitoring zone cannot be effectively

observed in its entirety, Level B harassment exposures will be recorded and extrapolated based upon the number of observed take and the percentage of the Level B zone that was not visible.

Table 11. Marine Mammal Monitoring Zones.

Activity	Monitoring zone (m)
Impact installation of 12.75-in piles	135
Impact installation of 20-in piles	1,000
Vibratory timber pile removal	1,360
Vibratory installation of 21.75-in piles	2,155
Vibratory installation of 20-in piles	5,410
Drilling	12,100

Soft Start - The use of soft-start procedures are believed to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. For impact pile driving, contractors would be required to provide an initial set of strikes from the hammer at reduced energy, with each strike followed by a 30-second waiting period. This procedure would be conducted a total of three times before impact pile driving begins. Soft start would be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of thirty minutes or longer. Soft start is not required during vibratory pile driving and removal activities.

Pre-Activity Monitoring - Prior to the start of daily in-water construction activity, or whenever a break in pile driving/removal or drilling of 30 minutes or longer occurs, PSOs will observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone will be cleared when a marine mammal has not been observed within the zone for that 30-minute

period. If a marine mammal is observed within the shutdown zone, a soft-start cannot proceed until the animal has left the zone or has not been observed for 15 minutes. 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 monitoring zone. If 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 zone is not visible at the start of construction, piling or drilling activities can begin. If work ceases for more than 30 minutes, the pre-activity monitoring of both the Level B and shutdown zone will commence.

Based on our evaluation of the applicant's proposed measures, NMFS has preliminarily determined that the proposed 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.

Proposed Monitoring and Reporting

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

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

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

Marine Mammal Visual Monitoring

Monitoring shall be conducted by NMFS-approved observers. 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 would 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.

At least two PSOs will be on duty during all pile driving activities. One PSO will be stationed at the dock site to allow full monitoring of the waters within the shutdown zones and the closest waters of the Level B harassment monitoring zones. An additional PSO will be positioned in a vessel in Auke Bay to observed the larger monitoring zones. Most of the shoreline of Auke Bay is privately owned and unavailable for PSOs to access. Additionally, PSOs cannot be stationed on the shore of the various islands in Auke Bay due to safety concerns. Therefore, a vessel-based PSO is the most practicable position for this project. Potential PSO locations are shown in Figure 2 in Mr. Erickson's Marine Mammal Monitoring Plan.

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

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

(i) Independent observers (i.e., not construction personnel) are required;

(ii) At least one observer must have prior experience working as an observer;

(iii) Other observers may substitute education (degree in biological science or related field) or training for experience; and

(iv) Mr. Erickson must submit observer CVs for approval by NMFS.

Additional standard observer qualifications include:

- 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 and times when in-water construction activities were suspended to avoid potential incidental injury from construction sound of marine mammals observed within a defined shutdown zone; and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

A draft marine mammal monitoring report would 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:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;
- Weather parameters (e.g., percent cover, visibility);
- Water conditions (e.g., sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals observed;
- Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- Locations of all marine mammal observations;
- Other human activity in the area; and
- A summary of the total number of individuals of each species detected within the Level B Harassment Zone, and estimated as taken if correction factor appropriate, and the total number of individuals of each species detected within the Level A Harassment Zone and the average amount of time that they remained in that zone.

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

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

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

In the event that Mr. Erickson 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), Mr. Erickson would immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or

by email to the Alaska Regional Stranding Coordinator. The report would include the same information identified in the paragraph above. Activities would be able to continue while NMFS reviews the circumstances of the incident. NMFS would work with Mr. Erickson to determine whether modifications in the activities are appropriate.

In the event that Mr. Erickson 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), Mr. Erickson would report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or by email to the Alaska Regional Stranding Coordinator, within 24 hours of the discovery. Mr. Erickson would provide photographs, video footage (if available), or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

Negligible Impact Analysis and Determination

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

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

Pile driving/removal and 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 A harassment and Level B harassment from underwater sounds generated from pile driving and removal. Potential takes could occur if individuals of these species are present in zones ensonified above the thresholds for Leval A or Level B harassment identified above when these activities are underway.

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

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

2016). Most likely for pile driving, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving and drilling, although even this reaction has been observed primarily only in association with impact pile driving. 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 B harassment will be reduced to the level of least practicable adverse impact through use of mitigation measures described herein and, if sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the area while the activity is occurring. While vibratory driving and drilling associated with the proposed project may produce sound at distances of many kilometers from the project site, thus intruding on some habitat, the project site itself is located in a busy harbor and the majority of sound fields produced by the specified activities are close to the harbor. Therefore, we expect that animals annoyed by project sound would simply avoid the area and use more-preferred habitats.

In addition to the expected effects resulting from authorized Level B harassment, we anticipate that harbor porpoises and harbor seals may sustain some limited Level A harassment in the form of auditory injury. However, given the relatively small size of the Level A harassment zones and the anticipated effectiveness of mitigation, animals in these locations that experience PTS would likely only receive slight PTS, i.e. minor degradation of hearing capabilities within regions of hearing that align most completely with the energy produced by pile driving, i.e. the low-frequency region below 2 kHz, not severe hearing impairment or impairment in the regions of greatest hearing sensitivity. If hearing impairment occurs, it is most likely that the affected animal would lose a few decibels in its hearing sensitivity, which in most

cases is not likely to meaningfully affect its ability to forage and communicate with conspecifics. As described above, we expect that marine mammals would be likely to move away from a sound source that represents an aversive stimulus, especially at levels that would be expected to result in PTS, given sufficient notice through use of soft start.

Nearly all inland waters of southeast Alaska, including Auke Bay, are included in the southeast Alaska humpback whale feeding BIA (Ferguson *et al.*, 2015), though humpback whale distribution in southeast Alaska varies by season and waterway (Dahlheim *et al.* 2009). Humpback whales are present within Auke Bay intermittently and in low numbers. The area of the BIA that may be affected by the proposed project is small relative to the overall area of the BIA, and the area of suitable humpback whale habitat that is not included in the BIA. The southeast Alaska humpback whale feeding BIA is active between March and November. While the exact timing of the proposed project is unknown, Mr. Erickson's pile driving activities are expected to take only eight days. If the project were to occur between March and November, the days of activity represent a small fraction of the time the BIA is active and, thus, even if humpback whale feeding behaviors were interrupted by the activity, the disturbance would be short-term and alternative habitat and foraging opportunities are available nearby. Further, only a very small portion of the humpback stock is expected to enter the area and potentially be disturbed. Therefore, any adverse effects on humpback whales resulting from disturbances occurring in the southeast Alaska humpback whale feeding BIA are expected to be short-term and minor and not adversely impact reproduction or survival, much less the stock.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat. The project activities would not modify existing marine mammal habitat for a significant amount of time. The activities may cause some fish to leave the area of disturbance,

thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

In summary and as described above, the following factors primarily support our preliminary 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;
- The Level A harassment exposures are anticipated to result only in slight PTS, within the lower frequencies associated with pile driving;
- The anticipated incidents of Level B harassment would consist of, at worst, temporary modifications in behavior that would not result in fitness impacts to individuals;
- The area impacted by the specified activity is very small relative to the overall habitat ranges of all species, does not include ESA-designated critical habitat, and only temporally overlaps with the southeast Alaska humpback whale feeding BIA for two months of the planned six months of activity; and
- The proposed mitigation measures are expected to reduce 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 would have any effect on the stocks' ability to recover. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activities will have only minor, short-term effects on

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

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

Small Numbers

As noted above, only small numbers of incidental take may be authorized under 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 8 indicates the number of animals that could be exposed to received noise levels that could cause Level A and Level B harassment for the proposed work in Auke Bay. Our analysis shows that less than 11 percent of each affected stock could be taken by harassment. The numbers of animals proposed to be taken for these stocks would be considered small relative to the relevant stock's abundances even if each estimated taking occurred to a new individual – an extremely unlikely scenario.

Based on the analysis contained herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS

preliminarily 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 proposed project is not known to occur in an important subsistence hunting area. Auke Bay is a developed area with regular marine vessel traffic. Of the marine mammals considered in this IHA application, only harbor seals are known to be used for subsistence in the project area. In a previous consultation with ADF&G, the Douglas Indian Association, Sealaska Heritage Institute, and the Central Council of the Tlingit and Haida Indian Tribes of Alaska, representatives indicated that the primary concern with construction activities in Statter Harbor was impacts to herring fisheries, not marine mammals. As stated above, impacts to fish from the proposed project are expected to be localized and temporary, so are not likely to impact herring fisheries. If any tribes express concerns regarding project impacts to subsistence hunting of marine mammals, further communication between will take place, including provision of any

project information, and clarification of any mitigation and minimization measures that may reduce potential impacts to marine mammals.

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 proposed mitigation and monitoring measures, NMFS has preliminarily determined that there will not be an unmitigable adverse impact on subsistence uses from [name of applicant]'s proposed activities.

Endangered Species Act (ESA)

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

NMFS is proposing to authorize take of wDPS Steller sea lions and Mexico DPS humpback whales, which are listed under the ESA. The Permits and Conservation Division has requested initiation of section 7 consultation with NMFS' Alaska Regional Office for the issuance of this IHA. NMFS will conclude the ESA consultation prior to reaching a determination regarding the proposed issuance of the authorization.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to Mr. Erickson for conducting pile installation and removal activities between January and December 2020, provided the previously mentioned mitigation, monitoring, and reporting requirements are

incorporated. A draft of the proposed IHA can be found at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*.

Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this Notice of Proposed IHA for the proposed action. We also request at this time comment on the potential renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for this IHA or a subsequent Renewal.

On a case-by-case basis, NMFS may issue a one-year IHA renewal with an additional 15 days for public comments when (1) another year of identical or nearly identical activities as described in the Specified Activities section of this notice is planned or (2) the activities as described in the Specified Activities section of this notice would not be completed by the time the IHA expires and a Renewal would allow for completion of the activities beyond that described in the Dates and Duration section of this notice, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to expiration of the current IHA.
- The request for renewal must include the following:

(1) An explanation that the activities to be conducted under the requested Renewal are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (e.g., reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of

reducing the type or amount of take because only a subset of the initially analyzed activities remain to be completed under the Renewal).

(2) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

- Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Dated: September 19, 2019.

Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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