BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XD808

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to a Cruise Ship Terminal Project

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

ACTION: Notice; proposed incidental harassment authorization; request for comments.

SUMMARY: NMFS has received a request from Huna Totem Corporation (HTC) for authorization to take marine mammals incidental to construction activities as part of the re-development of the Icy Strait Point Cruise Ship Terminal in Hoonah, Alaska. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to HTC to incidentally take marine mammals, by Level B Harassment only, during the specified activity.

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

ADDRESSES: Comments on the application 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.Pauline@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 to the Internet at http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm 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: Robert Pauline, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Availability

An electronic copy of HTC's application and supporting documents, as well as a list of the references cited in this document, may be obtained by visiting the Internet at: http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm. In case of problems accessing these documents, please call the contact listed above.

National Environmental Policy Act (NEPA)

We are preparing an Environmental Assessment (EA) in accordance with NEPA and the regulations published by the Council on Environmental Quality and will consider comments submitted in response to this notice as part of that process. The EA will be posted at the foregoing website once it is finalized.

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce 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 authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 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."

Except with respect to certain activities not pertinent here, 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].

Summary of Request

On June 23, 2014 NMFS received an application from HTC for the taking of marine mammals incidental to pile driving and removal associated with the re-development of the Icy

Strait Point Cruise Ship Terminal in Hoonah, Alaska. HTC submitted a revised application on September 9, 2014. On February 26, 2015 the applicant submitted an addendum to the application describing modifications to the specified activity. NMFS determined that the application was adequate and complete on February 27, 2015. HTC proposes to conduct in-water work that may incidentally harass marine mammals (i.e., pile driving and removal). In addition, the project would include associated upland improvements, which are not anticipated to have the potential to result in incidental take of marine mammals. This IHA would be valid from June 1 through October 31, 2015. However, all pile driving is expected to be completed by the end of September. October has been included only to cover any contingencies that may arise.

The use of vibratory and impact pile driving is expected to produce underwater sound at levels that have the potential to result in behavioral harassment of marine mammals. Species with the expected potential to be present during the project timeframe include the humpback whale (*Megaptera novaeangliae),* Steller sea lion (*Eumatopius jubatus*), harbor seal (*Phoca vitulina*), Dall's porpoise (*Phocoenoides dalli*), gray whale (*Eschrichtius robustus*), harbor porpoise (*Phocoena phocoena*), killer whale (*Orcinus orca*), minke whale (*Balaenoptera acutorostrata*), and Pacific white-sided dolphin (*Lagenorhynchus obliquidens*).

Description of the Specified Activity

Overview

The project would construct a new cruise ship berth terminal and associated upland improvements at the existing facility. The existing facility is served by an approximately 100-foot by 25-foot excursion dock, with an approximately 140-foot walkway connecting to shoreline. There is also an existing 40-foot by 80-foot fishing pier which is connected to the shore by an approximately 120-foot walkway. The new terminal would consist of a floating

pontoon, which would be connected to the shore via a new trestle and transfer span. The new terminal would also include two new mooring dolphins, two new breasting dolphins, and three or more new reaction dolphins. Each of these would be interconnected via pile-supported catwalks. The proposed project would require the installation of 25 24-inch piles, 21 30-inch piles, 53 42-inch piles, and 5 60-inch piles.

Dates and Duration

In-water work, which is work occurring below the mean higher high water (MHHW) will be limited to pile installation and falsework pile extraction. These activities will be limited to the period between June 1 and October 31, 2015 to avoid the period (15 April to 31 May) when spawning herring are most likely to be present within the project area. However, all pile driving is expected to be completed by the end of September. October has been included only to cover any contingencies that may arise.

The project will require the installation of 104 steel pipe piles of varying diameters below the MHHW. Total impact hammer time would not exceed 5 minutes per pile for 104 piles resulting in less than 10 hours of driving time. Total vibratory hammer time would not exceed 5 hours per day for a maximum of 20 days resulting in a total of 100 hours.

The overall project, including work not anticipated to result in incidental take, was initiated in September 2014 and will run through May 2016.

Specified Geographic Region

The existing Icy Strait Point site is located in Hoonah, Alaska. The project site is located at the junction of Icy Strait and Port Frederick, in the Baranof-Chichagof Islands watershed (HUC #19010203). Please see Sheet 1 of Appendix A in the HTC application for details.

Detailed Description of Activities

The proposed action would involve construction of a new cruise ship berth terminal and associated upland improvements at the existing facility. The existing facility is served by an approximately 100-foot by 25-foot excursion dock, with an approximately 140-foot walkway connecting to shoreline. There is also an existing 40-foot by 80-foot fishing pier which is connected to the shore by an approximately 120-foot walkway. The new terminal would consist of a floating pontoon, which would be connected to the shore via a new trestle and transfer span. The new terminal would also include two new mooring dolphins, two new breasting dolphins, and three or more new reaction dolphins. Each of these would be interconnected via pile-supported catwalks.

In-water work (work below the MHHW) will be limited to pile installation. Over-water work will include construction and installation of the steel trestle and transfer span, construction of the over-water portions of the mooring, breasting, and reaction dolphins, and construction of the catwalk spans. The floating pontoon will be fabricated in a dry dock and floated into position.

In-water and over-water components of the project would be constructed in areas with water depths ranging between MHHW and approximately -60 feet mean lower low water (MLLW). The majority of the in-water and over-water work including construction of the mooring, breasting, and reaction dolphins; catwalks, a portion of the transfer span and floating pontoon will be completed between approximately -25 feet and -60 feet MLLW.

A detailed description of in-water and over-water project components may be found in Table 1 of the HTC Application.

In-water and over-water work will primarily be completed using equipment mounted on barges and/or barge-mounted derricks. It is anticipated that a maximum of 3 barges, including material barges, will be anchored (four anchors per barge) at the site during offshore

construction. The barges may be anchored with spud anchors in shallow water and line anchors in deeper water. Small vessels will be used for crew access and miscellaneous construction activities. Limited upland equipment will be used to support in-water construction.

Pile Installation -The over-water structures, except for the floating pontoon, will likely be founded on steel pipe piling. Piling will be set using a vibratory hammer. Rock excavation will be conducted using a down the hole drilling system with an under reaming bit. Seating will be achieved with either vibratory or impact hammer depending on local geotechnical conditions. The project will require the installation of a total of approximately 104 steel pipe piles of varying diameters below the MHHW. Piles that will be used include 24-inch, 30-inch, 42-inch, and 60-inch steel pipe piles. Piles will be set by vibratory hammer that will cease operation as soon as bedrock is encountered. Vibratory hammer time should be between 10 and 30 minutes per pile. It is estimated that each pile will need to be driven approximately 50 feet to hit bedrock. Piles will then be drilled into bedrock using a down the hole drilling system with an under reaming bit for approximately 15 feet. This process will take an estimated 3 hours. This is a low energy air-powered system that releases decreased acoustic energy compared to impact driving. Proofing or seating of the pile into the drilled socket would occur with either a vibratory or impact hammer depending on the rock encountered and will be selected in the field based on actual sub surface conditions. If a vibratory hammer is used it will take 3-5 minutes of vibrating. Should an impact hammer be required it is expected to take 50 blows and 3-5 minutes of impacting. As described previously total vibratory hammer time would not exceed a total of 100 hours and total impact hammer time would result in less than 10 hours of driving time. This would occur over approximately 16-20 days of driving during the 4 month Authorization period.

Table 1: Summary of Pilings to be Installed – Diameter and Number

Pile size (Diameter in inches)	Number of Piles
24	25
30	21
42	53
60	5
	104 TOTAL

Trestle and Transfer Span - A new steel trestle (482 feet by 18 feet) and transfer span (173 feet by 18 feet) with associated steel foundations, measuring approximately 1,090 square feet, will be constructed to allow vehicle and pedestrian access between the pontoon and upland areas. These spans will be supported by approximately fifteen 24-inch and twenty- one 30-inch-diameter steel pipe piling that will be installed per the pile installation methods described above.

Pontoon - A new floating steel pontoon (21,500 square feet) with associated steel components will be constructed to provide a landing surface for cruise ship gangways.

Mooring Dolphins -Two new mooring dolphins, measuring 1,150 square feet (each approximately 575 square feet), will be constructed to provide mooring points for lines from the cruise ship vessels. The dolphins will be supported by 42-inch-diameter steel pipe piles (seven and eight piles, respectively).

Breasting Dolphins - Two new breasting dolphins, measuring 1,150 square feet (total), will be constructed to provide mooring points for the lines and breasting points for the hulls of cruise ship vessels. Each dolphin will be supported by ten 42-inch-diameter steel pipe piles.

Reaction Dolphins - Approximately three new reaction dolphins, measuring 1,750 square feet (total), will be constructed to maintain the horizontal position of the floating pontoon. The

reaction dolphins will be supported by eighteen 42-inch diameter and five 60-inch- diameter steel pipe piles (total piles used for the three dolphins).

Catwalks - Eight new catwalk spans, measuring 4,150 square feet total (5 feet wide by 820 feet plus foundations), will be constructed to provide walking access between the pontoon and the mooring and breasting dolphins. The catwalks will be supported by ten 24-inch-diameter steel pipe piles.

Upland Project Components -The upland portions of the project include numerous improvements to the tourist and retail facilities to support the increased cruise passenger traffic that will result from the new cruise ship berth. Construction associated with these improvements will have no impact on marine mammals. A detailed list of these structures may be found in the HTC Application.

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.

For the proposed project, HTC worked with NMFS and proposed the following mitigation measures to minimize the potential impacts to marine mammals in the project vicinity. The primary purposes of these mitigation measures are to minimize sound levels from the activities, and to monitor marine mammals within designated zones of influence corresponding to NMFS' current Level A and B harassment thresholds which are depicted in Table 4 found later in the Estimated Take by Incidental Harassment section.

Monitoring Protocols – Monitoring would be conducted before, during, and after pile driving and removal 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. Observations made outside the shutdown zone will not result in shutdown; that pile segment would be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point all pile driving activities would be halted. Monitoring will take place from twenty minutes prior to initiation through thirty minutes post-completion of pile driving activities. Pile driving activities include the time to 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 thirty minutes. Please see the Marine Mammal Monitoring Plan (available at *www.nmfs.noaa.gov/pr/permits/incidental/construction.htm*), developed by HTC with our approval, for full details of the monitoring protocols.

The following additional measures apply to visual monitoring:

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

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

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

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

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

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

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

(g) Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

(2) Prior to the start of pile driving activity, the shutdown zone will be monitored for twenty minutes to ensure that it is clear of marine mammals. Pile driving will only commence once observers have declared the shutdown zone clear of marine mammals; animals will be allowed to remain in the shutdown zone (i.e., must leave of their own volition) and their behavior will be monitored and documented. The shutdown zone may only be declared clear, and pile driving started, when the entire shutdown zone is visible (i.e., when not obscured by dark, rain, fog, etc.). In addition, if such conditions should arise during impact pile driving that is already underway, the activity would be halted.

If a marine mammal approaches or enters the shutdown zone during the course of pile driving operations, activity will be halted and delayed until either the animal has voluntarily left

and been visually confirmed beyond the shutdown zone or fifteen minutes have passed without re-detection of the animal. Monitoring will be conducted throughout the time required to drive a pile.

Soft Start - The use of a soft start procedure is believed to provide additional protection to marine mammals by warning or providing a chance to leave the area prior to the hammer operating at full capacity, and typically involves a requirement to initiate sound from the hammer at reduced energy followed by a waiting period. This procedure is repeated two additional times. It is difficult to specify the reduction in energy for any given hammer because of variation across drivers and, for impact hammers, the actual number of strikes at reduced energy will vary because operating the hammer at less than full power results in "bouncing" of the hammer as it strikes the pile, resulting in multiple "strikes." The project will utilize soft start techniques for both impact and vibratory pile driving. We require HTC to initiate sound from vibratory hammers for fifteen seconds at reduced energy followed by a thirty-second waiting period, with the procedure repeated two additional times. For impact driving, we require an initial set of three strikes from the impact hammer at reduced energy, followed by a thirty-second waiting period, then two subsequent three strike sets. Soft start will be required at the beginning of each day's pile driving work and at any time following a cessation of pile driving of 20 minutes or longer (specific to either vibratory or impact driving).

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

(a) Conduct briefings between construction supervisors and crews, marine mammal monitoring team, and HTC staff prior to the start of all pile driving activity, and when new

personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

(b) For in-water heavy machinery work other than pile driving (using, e.g., standard barges, tug boats, barge-mounted excavators, or clamshell equipment used to place or remove material), 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).

Monitoring and Shutdown for Pile Driving

The following measures would apply to HTC's mitigation through shutdown and disturbance zones:

Shutdown Zone – For all pile driving activities, HTC will establish a shutdown zone. Shutdown zones are intended to contain the area in which SPLs equal or exceed the 180/190 dB rms acoustic injury criteria, with the purpose being 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), thus preventing injury of marine mammals. For vibratory driving, HTC's activities are not expected to produce sound at or above the 180 dB rms injury criterion (see "Estimated Take by Incidental Harassment"). As described above, HTC would, however, implement a minimum shutdown zone of 10 m radius for all marine mammals around all vibratory pile driving and removal activity and 100 m radius around impact pile driving activity. These precautionary measures are intended to further reduce the unlikely possibility of injury from direct physical interaction with construction operations.

Disturbance Zone – Disturbance zones are the areas in which SPLs equal or exceed 120 dB rms (for continuous sound) for pile driving installation and removal. Disturbance zones provide utility for monitoring conducted for mitigation purposes (i.e., shutdown zone monitoring) by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring of disturbance zones enables observers to be aware of and communicate the presence of marine mammals in the project area but outside the shutdown zone and thus prepare for potential shutdowns of activity. However, the primary purpose of disturbance zone monitoring is for documenting incidents of Level B harassment; disturbance zone monitoring is discussed in greater detail later (see "Proposed Monitoring and Reporting"). Nominal radial distances for disturbance zones are shown in Table 5. Given the size of the disturbance zone for vibratory pile driving, it is impossible to guarantee that all animals would be observed or to make comprehensive observations of fine-scale behavioral reactions to sound. We discuss monitoring objectives and protocols in greater depth in "Proposed Monitoring and Reporting."

In order to document observed incidents of harassment, monitors record all marine mammal observations, regardless of location. The observer's location, as well as the location of the pile being driven, is known from a GPS. The location of the animal is estimated as a distance from the observer, which is then compared to the location from the pile and the estimated ZOIs for relevant activities (i.e., pile installation and removal). This information may then be used to extrapolate observed takes to reach an approximate understanding of actual total takes.

Time Restrictions - Work would occur only during daylight hours, when visual monitoring of marine mammals can be conducted. In addition, all in-water construction will be limited to the period between June 1 and October 31, 2015. However, all pile driving is expected

to be completed by the end of September. October has only been included to cover any contingencies that may arise.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's proposed mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of affecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned
- The practicability of the measure for applicant implementation,

Any mitigation measure(s) prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

1. Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).
2. A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of pile

driving, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

3. A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels of pile driving, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).
4. A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of pile driving, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).
5. Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.
6. For monitoring directly related to mitigation – an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

The potential use of bubble curtains was discussed with HTC. However, impact driving would only occur for brief, irregular periods. Additionally, the project is being conducted in

relatively deep water where it is difficult to deploy bubble curtains and their efficacy would be uncertain. Therefore, NMFS does not propose to require the use of bubble curtains.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Description of Marine Mammals in the Area of the Specified Activity

Table 2. List of Marine Mammal Species under NMFS Jurisdiction that Occur in the Vicinity of the HTC Cruise Ship Terminal Re-Development Project

Common Name	Stock	Scientific Name	ESA Status; Strategic Y/N	Stock Abundance(CV, N_{min}, most recent abundance survey)*	Relative Occurrence
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)					
Family Eschrichtiidae					
Gray whale	Eastern North Pacific Stock	*Eschrichtius robustus*	Not listed/N	19,126 (0.071; 18,017; 2007)	Uncommon
Family Balaenopteridae (rorquals)					
Humpback whale	Entire Central North Pacific Stock	*Megaptera novaeangliae*	Endangered/Y	10,103(0.03;7,890; 2006)	Common
Minke whale	Gulf of Alaska and Western Aleutians	*Balaenoptera acutorostrata)*	Not listed/N	Unknown	Uncommon

Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)					
Family Delphinidae					
Pacific white-sided dolphin	entire North Pacific Stock	*Lagenorhynchus obliquidens*	Not listed/N	26,880 (N/A; N/A; 1990)	Uncommon
Killer whale	AK Resident Stock	*Orcinus orca*	Not listed/N	2,347 (N/A; 2,3477; 2012)	Common
	GOA, Bering Sea, Aleutian Transient Stock			587 (N/A; 587; 2012)	Uncommon
	West Coat Transient Stock			354 (N/A; 243; 2009)	Uncommon
Family Phocoenidae (porpoises)					
Harbor porpoise	Southeast Alaskan Stock	*Phocoena phocoena*	Not listed/S	11,146 (0.242; 9,116; 1997)	Common
Dall's porpoise	Alaska	*Phocoenoides dalli*	Not listed/NS	83,000 (0.097; N/A; 1993)	Common
Order Carnivora – Superfamily Pinnipedia					
Family Otariidae (eared seals and sea lions)					
Steller Sea Lion	Eastern DPS	*Eumatopius jubatus*	Not Listed/S	60,131-74,448(36,551; 2013)	Common
	Western DPS		Endangered/S	55,422 (48,676; 2013)	Common
Family Phocidae (earless seals)					
Harbor seal	Glacier Bay/Icy Strait Stock	*Phoca vitulina*	Not listed/NS	5,042(4,735;2007)	Common

*Estimated abundance numbers come primarily from NMFS 2014 Draft Alaska Marine Mammal Stock Assessment Report (Allen and Angliss 2014), with the exception of the abundance data for gray whale, which comes from the Draft 2013 Pacific Region Marine Mammal Stock Assessment Report (Carretta et al. 2013).

Nine marine mammal species have known distribution ranges that include the portion of Icy Strait/Port Frederick in which construction activities will occur. These are humpback whale, Steller sea lion, harbor seal, Dall's porpoise, gray whale, harbor porpoise, killer whale, minke

whale, and Pacific white-sided dolphin. There are specific stocks of individual species that may occur in the vicinity of the Project area. These include the Eastern North Pacific stock of gray whale; the North Central Pacific Stock of humpback whale; Gulf of Alaska and Western Aleutians stock of minke whale; North Pacific Stock of Pacific white-sided dolphin; Alaska Resident stock of killer whale; Golf of Alaska, Bering Sea, Aleutian transient stock of Killer whale; West coast transient stock of killer whale; Southeast Alaska stock of harbor porpoise; Alaska stock of Dall's porpoise; eastern depleted population stock (DPS) of Steller's sea lion; western DPS of Steller's sea lion; and Glacier Bay/Icy Strait stock of harbor seal.

This IHA application assesses the potential impacts of the proposed project on these 12 stocks.

We have reviewed HTC's detailed species descriptions, including life history information, for accuracy and completeness and refer the reader to Section 3 of HTC's application instead of reprinting the information here. Please also refer to NMFS' website (*www.nmfs.noaa.gov/pr/species/mammals*) for generalized species accounts. Table 2 lists the 12 marine mammal stocks that could occur in the vicinity of Icy Strait during the project timeframe and summarizes key information regarding stock status and abundance. Please see NMFS' Stock Assessment Reports (SAR), available at www.nmfs.noaa.gov/pr/sars, for more detailed accounts of these stocks' status and abundance.

In the species accounts provided here, we offer a brief introduction to the species and relevant stock as well as available information regarding population trends and threats, and describe any information regarding local occurrence.

Cetaceans

Humpback Whale

Humpback whales range from California to the Chukchi Sea, Hawaii, and the Mariana Islands (NMFS 1991). During summer and fall, humpback whales in the North Pacific forage over the continental shelf and along the coasts of the Pacific Rim, from Point Conception, California, north to the Gulf of Alaska, Prince William Sound, and Kodiak Island. Within this feeding area there are three relatively separate populations that migrate from these colder, highly productive higher-latitude waters to winter/spring calving and mating areas in warmer, lower-latitude coastal waters. Humpback whales in the waters of southeast Alaska belong to the Central North Pacific stock. This stock forages seasonally in the waters of British Columbia and Alaska and then, during winter, migrates to the Hawaiian Islands for mating and calving; however, a portion of the population remains in southeast Alaska waters year-round. Humpback whales are primarily observed foraging in southeast Alaska from May through December with numbers peaking in late August and September.

While the estimated population of the North Pacific stock remains much lower than the population size before whaling, humpback whales are increasing in abundance throughout much of their range. While the species currently remains listed as endangered throughout its range, the State of Alaska, in 2014, filed a petition with NMFS to designate the Central North Pacific Stock of humpback whale as a DPS and to delist this DPS under the ESA (ADF&G 2014).

In the North Pacific, humpback abundance was estimated at fewer than 1,400 whales in 1966, after heavy commercial exploitation. The current abundance estimate for the Central North Pacific stock is approximately 10,103 whales (Allen and Angliss 2013). The population across Southeast Alaska experienced a 10.6% annual population increase over the 1991-2007 study period (Dahlheim *et al*., 2008). Humpback whales have been observed within the waters of the action area during all months of the year, with annual concentrations of humpback whales

occurring consistently in the waters in and adjacent to Icy Strait in the spring (April/May) (Dahlheim *et al*., 2008). This is probably when whales are preying on heavily schooled fishes (NMFS 1991). Overall numbers of humpback whales tend to increase during the summer (June/July) and fall (August/September) but are more evenly distributed with fewer identifiable population concentrations (Dahlheim *et al*. 2008). However, Port Frederick has been identified as being of relatively higher importance during the later summer months, when whales are preying more heavily on swarming euphasiids (NMFS 1991).

Dall's Porpoise

Dall's porpoise are only found in the North Pacific and adjacent seas. Based primarily on the population response data and preliminary genetics analyses (Winans and Jones 1988), a delineation between Bering Sea and western North Pacific stocks has been recognized. However, similar data are not available for the eastern North Pacific, thus one stock of Dall's porpoise is recognized in Alaskan waters. Dall's porpoise along the west coast of the continental U. S. from California to Washington comprise a separate stock (Allen and Angliss 2013).

Dall's porpoise occur throughout Alaska, and in general, are considered to be common throughout their range (Buckland *et al*. 1993a). This porpoise was also one of the most frequently sighted species during summer seismic surveys in the central and eastern Gulf of Alaska and southeast Alaska (MacLean and Koski 2005; Hauser and Holst 2009). In one study from 1991-2007, Dall's porpoise were encountered throughout Southeast Alaska with concentrations of animals consistently found in Icy Strait (Dahlheim *et al*., 2008). Dall's porpoise also have strong seasonal patterns in Southeast Alaska, with the highest numbers observed in the spring and numbers lowest in the fall (Dahlheim *et al*., 2008).

The current best population estimate for the Alaskan stock of Dall's porpoise is 83,400 (Allen and Angliss 2013). However, surveys for this stock are greater than 12 years old and, consequently, NMFS considers the minimum population estimate to be "unknown", and has also not calculated a Potential Biological Removal (PBR) level for Dall's porpoise (Allen and Angliss 2013). In the Southeast Alaska region, Dall's porpoise populations increased annually by 2.5% between 1991 and 2007(Dahlheim *et al*., 2008). Dall's porpoise are not designated as "depleted" under the MMPA or listed as "threatened" or "endangered" under the Endangered Species Act. The level of human-caused mortality and serious injury is not known to exceed the PBR, which is undetermined as the most recent abundance estimate is more than 8 years old. The Alaska stock of Dall's porpoise is not classified as a strategic stock (Allen and Angliss 2013).

Gray Whale

Gray whales are common along the Gulf of Alaska coast, but rare in the inside waters of southeastern Alaska (Braham 1984). During a four-year opportunistic marine mammal survey in Glacier Bay and Icy Strait, only a single gray whale was documented (Gabriele and Lewis, 2000).

Gray whales are found primarily in shallow water and usually remain closer to shore than any other large cetacean. Two stocks of gray whales are recognized in the Pacific: the Eastern North Pacific stock and the Western North Pacific stock (Carretta *et al*. 2013). The eastern gray whale population ranges from the Chukchi and Beaufort seas to the Gulf of California (Rice 1998). Most of the eastern Pacific population makes a round-trip annual migration of more than 18,000 km. From late May to early October, the majority of the population concentrates in the northern and western Bering Sea and in the Chukchi Sea. However, some individuals spend the

summer months scattered along the coasts of southeast Alaska, B.C., Washington, Oregon, and northern California.

The current best population estimate for the Eastern North Pacific stock is 19,126 (Carretta *et. al.* 2013). In 1994, the Eastern North Pacific stock of gray whales was removed from the Endangered Species List as it was no longer considered endangered or threatened under the ESA. NMFS has not designated gray whales as "depleted" under the MMPA. Based on currently available data, the level of human- caused mortality and serious injury is not known to exceed the potential biological removal (PBR) level for Eastern North Pacific gray whales, which is calculated at 558 whales per year (Carretta *et. al.* 2013). Therefore, Eastern North Pacific gray whales are not classified as a strategic stock.

Harbor Porpoise

The harbor porpoise inhabits temporal, subarctic, and arctic waters. In the eastern North Pacific, harbor porpoises range from Point Barrow, Alaska, to Point Conception, California. Harbor porpoise primarily frequent coastal waters and in the Gulf of Alaska and Southeast Alaska, they occur most frequently in waters less than 100 m deep (Hobbs and Waite 2010).

Within the inland waters of Southeast Alaska harbor porpoise distribution is clumped in several areas with high densities observed in the Glacier Bay/Icy Strait region (Dahlheim et al. 2009, Allen and Angliss, 2013). Data collected between 2010 and 2012 indicated that there are an estimated 322 harbor porpoise that reside in the Icy Strait area, including Excursion Inlet and Port Frederick (Dahlheim 2015). Another study found no evidence of seasonality for harbor porpoise across spring, summer or fall (Dahlheim et al., 2008).

In Alaska, there are three separate stocks of harbor porpoise: Southeast Alaska, Gulf of Alaska, and Bering Sea. The Southeast Alaska Stock occurs from northern B.C. to Cape

Suckling, and the Gulf of Alaska Stock ranges from Cape Suckling to Unimak Pass. The population estimates for the Southeast Alaska stock is 11,146 (Allen and Angliss 2013). However, this abundance estimate is based on surveys conducted between 1993 and 1997(Dahlheim et. al 2000). NMFS has not established a PBR for Southeast Alaska stock harbor porpoise, due to the fact that the available abundance estimates are greater than 8 years old. Similarly, due to the age of the abundance estimates, and due to the fact that the frequency of incidental mortality in commercial fisheries is not known, the Southeast Alaska stock of harbor porpoise is classified as a strategic stock. Preliminary analysis of harbor porpoise trend in Southeast Alaska, as reported in NMFS 2012 marine mammal stock reports, indicated the population declined between 1991 and 2010. However, a new estimate shows that abundance in 2011 was comparable to those from the early 1990s, suggesting the decline was not as steep as previously thought (Allen and Angliss, 2014). Dahlheim et al. (2008) noted a slight annual increase (0.2%) was found for harbor porpoise populations between 1991 and 2007.

Killer Whale

Although resident in some parts of its range, the killer whale can also be transient. Killer whale movements generally appear to follow the distribution of their prey, which includes marine mammals, fish, and squid. Of eight killer whale stocks currently recognized in the Pacific U.S., four occur in Southeast Alaskan waters: (1) Alaska Residents, from southeast Alaska to the Aleutians and Bering Sea, (2) Northern Residents, from B.C. through parts of southeast Alaska, (3) Gulf of Alaska, Aleutians, and Bering Sea Transients, from Prince William Sound through to the Aleutians and Bering Sea, and (4) West Coast Transients, from California through southeast Alaska (Allen and Angliss 2013). However, Northern resident killer whales have not been

observed in the Icy Strait area over the course of two decades of research and have been eliminated from any additional consideration (Dahlheim, 2015).

Resident killer whales have been found in all major waterways of Southeast Alaska as well as in protected bays and inlets and observed in all seasons. Two specific resident pods were frequently encountered throughout Icy Strait. These would be the AG pod numbering a minimum of 42 whales and the AF pod with a minimum count of 79 whales. Whales have been seen there every month of the year and the Icy Strait corridor is a major route for them both entering and exiting inland waters. The AG pod has been observed inside Port Frederick, passing directly off the shore of Hoonah (Dahlheim, 2015).

The current best abundance estimate for the North Pacific Alaska Resident stock of killer whales is 2,347 (Allen and Angliss 2013). This stock of killer whales is not designated as "depleted" under the MMPA nor are they listed as "threatened" or "endangered" under the ESA. Based on currently available data, the level of human- caused mortality and serious injury is not known to exceed the potential biological removal (PBR) level for this stock, which is calculated at 23.4 individuals (Allen and Angliss 2013). Therefore, the North Pacific Alaska Resident stock of killer whales is not classified as a strategic stock.

The current best abundance estimate for the Gulf of Alaska, Aleutian Islands, and Bering Sea transient stock of killer whales is 587 individuals. These whales occur mainly from Prince William Sound through the Aleutian Islands and Bering Sea though their range includes all of the U.S. EEZ in Alaska (Allen and Angliss, 2013). In recent years, a small number of the 'Gulf of Alaska' transients (identified by genetics and association) have been seen in southeastern Alaska where previously only West coast transients had been seen.

This stock of killer whales is not designated as "depleted" under the MMPA nor are they listed as "threatened" or "endangered" under the ESA. Based on currently available data, the level of human-caused mortality and serious injury is not known to exceed the potential biological removal (PBR) level for this stock, which is calculated at 5.9 individuals (Allen and Angliss 2013). Therefore, the Gulf of Alaska, Aleutian Islands, and Bering Sea transient stock of killer whales is not classified as a strategic stock.

The West Coast transient stock ranges from Southeast Alaska to California. Allen and Angliss (2012) provide an abundance estimate of 354 for the West Coast transient stock. Although this estimate is more than eight years old, NMFS is not aware of a more recent estimate for the entire stock. A more recent estimate of 243 whales is available, however this estimate excludes whales of this stock from California. Therefore, 354 describes the number of whales believed to occur throughout the entire stock's range, including whales from California. A notable percentage of whales from the West Coast transient stock have never been observed in Southeast Alaska. Only 155 West Coast transient killer whales have been identified as occurring in Southeast Alaska according to Dahlheim and White (2010). The same study identified three pods of transients, equivalent to 19 animals, that remained almost exclusively in the southern part of Southeast Alaska (i.e. Clarence Strait and Sumner Strait).

This stock of killer whales is not designated as "depleted" under the MMPA nor are they listed as "threatened" or "endangered" under the ESA. Based on currently available data, the level of human- caused mortality and serious injury is not known to exceed the potential biological removal (PBR) level for this stock, which is calculated at 2.4 individuals (Allen and Angliss 2013). Therefore, the West Coast transient stock of killer whales is not classified as a strategic stock.

Minke Whale

In the Northern Hemisphere, minke whales are usually seen in coastal areas, but can also be seen in pelagic waters during northward migrations in spring and summer, and southward migration in autumn. In the North Pacific, the summer range of the minke whale extends to the Chukchi Sea; in the winter, the whales move farther south close within 2^{o} of the equator (Perrin and Brownell 2002).

The International Whaling Commission (IWC) recognizes three stocks of minke whales in the North Pacific: the Sea of Japan/East China Sea, the rest of the western Pacific west of 180^{o}N, and the remainder of the Pacific (Donovan 1991). For management purposes in Pacific U.S. waters, three stocks of minke whales are recognized — the Alaska, Hawaii, and California/Oregon/ Washington stocks (Allen and Angliss 2013). Minke whales that could potentially occur within the action area are members of the Alaska stock.

Minke whales are relatively common in the Bering and Chukchi seas and in the inshore waters of the Gulf of Alaska. They are not considered abundant in any other part of the eastern Pacific, but they are seen occasionally around Glacier Bay in southeast Alaska and in central Icy Strait. Gabriele and Lewis (2000) documented a total of 29 minke whales during a four-year period conducting opportunistic marine mammal surveys in Glacier Bay and Icy Strait. Another study found Minke whales scattered throughout inland waters from Glacier Bay and Icy Strait to Clarence Strait with concentrations near the entrance of Glacier Bay. Although sightings of minke whales were infrequent over the 17-year study period, minke whales were encountered during all seasons, with a few animals recorded each year. (Dahlheim et al. 2008)

The current best abundance estimate for the Alaska stock of minke whales is unknown. (Allen and Angliss 2013). This stock of minke whales is not designated as “depleted” under the

MMPA nor are they listed as "threatened" or "endangered" under the ESA. The greatest uncertainty regarding the status of the Alaska minke whale stock has to do with the uncertainty pertaining to the stock structure of this species in the eastern North Pacific (Allen and Angliss 2013). Because minke whales are considered common in the waters off Alaska and because the number of human-related removals is currently thought to be minimal, this stock is currently presumed to not be a strategic stock (Allen and Angliss 2013). Reliable estimates of the minimum population size, population trends, PBR, and status of the stock relative to optimum sustainable population size are currently not available.

Pacific White-Sided Dolphin

The Pacific white-sided dolphin is found throughout the temperate North Pacific Ocean, north of the coasts of Japan and Baja California, Mexico. In the eastern North Pacific the species occurs from the southern Gulf of California, north to the Gulf of Alaska, west to Amchitka in the Aleutian Islands, and is rarely encountered in the southern Bering Sea. The species is common both on the high seas and along the continental margins, and animals are known to enter the inshore passes of Alaska, British Columbia, and Washington (Ferrero and Walker 1996). Two management stocks of Pacific white-sided dolphin are currently recognized: 1) the California/Oregon/ Washington stock, and 2) the North Pacific stock. Pacific white-sided dolphins that could potentially be present within the action area would be members of the North Pacific stock. Pacific white-sided dolphin were not documented in the waters of Icy Strait. It also appears that when Pacific white-sided dolphins are present in Southeast Alaska they tend to occur in highest concentrations during the spring (Dahlheim *et al*., 2008).

The current best abundance estimate for the North Pacific stock of Pacific white-sided dolphin is 26,880 individuals (Allen and Angliss 2013). However, this estimate is based on

survey data that is greater than 8 years old. As a result, NMFS reports the minimum population estimate as currently unknown (Allen and Angliss 2013). This stock of Pacific white-sided dolphin is not designated as "depleted" under the MMPA nor are they listed as "threatened" or "endangered" under the ESA. The level of human-caused mortality and serious injury is not known to exceed the PBR, which is undetermined as the most recent abundance estimate is more than 8 years old. Because the PBR is undetermined, the level of annual U.S. commercial fishery-related mortality that can be considered insignificant and approaching zero mortality and serious injury rate is unknown. The Alaska stock of Pacific white-sided dolphins is not classified as a strategic stock, but reliable estimates of the minimum population size, population trends, PBR, and status of the stock relative to optimum sustainable population size are currently not available (Allen and Angliss 2013).

Pinnipeds

Harbor Seal

Harbor seals range from Baja California, north along the western coasts of the U.S., B.C., and southeast Alaska, west through the GOA, PWS, and the Aleutian Islands, and north in the Bering Sea to Cape Newenham and the Pribilof Islands.

In 2010, the National Marine Fisheries Service and their co-management partners, the Alaska Native Harbor Seal Commission, defined 12 separate stocks of seals harbor based largely on the genetic structure. Given the genetic samples were not obtained continuously throughout the range, a total evidence approach was used to consider additional factors such as population trends, observed harbor seal movements and traditional Alaska Native use areas in the final designation of stock boundaries. This represents a significant increase in the number of harbor

seal stocks from the three stocks (Bering Sea, Gulf of Alaska, Southeast Alaska) previously recognized. Harbor seals that occur within the proposed project area are part of the Glacier Bay/Icy Strait Stock (Allen and Angliss 2013).

Harbor seals are commonly present throughout the waters of Icy Strait and Port Frederick and are found in all water depths, but tend to congregate in the near- shore waters of both Glacier Bay and Icy Strait. Harbor seals typically inhabit estuarine and coastal waters, hauling out on rocks, reefs, beaches, and glacial ice flows. They are generally non-migratory, but move locally with the tides, weather, season, food availability, and reproduction. Female harbor seals give birth to a single pup while hauled out on shore or on glacial ice flows. Pups are born from May to mid-July. The mother and pup remain together until weaning occurs at 3–6 weeks (Bishop 1967; Bigg 1969). Little is known about breeding behavior in harbor seals. When molting, which occurs primarily in late August, seals spend the majority of the time hauled out on shore, glacial ice, or other substrates. Harbor seals have also historically been an important subsistence resource for Alaska Natives in SE Alaska (Wolfe *et al.* 2012). The current best population estimate for the Glacier Bay/Icy Strait stock is 5,042 individuals (Allen and Angliss 2013).

Harbor seals have not been observed hauling out, molting, or pupping at Icy Strait Point. However, they likely do haulout at least occasionally within the action area.

According to the most recent stock assessment NMFS (Allen and Angliss 2013), harbor seals are not designated as "depleted" under the MMPA nor are they listed as "threatened" or "endangered" under the ESA. Based on currently available data, the level of human-caused mortality and serious injury is not known to exceed the potential biological removal (PBR) level for harbor seals comprise the Glacier Bay/Icy Strait stock, which is calculated at 142 harbor seals per year (Allen and Angliss 2013). Therefore, the Glacier Bay/Icy Strait stock of harbor seals is

not classified as a strategic stock. However, a noticeable decline in harbor seal population has been documented in Glacier Bay National Park (Womble et al., 2010).

Steller Sea Lion

The Steller sea lion is a pinniped and the largest of the eared seals. Steller sea lion populations that primarily occur east of 144° W (Cape Suckling, Alaska) comprise the Eastern Distinct Population Segment (DPS), which was de-listed and removed from the list of Endangered Species List on November 4, 2013 (78 FR 66140). The population west of 144° W longitude comprise the Western DPS, which is listed as endangered, based largely on over-fishing of the seal's food supply.

The range of the Steller sea lion includes the North Pacific Ocean rim from California to northern Japan. Steller sea lions forage in nearshore and pelagic waters where they are opportunistic predators. They feed primarily on a wide variety of fishes and cephalopods. Steller sea lions use terrestrial haulout sites to rest and take refuge. They also gather on well-defined, traditionally used rookeries to pup and breed. These habitats are typically gravel, rocky, or sand beaches; ledges; or rocky reefs (Allen and Angliss, 2013).

In southeast Alaska, designated critical habitat for Steller sea lions includes major rookery and haulout sites (i.e., used by more than 200 animals) and associated terrestrial, air, and aquatic zones within 3,000 feet, as well as three large offshore foraging areas (one in the Gulf of Alaska and two in the Bering Sea/Aleutian Islands area). There is no designated critical habitat in the proposed project area. The nearest designated critical habitat is located over 40 miles west of the action area, at Graves Rocks, near the mouth of Cross Sound.

The western stock of Steller sea lions in Alaska was listed as endangered in 1997. Declines in Steller sea lion populations are probably attributable to declines in fish populations due to increasing commercial fisheries in the Gulf of Alaska. Drowning, entanglement in nets, and shooting by fishermen are listed as possible reasons for the Steller sea lion decline.
The action area is located at approximately 135° W longitude, which is over 150 miles east of the 144° W longitude line. It is likely that most Steller sea lions travelling within the waters of Icy Strait and Port Frederick are likely to be members of the Eastern DPS. However, the action area is known to be an area that is used by both Western and Eastern DPS Steller sea lions. In fact, regular movement of Western DPS across the144° W longitude has been documented and they are described as commonly occurring north of Sumner Strait (NMFS, 2013). For this reason, Western DPS Steller sea lions could potentially be present within the action area. Since no known breeding rookeries are present within the action area, Steller sea lion are considered less likely to be present during the summer months when they return to rookeries to give birth. The current best population estimate for the Eastern DPS is 57,966, while the population estimate for the Western DPS is 52,200 (Allen and Angliss 2013). Additionally, it recently been documented that the population of Stellar sea lions in the Glacier Bay/Icy Strait/Cross Sound region has increased by 8.2% per year from 1970 to 2009, though the proportional increase associated with each DPS is not clear (Matthews et al., 2011).

Further information on the biology and local distribution of these species can be found in HTC's application available online at:
http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm and the NMFS Marine Mammal Stock Assessment Reports, which may be found at:
http://www.nmfs.noaa.gov/pr/species/.

Potential Effects of the Specified Activity on Marine Mammals and Their Habitat

This section includes a summary and discussion of the ways that stressors, (e.g. pile driving,) and potential mitigation activities, associated with the redevelopment of the Icy Strait Cruise Ship Terminal may impact marine mammals and their habitat. The "Estimated Take by Incidental Harassment" section later in this document will include a quantitative analysis of the number of individuals that are expected to be taken by this activity. The "Negligible Impact Analysis" section will include the analysis of how this specific activity will impact marine mammals and will consider 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 this activity on the reproductive success or survivorship of individuals and from that on the affected marine mammal populations or stocks. In the following discussion, we provide general background information on sound and marine mammal hearing before considering potential effects to marine mammals from sound produced by vibratory pile driving.

Description of Sound Sources

Sound travels in waves, the basic components of which are frequency, wavelength, velocity, and amplitude. Frequency is the number of pressure waves that pass by a reference point per unit of time and is measured in hertz (Hz) or cycles per second. Wavelength is the distance between two peaks of a sound wave; lower frequency sounds have longer wavelengths than higher frequency sounds and attenuate (decrease) more rapidly in shallower water. Amplitude is the height of the sound pressure wave or the `loudness' of a sound and is typically measured using the decibel (dB) scale. A dB is the ratio between a measured pressure (with sound) and a reference pressure (sound at a constant pressure, established by scientific standards). It is a logarithmic unit that accounts for large variations in amplitude; therefore,

relatively small changes in dB ratings correspond to large changes in sound pressure. When referring to sound pressure levels (SPLs; the sound force per unit area), sound is referenced in the context of underwater sound pressure to 1 microPascal (μPa). One pascal is the pressure resulting from a force of one newton exerted over an area of one square meter. The source level (SL) represents the sound level at a distance of 1 m from the source (referenced to 1 μPa). The received level is the sound level at the listener's position. Note that all underwater sound levels in this document are referenced to a pressure of 1 μPa and all airborne sound levels in this document are referenced to a pressure of 20 μPa.

Root mean square (rms) is the quadratic mean sound pressure over the duration of an impulse. Rms is calculated by squaring all of the sound amplitudes, averaging the squares, and then taking the square root of the average (Urick, 1983). Rms accounts for both positive and negative values; squaring the pressures makes all values positive so that they may be accounted for in the summation of pressure levels (Hastings and Popper, 2005). This measurement is often used in the context of discussing behavioral effects, in part because behavioral effects, which often result from auditory cues, may be better expressed through averaged units than by peak pressures.

When underwater objects vibrate or activity occurs, sound-pressure waves are created. These waves alternately compress and decompress the water as the sound wave travels. Underwater sound waves radiate in all directions away from the source (similar to ripples on the surface of a pond), except in cases where the source is directional. The compressions and decompressions associated with sound waves are detected as changes in pressure by aquatic life and man-made sound receptors such as hydrophones.

Even in the absence of sound from the specified activity, the underwater environment is typically loud due to ambient sound. Ambient sound is defined as environmental background sound levels lacking a single source or point (Richardson *et al.,* 1995), and the sound level of a region is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (e.g., waves, earthquakes, ice, atmospheric sound), biological (e.g., sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (e.g., vessels, dredging, aircraft, construction). A number of sources contribute to ambient sound, including the following (Richardson *et al.,* 1995):

- Wind and waves*:* The complex interactions between wind and water surface, including processes such as breaking waves and wave-induced bubble oscillations and cavitation, are a main source of naturally occurring ambient noise for frequencies between 200 Hz and 50 kHz (Mitson, 1995). In general, ambient sound levels tend to increase with increasing wind speed and wave height. Surf noise becomes important near shore, with measurements collected at a distance of 8.5 km from shore showing an increase of 10 dB in the 100 to 700 Hz band during heavy surf conditions.
- Precipitation: Sound from rain and hail impacting the water surface can become an important component of total noise at frequencies above 500 Hz, and possibly down to 100 Hz during quiet times.
- Biological: Marine mammals can contribute significantly to ambient noise levels, as can some fish and shrimp. The frequency band for biological contributions is from approximately 12 Hz to over 100 kHz.
- Anthropogenic: Sources of ambient noise related to human activity include transportation (surface vessels and aircraft), dredging and construction, oil and gas drilling and

production, seismic surveys, sonar, explosions, and ocean acoustic studies. Shipping noise typically dominates the total ambient noise for frequencies between 20 and 300 Hz. In general, the frequencies of anthropogenic sounds are below 1 kHz and, if higher frequency sound levels are created, they attenuate rapidly (Richardson *et al.*, 1995). Sound from identifiable anthropogenic sources other than the activity of interest (e.g., a passing vessel) is sometimes termed background sound, as opposed to ambient sound.

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.

Table 3 – Representative Sound Levels of Anthropogenic Sources

Sound Source	**Frequency range (Hz)**	**Underwater sound level**	**References**
Small vessels	250-1,000	151 dB rms at 1 m	Richardson *et al.*, 1995
Tug docking gravel barge	200, 1,000	149 dB rms at 100 m	Blackwell and Greene, 2002
Vibratory driving of 72-in steel pipe pile	10-1,500	180 dB rms at 10 m	Reyff, 2007

Impact driving of 36-in steel pipe pile	10-1,500	195 dB rms at 10 m	Laughlin, 2007
Impact driving of 66-in cast-in-steel-shell (CISS) pile	10-1,500	195 dB at rms 10 m	Reviewed in Hastings and Popper, 2005

In-water construction activities associated with the project would include vibratory pile driving, impact pile driving, and down the hole drilling. There are two general categories of sound types: Impulse and non-pulse (defined in the following). Vibratory pile driving and down the hole drilling are considered to be continuous or non-pulsed while impact pile driving is considered to be an impulse or pulsed sound type. 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). Please see Southall *et al.*, (2007) for an in-depth discussion of these concepts.

Pulsed sound sources (e.g., explosions, gunshots, sonic booms, impact pile driving) produce signals that are brief (typically considered to be less than one second), broadband, atonal transients (ANSI, 1986; Harris, 1998; NIOSH, 1998; ISO, 2003; ANSI, 2005) and occur either as isolated events or repeated in some succession. Pulsed sounds are all characterized by a relatively rapid rise from ambient pressure to a maximal pressure value followed by a rapid decay period that may include a period of diminishing, oscillating maximal and minimal pressures, and generally have an increased capacity to induce physical injury as compared with sounds that lack these features.

Non-pulsed sounds can be tonal, narrowband, or broadband, brief or prolonged, and may be either continuous or non-continuous (ANSI, 1995; NIOSH, 1998). Some of these non-pulsed sounds can be transient signals of short duration but without the essential properties of pulses

(e.g., rapid rise time). Examples of non-pulsed sounds include those produced by vessels, aircraft, machinery operations such as drilling or dredging, vibratory pile driving, and active sonar systems (such as those used by the U.S. Navy). The duration of such sounds, as received at a distance, can be greatly extended in a highly reverberant environment.

The likely or possible impacts of the proposed pile driving program in the Icy Strait area 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. Any impacts to marine mammals, however, are expected to primarily be acoustic in nature.

Marine Mammal Hearing

When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. Based on available behavioral data, audiograms have been derived using auditory evoked potentials, anatomical modeling, and other data, Southall *et al.* (2007) designate "functional hearing groups" for marine mammals and estimate the lower and upper frequencies of functional hearing of the groups. The functional groups and the associated frequencies are indicated below (though animals are less sensitive to sounds at the outer edge of their functional range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range):

- Low frequency cetaceans (13 species of mysticetes): functional hearing is estimated to occur between approximately 7 Hz and 30 kHz;
- Mid-frequency cetaceans (32 species of dolphins, six species of larger toothed whales, and 19 species of beaked and bottlenose whales): functional hearing is estimated to occur between approximately 150 Hz and 160 kHz;

- High frequency cetaceans (eight species of true porpoises, six species of river dolphins, Kogia, the franciscana, and four species of cephalorhynchids): functional hearing is estimated to occur between approximately 200 Hz and 180 kHz;
- Phocid pinnipeds in Water: functional hearing is estimated to occur between approximately 75 Hz and 100 kHz; and
- Otariid pinnipeds in Water: functional hearing is estimated to occur between approximately 100 Hz and 40 kHz.

As mentioned previously in this document, nine marine mammal species (seven cetacean and two pinniped) may occur in the Icy Strait project area. Of the five cetacean species likely to occur in the proposed project area and for which take is requested, two are classified as low-frequency cetaceans (i.e., minke and gray whales), one is classified as a mid-frequency cetacean (i.e., killer whale), and two are classified as high-frequency cetaceans (i.e., harbor and Dall's porpoises) (Southall *et al.,* 2007). Additionally, harbor seals are classified as members of the phocid pinnipeds in water functional hearing group while Stellar sea lions are grouped under the Otariid pinnipeds in water functional hearing group. A species' functional hearing group is a consideration when we analyze the effects of exposure to sound on marine mammals.

Acoustic Impacts

Potential Effects of Pile Driving Sound—The effects of sounds from pile driving might result in one or more of the following: temporary or permanent hearing impairment, non-auditory physical or physiological effects, behavioral disturbance, and masking (Richardson *et al.,* 1995; Gordon *et al.,* 2004; Nowacek *et al.,* 2007; Southall *et al.,* 2007). The effects of pile driving on marine mammals are dependent on several factors, including the size, type, and depth of the

animal; the depth, intensity, and duration of the pile driving sound; the depth of the water column; the substrate of the habitat; the standoff distance between the pile and the animal; and the sound propagation properties of the environment. Impacts to marine mammals from pile driving activities are expected to result primarily from acoustic pathways. As such, the degree of effect is intrinsically related to the received level and duration of the sound exposure, which are in turn influenced by the distance between the animal and the source. The further away from the source, the less intense the exposure should be. The substrate and depth of the habitat affect the sound propagation properties of the environment. Shallow environments are typically more structurally complex, which leads to rapid sound attenuation. In addition, substrates that are soft (e.g., sand) would absorb or attenuate the sound more readily than hard substrates (e.g., rock) which may reflect the acoustic wave. Soft porous substrates would also likely require less time to drive the pile, and possibly less forceful equipment, which would ultimately decrease the intensity of the acoustic source.

In the absence of mitigation, impacts to marine species would be expected to result from physiological and behavioral responses to both the type and strength of the acoustic signature (Viada *et al.*, 2008). The type and severity of behavioral impacts are more difficult to define due to limited studies addressing the behavioral effects of impulse sounds on marine mammals. Potential effects from impulse sound sources can range in severity from effects such as behavioral disturbance or tactile perception to physical discomfort, slight injury of the internal organs and the auditory system, or mortality (Yelverton *et al.*, 1973).

Hearing Impairment and Other Physical Effects—Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Kastak *et al.*, 1999; Schlundt *et al.*,

2000; Finneran *et al.*, 2002, 2005). TS can be permanent (PTS), in which case the loss of hearing sensitivity is not recoverable, or temporary (TTS), in which case the animal's hearing threshold would recover over time (Southall *et al.*, 2007). Marine mammals depend on acoustic cues for vital biological functions, (e.g., orientation, communication, finding prey, avoiding predators); thus, TTS may result in reduced fitness in survival and reproduction. However, this depends on the frequency and duration of TTS, as well as the biological context in which it occurs. TTS of limited duration, occurring in a frequency range that does not coincide with that used for recognition of important acoustic cues, would have little to no effect on an animal's fitness. Repeated sound exposure that leads to TTS could cause PTS. PTS constitutes injury, but TTS does not (Southall *et al.*, 2007). The following subsections discuss in somewhat more detail the possibilities of TTS, PTS, and non-auditory physical effects.

Temporary Threshold Shift—TTS is the mildest form of hearing impairment that can occur during exposure to a strong sound (Kryter, 1985). While experiencing TTS, the hearing threshold rises, and a sound must be stronger in order to be heard. In terrestrial mammals, TTS can last from minutes or hours to days (in cases of strong TTS). For sound exposures at or somewhat above the TTS threshold, hearing sensitivity in both terrestrial and marine mammals recovers rapidly after exposure to the sound ends. Few data on sound levels and durations necessary to elicit mild TTS have been obtained for marine mammals, and none of the published data concern TTS elicited by exposure to multiple pulses of sound. Available data on TTS in marine mammals are summarized in Southall *et al.* (2007).

Given the available data, the received level of a single pulse (with no frequency weighting) might need to be approximately 186 dB re 1 μPa^2-s (i.e., 186 dB sound exposure level [SEL] or approximately 221-226 dB p-p [peak]) in order to produce brief, mild TTS. Exposure to several

strong pulses that each have received levels near 190 dB rms (175-180 dB SEL) might result in cumulative exposure of approximately 186 dB SEL and thus slight TTS in a small odontocete, assuming the TTS threshold is (to a first approximation) a function of the total received pulse energy.

The above TTS information for odontocetes is derived from studies on the bottlenose dolphin (*Tursiops truncatus*) and beluga whale (*Delphinapterus leucas*). There is no published TTS information for other species of cetaceans. However, preliminary evidence from a harbor porpoise exposed to pulsed sound suggests that its TTS threshold may have been lower (Lucke *et al.,* 2009). As summarized above, data that are now available imply that TTS is unlikely to occur unless odontocetes are exposed to pile driving pulses stronger than 180 dB re 1 μPa rms.

Permanent Threshold Shift—When PTS occurs, there is physical damage to the sound receptors in the ear. In severe cases, there can be total or partial deafness, while in other cases the animal has an impaired ability to hear sounds in specific frequency ranges (Kryter, 1985). There is no specific evidence that exposure to pulses of sound can cause PTS in any marine mammal. However, given the possibility that mammals close to a sound source can incur TTS, it is possible that some individuals might incur PTS. Single or occasional occurrences of mild TTS are not indicative of permanent auditory damage, but repeated or (in some cases) single exposures to a level well above that causing TTS onset might elicit PTS.

Relationships between TTS and PTS thresholds have not been studied in marine mammals but are assumed to be similar to those in humans and other terrestrial mammals, based on anatomical similarities. PTS might occur at a received sound level at least several decibels above that inducing mild TTS if the animal were exposed to strong sound pulses with rapid rise time. Based on data from terrestrial mammals, a precautionary assumption is that the PTS threshold

for impulse sounds (such as pile driving pulses as received close to the source) is at least 6 dB higher than the TTS threshold on a peak-pressure basis and probably greater than 6 dB (Southall *et al.,* 2007). On an SEL basis, Southall *et al.* (2007) estimated that received levels would need to exceed the TTS threshold by at least 15 dB for there to be risk of PTS. Thus, for cetaceans, Southall *et al.* (2007) estimate that the PTS threshold might be an M-weighted SEL (for the sequence of received pulses) of approximately 198 dB re 1 μPa^2-s (15 dB higher than the TTS threshold for an impulse). Given the higher level of sound necessary to cause PTS as compared with TTS, it is considerably less likely that PTS could occur.

Measured source levels from impact pile driving can be as high as 214 dB rms. Although no marine mammals have been shown to experience TTS or PTS as a result of being exposed to pile driving activities, captive bottlenose dolphins and beluga whales exhibited changes in behavior when exposed to strong pulsed sounds (Finneran *et al.,* 2000, 2002, 2005). The animals tolerated high received levels of sound before exhibiting aversive behaviors. Experiments on a beluga whale showed that exposure to a single watergun impulse at a received level of 207 kPa (30 psi) p-p, which is equivalent to 228 dB p-p, resulted in a 7 and 6 dB TTS in the beluga whale at 0.4 and 30 kHz, respectively. Thresholds returned to within 2 dB of the pre-exposure level within four minutes of the exposure (Finneran *et al.,* 2002). Although the source level of pile driving from one hammer strike is expected to be much lower than the single watergun impulse cited here, animals being exposed for a prolonged period to repeated hammer strikes could receive more sound exposure in terms of SEL than from the single watergun impulse (estimated at 188 dB re 1 μPa^2-s) in the aforementioned experiment (Finneran *et al.,* 2002). However, in order for marine mammals to experience TTS or PTS, the animals have to be close enough to be exposed to high intensity sound levels for a prolonged period of time. Based on the best scientific

information available, these SPLs are far below the thresholds that could cause TTS or the onset of PTS.

Non-auditory Physiological Effects—Non-auditory physiological effects or injuries that theoretically might occur in marine mammals exposed to strong underwater sound include stress, neurological effects, bubble formation, resonance effects, and other types of organ or tissue damage (Cox *et al.,* 2006; Southall *et al.,* 2007). Studies examining such effects are limited. In general, little is known about the potential for pile driving to cause auditory impairment or other physical effects in marine mammals. Available data suggest that such effects, if they occur at all, would presumably be limited to short distances from the sound source and to activities that extend over a prolonged period. The available data do not allow identification of a specific exposure level above which non-auditory effects can be expected (Southall *et al.,* 2007) or any meaningful quantitative predictions of the numbers (if any) of marine mammals that might be affected in those ways. Marine mammals that show behavioral avoidance of pile driving, including some odontocetes and some pinnipeds, are especially unlikely to incur auditory impairment or non-auditory physical effects.

Disturbance Reactions

Disturbance includes a variety of effects, including subtle changes in behavior, more conspicuous changes in activities, and displacement. Behavioral responses to sound are highly variable and context-specific and reactions, if any, depend on species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day, and many other factors (Richardson *et al.,* 1995; Wartzok *et al.,* 2003; Southall *et al.,* 2007).

Habituation can occur when an animal's response to a stimulus wanes with repeated exposure, usually in the absence of unpleasant associated events (Wartzok *et al.,* 2003). Animals are most likely to habituate to sounds that are predictable and unvarying. The opposite process is sensitization, when an unpleasant experience leads to subsequent responses, often in the form of avoidance, at a lower level of exposure. Behavioral state may affect the type of response as well. For example, animals that are resting may show greater behavioral change in response to disturbing sound levels than animals that are highly motivated to remain in an area for feeding (Richardson *et al.,* 1995; NRC, 2003; Wartzok *et al.,* 2003).

Controlled experiments with captive marine mammals showed pronounced behavioral reactions, including avoidance of loud sound sources (Ridgway *et al.,* 1997; Finneran *et al.,* 2003). Observed responses of wild marine mammals to loud pulsed sound sources (typically seismic guns or acoustic harassment devices, but also including pile driving) have been varied but often consist of avoidance behavior or other behavioral changes suggesting discomfort (Morton and Symonds, 2002; Thorson and Reyff, 2006; see also Gordon *et al.,* 2004; Wartzok *et al.,* 2003; Nowacek *et al.,* 2007). Responses to continuous sound, such as vibratory pile installation, have not been documented as well as responses to pulsed sounds.

With both types of pile driving, it is likely that the onset of pile driving could result in temporary, short term changes in an animal's typical behavior and/or avoidance of the affected area. These behavioral changes may include (Richardson *et al.,* 1995): 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; and/or flight responses

(e.g., pinnipeds flushing into water from haul-outs or rookeries). Pinnipeds may increase their haul-out time, possibly to avoid in-water disturbance (Thorson and Reyff, 2006).

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification could be expected to be biologically significant if the change affects growth, survival, or reproduction. Significant behavioral modifications that could potentially lead to effects on growth, survival, or reproduction include:

- Drastic changes in diving/surfacing patterns (such as those thought to cause beaked whale stranding due to exposure to military mid-frequency tactical sonar);
- Habitat abandonment due to loss of desirable acoustic environment; and
- Cessation of feeding or social interaction.

The onset of behavioral disturbance from anthropogenic sound depends on both external factors (characteristics of sound sources and their paths) and the specific characteristics of the receiving animals (hearing, motivation, experience, demography) and is difficult to predict (Southall *et al.,* 2007).

Auditory Masking - Natural and artificial sounds can disrupt behavior by masking, or interfering with, a marine mammal's ability to hear other sounds. Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher levels. Chronic exposure to excessive, though not high-intensity, sound could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions. Masking can interfere with detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or

environment are being severely masked could also be impaired from maximizing their performance fitness in survival and reproduction. If the coincident (masking) sound were anthropogenic, it could be potentially harassing if it disrupted hearing-related behavior. It is important to distinguish TTS and PTS, which persist after the sound exposure, from masking, which occurs only during the sound exposure. Because masking (without resulting in TS) is not associated with abnormal physiological function, it is not considered a physiological effect, but rather a potential behavioral effect.

Masking occurs at the frequency band which the animals utilize so the frequency range of the potentially masking sound is important in determining any potential behavioral impacts. Because sound generated from in-water vibratory pile driving is mostly concentrated at low frequency ranges, it may have less effect on high frequency echolocation sounds made by porpoises. However, lower frequency man-made sounds are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey sound. It may also affect communication signals when they occur near the sound band and thus reduce the communication space of animals (e.g., Clark *et al.,* 2009) and cause increased stress levels (e.g., Foote *et al.,* 2004; Holt *et al.,* 2009).

Masking has the potential to impact species at the population or community levels as well as at individual levels. Masking affects both senders and receivers of the signals and can potentially have long-term chronic effects on marine mammal species and populations. Recent research suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than three times in terms of SPL) in the world's ocean from pre-industrial periods, and that most of these increases are from distant shipping (Hildebrand, 2009). All anthropogenic sound

sources, such as those from vessel traffic, pile driving, and dredging activities, contribute to the elevated ambient sound levels, thus intensifying masking.

Vibratory pile driving is relatively short-term, with rapid oscillations occurring for 10 to 30 minutes per installed pile. It is possible that vibratory pile driving resulting from this proposed action may mask acoustic signals important to the behavior and survival of marine mammal species, but the short-term duration and limited affected area would result in insignificant impacts from masking. Any masking event that could possibly rise to Level B harassment under the MMPA would occur concurrently within the zones of behavioral harassment already estimated for vibratory pile driving, and which have already been taken into account in the exposure analysis.

Acoustic Effects, Airborne - Marine mammals that occur in the project area could be exposed to airborne sounds associated with pile driving that have the potential to cause harassment, depending on their distance from pile driving activities. Airborne pile driving sound would have less impact on cetaceans than pinnipeds because sound from atmospheric sources does not transmit well underwater (Richardson *et al.,* 1995); thus, airborne sound would only be an issue for pinnipeds either hauled-out or looking with heads above water in the project area. 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 their habitat and move further from the source. Studies by Blackwell *et al.* (2004) and Moulton *et al.* (2005) indicate a tolerance or lack of response to unweighted airborne sounds as high as 112 dB peak and 96 dB rms.

Vessel Interaction

Besides being susceptible to vessel strikes, cetacean and pinniped responses to vessels may result in behavioral changes, including greater variability in the dive, surfacing, and respiration patterns; changes in vocalizations; and changes in swimming speed or direction (NRC 2003). There will be a temporary and localized increase in vessel traffic during construction. A maximum of three work barges will be present at any time during the in-water and over water work. The barges will be located near each other where construction is occurring. Additionally, the floating pier will be tugged into position prior to installation.

Potential Effects on Marine Mammal Habitat

The primary potential impacts to marine mammal habitat are associated with elevated sound levels produced by vibratory pile removal, down the hole drilling and pile driving in the area. However, other potential impacts to the surrounding habitat from physical disturbance are also possible.

Potential Pile Driving Effects on Prey - Construction activities would produce continuous (i.e., vibratory pile driving, drilling) sounds and, potentially, pulsed (e.g. if impact driving is required) 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 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.

Effects to Foraging Habitat - Pile installation may temporarily increase turbidity resulting from suspended sediments. Any increases would be temporary, localized, and minimal. HTC 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 be close enough to the HTC project pile driving areas to experience effects of turbidity, and any pinnipeds will be transiting the terminal 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 will not obstruct movements or migration of marine mammals.

Natural tidal currents and flow patterns in the waters of Icy Strait and Port Frederick routinely disturbing sediments. High volume tidal events can result in hydraulic forces that re-suspend benthic sediments, temporarily elevating turbidity locally. Any temporary increase in turbidity as a result of the proposed action is not anticipated to measurably exceed levels caused by these normal, natural periods.

Estimated Take by Incidental Harassment

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]."

All anticipated takes would be by Level B harassment resulting from vibratory pile driving/removal and impact pile driving and are likely to involve temporary changes in behavior. Injurious or lethal takes are not expected due to the expected source levels and sound source characteristics associated with the activity, and the proposed mitigation and monitoring measures are expected to further minimize the possibility of such take.

If a marine mammal responds to a stimulus by changing its behavior (e.g., through relatively minor changes in locomotion direction/speed or vocalization behavior), the response may or may not constitute taking at the individual level, and is unlikely to affect the stock or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on animals or on the stock or species could potentially be significant (e.g., Lusseau and Bejder, 2007; Weilgart, 2007). Given the many uncertainties in predicting the quantity and types of impacts of sound on marine mammals, it is common practice to estimate how many animals are likely to be present within a particular distance of a given activity, or exposed to a particular level of sound.

Upland work can generate airborne sound and create visual disturbance that could potentially result in disturbance to marine mammals (specifically, pinnipeds) that are hauled out or at the water's surface with heads above the water. However, because there are no regular haul-outs in the vicinity of the site of the proposed project area, we believe that incidents of incidental take resulting from airborne sound or visual disturbance are unlikely.

A down the hole drill will be used for rock excavation and reaming. This is a low energy system powered by air. The down hole drill is contained inside the pile annulus so the energy form the drill is captured inside the pile. The tip of the pile will be between 5 and 20 feet below the mud line. Energy transmitted from the drill has to travel through the pile and through the marine sediment which dampens the energy before it can enter the water column. The interior of the pile is filled with air and air bubbles from the drilling process so the pile annulus and exhaust air works similar to a bubble curtain inside the pile to mitigate noise transmission. For these reasons drilling is unlikely to result in the harassment of marine mammals.

HTC has requested authorization for the incidental taking of small numbers of humpback whale, Steller sea lion, harbor seal, Dall's porpoise, gray whale, harbor porpoise, killer whale (*Orcinus orca*), minke whale, and Pacific white-sided dolphin near Icy Strait Point that may result from vibratory and impact pile driving during construction activities associated with the re-development of the cruise ship terminal described previously in this document.

In order to estimate the potential incidents of take that may occur incidental to the specified activity, we must first estimate the extent of the sound field that may be produced by the activity and then consider in combination with information about marine mammal density or abundance in the project area. We first provide information on applicable sound thresholds for determining effects to marine mammals before describing the information used in estimating the sound fields,

the available marine mammal density or abundance information, and the method of estimating potential incidences of take.

Sound Thresholds

We use generic sound exposure thresholds to determine when an activity that produces sound might result in impacts to a marine mammal such that a take by harassment might occur. To date, no studies have been conducted that explicitly examine impacts to marine mammals from pile driving sounds or from which empirical sound thresholds have been established. These thresholds (Table 4) are used to estimate when harassment may occur (i.e., when an animal is exposed to levels equal to or exceeding the relevant criterion) in specific contexts; however, useful contextual information that may inform our assessment of effects is typically lacking and we consider these thresholds as step functions. NMFS is working to revise these acoustic guidelines; for more information on that process, please visit *www.nmfs.noaa.gov/pr/acoustics/guidelines.htm*.

Table 4. Underwater Injury and Disturbance Threshold Decibel Levels for Marine Mammals

Criterion	Criterion Definition	Threshold*
Level A harassment	PTS (injury) conservatively based on TTS**	190 dB RMS for pinnipeds 180 dB RMS for cetaceans
Level B harassment	Behavioral disruption for impulse noise (e.g., impact pile driving)	160 dB RMS
Level B harassment	Behavioral disruption for non-pulse noise (e.g., vibratory pile driving, drilling)	120 dB RMS

*All decibel levels referenced to 1 micropascal (re: 1 μPa). Note all thresholds are based off root mean square (RMS) levels

** PTS=Permanent Threshold Shift; TTS=Temporary Threshold Shift

Distance to Sound Thresholds

Underwater Sound Propagation Formula—Pile driving generates underwater noise that can potentially result in disturbance to marine mammals in the project area. 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

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.

This formula neglects loss due to scattering and absorption, which is assumed to be zero here. The degree to which underwater sound propagates away from a sound source is dependent on a variety of factors, most notably the water bathymetry and presence or absence of reflective or absorptive conditions including in-water structures and sediments. Spherical spreading occurs in a perfectly unobstructed (free-field) environment not limited by depth or water surface, resulting in a 6 dB reduction in sound level for each doubling of distance from the source (20*log[range]). Cylindrical spreading occurs in an environment in which sound propagation is bounded by the water surface and sea bottom, resulting in a reduction of 3 dB in sound level for each doubling of distance from the source (10*log[range]). A practical spreading value of fifteen is often used under conditions 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 (4.5 dB reduction in sound level for each doubling of distance) is assumed here.

According to the Caltrans (2012) compendium there is an average sound pressure level of 195 dB rms for impact driving of 60-in pile and 170 dB rms reported for 72-in steel pipe pile vibratory driving. Based on the formula listed above, it has been determined that the 190 dB rms Level A harassment (injury) threshold for underwater noise for pinniped species could be exceeded at a distance of up to approximately 22 meters during impact pile driving activities, and the 180 dB rms Level A harassment (injury) threshold for cetacean species could be exceeded at a distance of up to approximately 100 meters during impact pile driving activities. Additionally, the 160 dB rms Level B harassment (behavioral disruption) for impulsive source underwater noise for pinniped and cetacean species could be exceeded at a distance of up to approximately 2,150 meters, during impact pile driving and the 120 dB 21,544 meters during vibratory driving as is shown in Table 5.

Note that the actual area ensonified by pile driving activities is significantly constrained by local topography relative to the threshold radius depicted in Table 5. This is represented in in the monitoring plan submitted by HTC in Appendix B, Figure B-1

Table 5 - Distances to Relevant Sound Thresholds*

Distance to Threshold	**190 dB**	**180 dB**	**160 dB**	**120 dB**
Vibratory Driving			n/a	21.5 km
Impact Driving	21.5 m	100 m	2,154 m	

*SPLs used for calculations were: 195 dB for impact driving, 170 dB for vibratory diving.

Incidental take is estimated for each species by estimating the likelihood of a marine mammal being present within a ZOI, described earlier in the mitigation section, during active pile driving. Expected marine mammal presence is determined by past observations and general

abundance near the project area during the construction window. Typically, potential take is estimated by multiplying the area of the ZOI by the local animal density. This provides an estimate of the number of animals that might occupy the ZOI at any given moment, or a daily density, which can then be multiplied by the anticipated number of pile driving days to give a total exposure estimate. However, this type of calculation is not applicable in this case, because there are no specific local animal densities for the marine mammal species under examination. As a result, the take requests were estimated using local marine mammal data sets, (e.g. Federal agencies), opinions from Federal agencies, and opportunistic marine mammal surveys.

Humpback Whale

The National Park Service has monitored humpback whales in the bay every year since 1985 to document the number of individuals, residence times, spatial and temporal distribution, feeding behavior and interactions with vessels (Neilson et. al 2013). This monitoring program covers most of Glacier Bay and Icy Strait. Results of 2012 monitoring documented a total of 208 individual humpback whales (including 16 mother-calf pairs) in Glacier Bay and adjacent waters of Icy Strait in the 3-month peak survey period between June and August. Of these 208 whales, 152 were documented as remaining in the vicinity for a period greater than 20 days (Neilson et. al 2013). This averages out to be approximately 70 whale sightings per month. Given that the period of active pile driving is likely to be four months (June through September), a worst-case estimate would predict that up to 280 Level B takes of humpback whale could occur as a result of the proposed action. This represents a very conservative estimate of the maximum number of humpback whales that could potentially be exposed to elevated underwater noise

Steller Sea Lion

The Western DPS of Steller sea lion includes all animals at, and west of, Cape Suckling, Alaska (144°W). The Eastern DPS of Steller sea lions are those animals east of this longitudinal boundary. While it was once thought that most of the Steller sea lions present in the waters of Icy Strait were members of the eastern DPS, western DPS Steller sea lions are also commonly observed in waters of Icy Strait (Allen and Angliss, 2013). There is little recent data available regarding the population density or abundance of Steller sea lions in Icy Strait or the vicinity other than populations at a number of haulout sites in the area have increased by 8.2% per year between 1970 and 2009. (Matthews *et al*., 2011). The National Park Service has, however, published data from opportunistic marine mammal surveys conducted in Glacier Bay and Icy Strait between 1994 and 1999 (Gabriele and Lewis 2000). These data provide information regarding opportunistic sightings of marine mammals of several species that were recorded during humpback whale surveys conducted between June and August of each monitoring year. The results of the National Park Service opportunistic surveys documented that the number of Steller sea lions sightings remained consistent at roughly 40 sightings during a three-month period between June and August each year. This averages out to be approximately 14 sightings per month. Since the authorization period is four months, a worst-case estimate would mean that up to 56 individual Level B takes of Stellar sea lions could occur as a result of pile driving activities. Assuming that all 56 were from the Eastern DPS (60,131-74,448)), this would represent less than 0.01% of that population. Under a scenario in which all takes were Western DPS sea lions, 56 takes would also account for less than 0.01% of that population segment (55,422). Individuals taken would be expected to be a mix of solitary adult males and females. Juvenile Steller sea lions would not be expected to be exposed, as there are no breeding rookeries within the vicinity. (Allen and Angliss, 2014).

Harbor Seal

The results of the National Park Service opportunistic surveys conducted in Glacier Bay and Icy Strait from 1994 and 1999 during a three-month period between June and August each year revealed that the maximum number of sightings in any 3 month period was recorded in 1997, when 359 sightings were documented. This averages out to be approximately 120 seal sightings per month. Given that the period of active pile driving is likely to be four months (June through September), a worst-case estimate would predict that up to 480 individual Level B takes of harbor seals could occur as a result of the proposed action. This represents 9.5% of the current best population estimate (5,042) for the Glacier Bay/Icy Strait stock (Allen and Angliss 2013). Juvenile harbor seals would not be expected to be exposed, as there are no documented breeding rookeries within the area that could potentially be exposed to noise levels above the Level B harassment threshold.

Dall's Porpoise

Dahlheim et al. (2008) encountered Dall's porpoise throughout Southeast Alaska and consistently found concentrations of animals in Icy Strait (Dahlheim et al., 2008). However, there is little comprehensive population density data regarding Dall's porpoise presence in Icy Strait and Port Frederick. Another study conducted in Glacier Bay and Icy Strait between 1994 and 1999 (Gabriele and Lewis 2000) indicated that Dall's porpoise are documented occasionally within waters of Icy Strait. Gabriele and Lewis (2000) documented a total of 6 Dall's porpoises during a four- year period conducting opportunistic marine mammal surveys in Glacier Bay and Icy Strait. All of these sightings were from waters of Icy Strait. In 2 of 4 years, no Dall's porpoises were sighted, while in 1999, a total of 12 Dall's porpoise sightings were recorded (on a total of 2 occasions). Using this number as a worst case estimate, the project could result in up to

a maximum of 12 Level B takes of Dall's porpoise. This represents less than 0.01% of the current best population estimate (83,400) for this species (Allen and Angliss 2013). Since Dall's porpoises in the eastern North Pacific typically reside year-round, there is a potential that individuals exposed to be Level B take could be equally likely to be adult or juvenile, male or female.

Gray Whale

Gray whales are common along the Gulf of Alaska coast, but rare in the inside waters of southeastern Alaska (Braham 1984). Gabriele and Lewis (2000) documented only a single gray whale during a four-year period conducting opportunistic marine mammal surveys in Glacier Bay and Icy Strait. Using this number as a worst case estimate, the project could result in up to 1 Level B take of gray whale, representing less than 0.01% of the Eastern North Pacific stock (19,126) of gray whale (Carretta *et al*. 2013). Because whales of this stock migrate to the southern end of their range for breeding and calving, it is assumed that any individual gray whale that were to be exposed to a Level B harassment, would be a solitary adult male or female.

Harbor Porpoise

The waters of Glacier Bay and the adjacent waters of Icy Strait are considered to be an area of relatively high harbor porpoise density (Allen and Angliss 2013, Dahlheim *et al*., 2008). Between 2010 and 2012, Dahlheim documented an estimated 332 harbor porpoise that reside in the Icy Strait area (Dahlheim 2015). Harbor porpoise was one of the most frequently documented marine mammal species during opportunistic marine mammal surveys conducted in Glacier Bay and Icy Strait between 1994 and 1999 (Gabriele and Lewis 2000). The number of sightings of harbor porpoise during the monitoring period ranged between 378 and 137 for the three-month period. Using a maximum of 378 sightings over a three month period results in a monthly

average of 126. The period of active pile driving is likely to be four months (June through September) which would result in a worst case estimate of up to 504 individual Level B takes of harbor porpoise could occur as a result of the proposed action, representing 0.05% of the estimated population of the Southeast Alaska stock of harbor porpoise (Allen and Angliss 2013).

Killer Whale

Killer whales occur commonly in the waters of the action area, and could include members of several designated stocks that may occur in the vicinity of the proposed project area. These include 1) Alaska Residents, from southeast Alaska to the Aleutians and Bering Sea, (2) Gulf of Alaska, Aleutians, and Bering Sea Transients, from Prince William Sound through to the Aleutians and Bering Sea, and (3) West Coast Transients, from California through southeast Alaska (Allen and Angliss 2013).

One study conducted in Glacier Bay and Icy Strait between 1994 and 1999 determined that killer whales are documented occasionally within waters of Icy Strait (Gabriele and Lewis 2000). The number of sightings of killer whales during the monitoring period ranged between 36 and 88 for the three-month period. Sightings of 88 killer whales over a three-month period equates to a monthly average of 30 individuals. Applying that average to the four-month permit authorization period would provide a worst-case estimate of up to 120 Level B takes of killer whales occurring as a result of the proposed action.

Minke Whale

Minke whales are relatively common in the Bering and Chukchi seas and in the inshore waters of the Gulf of Alaska. They are not considered abundant in any other part of the eastern Pacific, but they are seen occasionally around Glacier Bay in southeast Alaska and in central Icy Strait. Gabriele and Lewis (2000) documented a total of 29 minke whales during a four-year

period conducting opportunistic marine mammal surveys in Glacier Bay and Icy Strait. The maximum number of individual sightings in any given year was 8 minke whales. At this time, it is not possible to produce a reliable estimate of minimum abundance for this stock, as current data is not available. However, line-transect surveys were conducted in shelf and near shore waters (within 30-45nm of land) in 2001-2003 from the Kenai Fjords in the Gulf of Alaska to the central Aleutian Islands. Minke whale abundance in this limited area was estimated to be 1,233(Allen and Angliss 2013). Using this number as a worst case estimate, it is estimated that the project could result in up to a maximum of 8 Level B takes of minke whale, equivalent to less than 0.01% of the population. Minke whales are most commonly found in coastal waters during spring migrations, tending to move to offshore waters in the winter. Breeding typically occurs in the winter, though in some regions, breeding may occur year-round. For this reason, there is a potential that individuals exposed to be Level B take could be equally likely to be adult or juvenile, male or female.

Pacific White-Sided Dolphin

Gabriele and Lewis (2000) does not document any Pacific white-sided dolphin during a four-year period conducting opportunistic marine mammal surveys in Glacier Bay and Icy Strait while Dahlheim et al. (2008) reported similar findings for the Icy Strait region over a 17-year study period.

However, since there is a possibility that Pacific white-sided dolphin could potentially occur, it is estimated that the project could result in up to 1 Level B take of Pacific white-sided dolphin, representing less than 0.01% of the estimated population (26,880)(Allen and Angliss 2013). Dolphins are not known to breed in waters of Southeast Alaska, and it is assumed therefore that

any individual Pacific white-sided dolphin that were to be exposed to a Level B harassment, would be a solitary adult male or female.

Table 6. Estimated Numbers of Marine Mammals That May Be Exposed to Level B Harassment

Species	Total proposed authorized takes	Abundance	Percentage of total stock
Humpback whale (CNP Stock)	280	10,103	2.7%
Steller sea lion (Eastern DPS)	56	60,131-74,448	<0.01%*
Steller sea lion (Western DPS)		55,422	<0.01%*
Harbor seal	480	5,042	9.5%
Dall's porpoise	12	83,400	<0.01%
Gray whale	1	19,126	<0.01%
Harbor porpoise	504	11,146	0.05%
Killer whale, AK Resident Stock	120	2,347	0.05%**
Killer whale, GOA, Aleutian Islands, Bering Sea Transient Stock		587	20.4%**
Killer whale, West Coast Transient Stock		354	33.9%**[+]
Minke whale	8	1,233	<0.01%
Pacific white-sided dolphin	1	26,880	<0.01%

*These percentages assume a worst-case, unlikely scenario in which all 56 estimated takes accrue to a single Steller sea lion DPSs

** These percentages assume a worst-case, unlikely scenario in which all 120 estimated takes accrue to a single killer whale stock

[+]See Small Numbers section for further explanation.

Analysis and Preliminary Determinations

Negligible Impact

Negligible impact is "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 Level B harassment 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 behavioral harassment, NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, effects on habitat, and the status of the species.

Pile driving activities associated with the cruise ship terminal re-development, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (behavioral disturbance) only, from underwater sounds generated from pile driving. Potential takes could occur if individuals of these species are present in the ensonified zone when pile driving is happening.

No injury, serious injury, or mortality is anticipated given the nature of the activity and measures designed to minimize the possibility of injury to marine mammals. The potential for these outcomes is minimized through the construction method and the implementation of the planned mitigation measures. Specifically, vibratory hammers will be the primary method of installation, though impact driving may be used for brief, irregular periods. Vibratory driving

does not have significant potential to cause injury to marine mammals due to the relatively low source levels produced (site-specific acoustic monitoring data show no source level measurements above 180 dB rms) and the lack of potentially injurious source characteristics. Impact pile driving produces short, sharp pulses with higher peak levels and much sharper rise time to reach those peaks. When impact driving is necessary, required measures (implementation of shutdown zones) significantly reduce any possibility of injury. Given sufficient "notice" through use of soft start (for impact driving), marine mammals are expected to move away from a sound source that is annoying prior to its becoming potentially injurious. The likelihood that marine mammal detection ability by trained observers is high under the environmental conditions described for Icy Strait Point further enables the implementation of shutdowns to avoid injury, serious injury, or mortality.

HTC's proposed activities are localized and of short duration. The entire project area is limited to the Icy Strait cruise ship terminal area and its immediate surroundings. The project will require the installation of a total of approximately 104 steel pipe piles of varying diameters below the MHHW. Piles that will be used include 24-inch, 30-inch, 42-inch, and 60-inch steel pipe piles. Total impact hammer time would not exceed 5 minutes per pile for 104 piles resulting in less than 10 hours of driving time. Total vibratory hammer time would not exceed 5 hours per day for a maximum of 20 days resulting in a total of 100 hours over a four-month period. These localized and short-term noise exposures may cause brief startle reactions or short-term behavioral modification by the animals. These reactions and behavioral changes are expected to subside quickly when the exposures cease. Moreover, the proposed mitigation and monitoring measures are expected to reduce potential exposures and behavioral modifications even further. Additionally, no important feeding and/or reproductive areas for marine mammals are known to

be near the proposed action area. Therefore, the take resulting from the proposed HTC re-development of the Icy Strait Point Cruise Ship Terminal is not reasonably expected to and is not reasonably likely to adversely affect the marine mammal species or stocks through effects on annual rates of recruitment or survival.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the "Anticipated Effects on Marine Mammal Habitat" section. The project activities would not modify existing marine mammal habitat. 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.

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, 2012; Lerma, 2014). Most likely, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving, although even this reaction has been observed primarily only in association with impact pile driving. In response to vibratory driving, pinnipeds (which may become somewhat habituated to human activity in industrial or urban waterways) have been observed to orient towards and sometimes move towards the sound. The pile driving activities analyzed here are similar to, or less impactful than, numerous construction activities conducted in other similar locations, which have taken place with no reported injuries or mortality to marine mammals, and

no known long-term adverse consequences from behavioral harassment. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in any significant realized decrease in fitness for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment will be reduced to the level of least practicable 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 project area while the activity is occurring.

In summary, this negligible impact analysis is founded on the following factors: (1) the possibility of injury, serious injury, or mortality may reasonably be considered discountable; (2) the anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior; (3) the absence of any significant habitat within the project area, including rookeries, significant haul-outs, or known areas or features of special significance for foraging or reproduction; (4) the presumed efficacy of the proposed mitigation measures in reducing the effects of the specified activity to the level of least practicable impact. 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 activity will have only short-term effects on individuals. The specified activity is 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 HTC's re-development of the Icy Strait Point Cruise Ship Terminal will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

Table 6 demonstrates the number of animals that could be exposed to received noise levels that could cause Level B behavioral harassment for the proposed work associated with the re-development of the Icy Strait Point Cruise Ship Terminal in Hoonah, Alaska. With the exception of the West Coast transient stock of killer whales, the analyses provided above represents between <0.01% to 20.4% of the populations of these stocks that could be affected by Level B behavioral harassment. These are small percentages relative to the total populations of the affected species or stocks.

As explained previously, we are proposing to authorize the taking, by Level B harassment only, of 120 killer whales. Three stocks of killer whales are known to occur in the Icy Strait area: (1) Alaska resident stock; (2) Gulf of Alaska, Aleutian Islands, and Bering Sea transient stock; and (3) West Coast transient stock. Under a scenario in which all of the proposed 120 killer whale takes came from only one of the three identified stocks, the number of takes would represent 0.05% of the Alaska resident stock; 20.4% of the Gulf of Alaska, Aleutian Islands, and Bering Sea transient stock; and 33.9% of the West Coast transient stock.

The West Coast transient stock is of potential concern with 120 proposed takes accounting for 33.9% of their population. However, 120 represents the maximum number of takes proposed to be authorized for all three stocks of killer whales; given that all three stocks occur in the Icy Strait Area, the 120 proposed takes will most likely be apportioned among the three stocks, resulting in a smaller percentage of the West Coast transient stock that are likely to be taken. NMFS also believes that small numbers of the West Coast transient stock would be

taken based on the limited region of exposure in comparison with the known distribution of the transient stock. The West Coast transient stock ranges from Southeast Alaska to California while the proposed project activity would be stationary. As described above in the Description of Marine Mammals in the Area of the Specified Activity section, a notable percentage of West Coast transient whales have never been observed in Southeast Alaska. A notable percentage of West Coast transient whales have never been observed in Southeast Alaska. Only 155 West Coast transient killer whales have been identified as occurring in Southeast Alaska according to Dahlheim and White (2010). The same study identified three pods of transients, equivalent to 19 animals, that remained almost exclusively in the southern part of Southeast Alaska (i.e. Clarence Strait and Sumner Strait). This information indicates that only a subset of the entire West Coast Transient stock would be at risk for take in the Icy Strait area because a sizable portion of the stock has either not been observed in Southeast Alaska or consistently remains far south of Icy Strait. Finally, the number of takes proposed to be authorized represents the estimated incidents of take, not the number of individuals taken. That is, we believe the estimated numbers of takes, were they to occur, likely represent repeated exposures of a much smaller number of transient killer whales.

In summary, NMFS preliminarily finds that small numbers of the West Coast transient stock of killer whales would be affected by the proposed action. This conclusion is based on the small likelihood that all of the incidents of take would come from only one stock; the reduced percentage of the stock likely to be found in the Icy Strait area; the limited region of exposure in comparison with the known distribution of the transient stock; and the likelihood of repeated exposure of a subset of this stock. Therefore, the estimated incidents of take represent small numbers of West Coast transient killer whales.

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 mitigation and monitoring measures, which are expected to reduce the number of marine mammals potentially affected by the proposed action, NMFS preliminarily finds that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no subsistence uses of marine mammals in the proposed project area; and, thus, no subsistence uses impacted by this action. The nearest locations where subsistence hunting may occur are at Eagle Point, located approximately 10 miles distant from the Icy Strait Cruise Terminal project site and at Flynn Cove, located approximately 7.5 miles from the project site. Peak subsistence hunting months are March, May, and October and the pile driving is slated to occur in the June to September timeframe. Therefore, NMFS has preliminarily determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Proposed Monitoring and Reporting

In order to issue an ITA 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 ITAs 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.

HTC submitted a marine mammal monitoring plan as part of the IHA application. It can be found in [Appendix B of the HTC Application. The plan may be modified or supplemented based on comments or new information received from the public during the public comment period.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

1. An increase in the probability of detecting marine mammals, both within the mitigation zone (thus allowing for more effective implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below;

2. An increase in our understanding of how many marine mammals are likely to be exposed to levels of pile driving that we associate with specific adverse effects, such as behavioral harassment, TTS, or PTS;

3. An increase in our understanding of how marine mammals respond to stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:

- Behavioral observations in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
- Physiological measurements in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);

- Distribution and/or abundance comparisons in times or areas with concentrated stimuli versus times or areas without stimuli;

4. An increased knowledge of the affected species; and

5. An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

HTC submitted a marine mammal monitoring plan as part of the IHA application for this project, which can be found on the Internet at *www.nmfs.noaa.gov/pr/permits/incidental/construction.htm*. The plan may be modified or supplemented based on comments or new information received from the public during the public comment period.

Visual Marine Mammal Observation

HTC will collect sighting data and behavioral responses to construction for marine mammal species observed in the region of activity during the period of activity. All observers will be trained in marine mammal identification and behaviors and are required to have no other construction-related tasks while conducting monitoring. HTC will monitor the shutdown zone and disturbance zone before, during, and after pile driving, with observers located at the best practicable vantage points. Based on our requirements, the Marine Mammal Monitoring Plan would implement the following procedures for pile driving:

- Three individuals meeting the minimum qualifications identified in Appendix B of the monitoring plan submitted by HTC will monitor the Level A and B harassment zones during impact pile driving, and the Level B harassment zone during vibratory pile driving.
- During impact pile driving, the area within 100 meters of pile driving activity will be

monitored and maintained as marine mammal buffer area in which pile installation will not commence or will be suspended temporarily if any marine mammals are observed within or approaching the area of potential disturbance. This area will be monitored by one qualified field monitor stationed either on the pile driving rig or in the immediate vicinity.

- The area within the Level B harassment threshold for impact driving (shown in Figure B-2 of Appendix B of the revised marine mammal monitoring plan) will be monitored by the field monitor stationed either on the pile driving rig or in the vicinity, and by a second qualified field monitor stationed on or in the vicinity of Halibut Island near the 2,150 meter limit of the Level B harassment zone. A third qualified observer will also monitor from a boat that is conducting a transect along the 2,150 meter limit of the Level B harassment zone. Marine mammal presence within this Level B harassment zone, if any, will be monitored, but impact pile driving activity will not be stopped if marine mammals are found to be present. Any marine mammal documented within the Level B harassment zone during impact driving would constitute a Level B take (harassment), and will be recorded and reported as such.
- During vibratory pile driving, the area within 10 meters of pile driving activity will be monitored and maintained as marine mammal buffer area in which pile installation will not commence or will be suspended temporarily if any marine mammals are observed within or approaching the area of potential disturbance. The Level B harassment area will be monitored by three qualified observers (Figure B-2). One individual will be stationed either on the pile driving rig or in the immediate vicinity, a second individual will be stationed on either Halibut Island or a location in the vicinity, and a third observer

will be located on a vessel that is conducting meander transects throughout the Level B harassment zone. The monitoring staff will record any presence of marine mammals by species, will document any behavioral responses noted, and record Level B takes when sightings overlap with pile installation activities.

- The individuals will scan the waters within each monitoring zone activity using binoculars (Vector 10X42 or equivalent), spotting scopes (Swarovski 20-60 zoom or equivalent), and visual observation.
- The area within which the Level A harassment thresholds could be exceeded (the 100 meter radius) will be maintained as a marine mammal exclusion zone, in which impact pile driving will be shut down immediately if any marine mammal is observed with the area.
- The area within which the Level B harassment thresholds could be exceeded during impact pile driving (Figure B-2) and vibratory pile driving (Figure B-3) will also be monitored for the presence of marine mammals during all impact and vibratory pile driving. Marine mammal presence within these zones, if any, will be monitored but pile driving activity will not be stopped if marine mammals were found to be present. Any marine mammal documented within the Level B harassment zone will constitute a Level B take, and will be recorded and used to document the number of take incidents.
- If waters exceed a sea-state which restricts the observers' ability to make observations within the marine mammal buffer zone (the 100 meter radius) (e.g. excessive wind or fog), impact pile installation will cease until conditions allow the resumption of monitoring.
- The waters will be scanned 20 minutes prior to commencing pile driving at the beginning of each day, and prior to commencing pile driving after any stoppage of 20 minutes or greater. If marine mammals enter or are observed within the designated marine mammal

buffer zone (the 100m radius) during or 20 minutes prior to impact pile driving, the monitors will notify the on-site construction manager to not begin until the animal has moved outside the designated radius.

- The waters will continue to be scanned for at least 20 minutes after pile driving has completed each day, and after each stoppage of 20 minutes or greater.

Data Collection

We require that observers use approved data forms. Among other pieces of information, HTC will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. In addition, HTC will attempt to distinguish between the number of individual animals taken and the number of incidents of take. We require that, at a minimum, the following information be collected on the sighting forms:

- 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;
- 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; and
- Other human activity in the area.

Reporting Measures

HTC would provide NMFS with a draft monitoring report within 90 days of the conclusion of the proposed construction work. This report will detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed. 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 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 (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), HTC would immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinators. The report would include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;

- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and 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 HTC to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. HTC would not be able to resume their activities until notified by NMFS via letter, email, or telephone.

In the event that HTC discovers an injured or dead marine mammal, and the lead MMO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), HTC 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 Coordinators. 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 HTC to determine whether modifications in the activities are appropriate.

In the event that HTC discovers an injured or dead marine mammal, and the lead MMO 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), HTC 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 Coordinators, within 24 hours of the discovery. HTC would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

Endangered Species Act (ESA)

There are two marine mammal species that are listed as endangered under the ESA with confirmed or possible occurrence in the study area: humpback whale and Steller sea lion (Western DPS). NMFS' Permits and Conservation Division has initiated consultation with NMFS' Protected Resources Division under section 7 of the ESA on the issuance of an IHA to HTC under section 101(a)(5)(D) of the MMPA for this activity. Consultation will be concluded prior to a determination on the issuance of an IHA.

National Environmental Policy Act (NEPA)

NMFS is also preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) and will consider comments submitted in response to this notice as part of that process. The EA will be posted at *http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm* once it is finalized.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to HTC for conducting the re-development of the Icy Strait Point Cruise Ship Terminal in Hoonah, Alaska, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. The proposed IHA language is provided next.

1. This Incidental Harassment Authorization (IHA) is valid from June 1, 2015, through October 31, 2015. All active pile driving is expected to be completed by the end of September. October has only been included as part of this Authorization to cover any contingencies that may occur.

2. This Authorization is valid only for in-water construction work associated with the Re-development of the Icy Strait Point Cruise Ship Terminal Project in Hoonah, Alaska.

3. General Conditions

   (a) A copy of this IHA must be in the possession of HTC, its designees, and work crew personnel operating under the authority of this IHA.

   (b) The species authorized for taking are humpback whale (*Megaptera novaeangliae*), Steller sea lion (*Eumatopius jubatus*), harbor seal (*Phoca vitulina*), Dall's porpoise (*Phocoenoides dalli*), gray whale (Eschrichtius robustus), harbor porpoise (*Phocoena phocoena*), killer whale (*Orcinus orca*), minke whale (*Balaenoptera acutorostrata*), and Pacific white-sided dolphin (*Lagenorhynchus obliquidens*)

   (c) The taking, by Level B harassment only, is limited to the species listed in condition 3(b).

   (d) The taking by injury (Level A harassment), serious injury, or death of any of the species listed in condition 3(b) of the Authorization or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA.

   (e) HTC shall conduct briefings between construction supervisors and crews, marine mammal monitoring team, and staff prior to the start of all in-water pile driving, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

4. Mitigation Measures

   The holder of this Authorization is required to implement the following mitigation measures:

   (a) Time Restriction: For all in-water pile driving activities, HTC shall operate only during daylight hours when visual monitoring of marine mammals can be conducted.
   (b) Establishment of Level B Harassment (ZOI)
      (i) Before the commencement of in-water pile driving activities, HTC shall establish Level B behavioral harassment ZOI where received underwater sound pressure levels (SPLs) are higher than 160 dB (rms) and 120 dB (rms) re 1 µPa for impulse noise sources (impact pile driving) and non-pulse sources

(vibratory hammer) respectively. The ZOIs delineate where Level B harassment would occur. For impact driving, the area within the Level B harassment threshold is between approximately 100 m and 2,150 m from pile driving activity. For vibratory driving, the level B harassment area is between 10 m and 21 km. These zones are illustrated in Figures B-1 and B-3 of Appendix B in the marine mammal monitoring plan.

(c) Establishment of shutdown zone

(i) Implement a minimum shutdown zone of 100 m radius around the pile during impact pile driving and 10 m during vibratory driving activities. If a marine mammal comes within or approaches the shutdown zone, such operations shall cease.

(ii) See Appendix B Figure B-3 for additional information.

(d) Use of Soft-start

(i) The project will utilize soft start techniques for both impact and vibratory pile driving. We require HTC to initiate sound from vibratory hammers for fifteen seconds at reduced energy followed by a thirty-second waiting period, with the procedure repeated two additional times. For impact driving, we require an initial set of three strikes from the impact hammer at reduced energy, followed by a thirty-second waiting period, then two subsequent three strike sets. Soft start will be required at the beginning of each day's pile driving work and at any time following a cessation of pile driving of thirty minutes or longer (specific to either vibratory or impact driving).

(ii) Whenever there has been downtime of 20 minutes or more without vibratory or impact driving, the contractor will initiate the driving with soft-start procedures described above.

(e) Standard mitigation measures

(i) Conduct briefings between construction supervisors and crews, marine mammal monitoring team, and HTC staff prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

(ii) For in-water heavy machinery work other than pile driving (using, e.g., standard barges, tug boats, barge-mounted excavators, or clamshell equipment used to place or remove material), 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).

(f) *HTC* shall establish monitoring locations as described below.

5. Monitoring and Reporting

The holder of this Authorization is required to report all monitoring conducted under the IHA within 90 calendar days of the completion of the marine mammal monitoring

(a) Visual Marine Mammal Monitoring and Observation

(i) Three individuals meeting the minimum qualifications identified in Appendix B of the monitoring plan submitted by HTC will monitor the Level A and B harassment zones during impact pile driving, and the Level B harassment zone during vibratory pile driving.

(ii) During impact pile driving, the area within 100 meters of pile driving activity will be monitored and maintained as marine mammal buffer area in which pile installation will not commence or will be suspended temporarily if any marine mammals are observed within or approaching the area of potential disturbance. This area will be monitored by one qualified field monitor stationed either on the pile driving rig or in the immediate vicinity.

(iii) The area within the Level B harassment threshold for impact driving (shown in Figure B-2 of Appendix B of the revised marine mammal monitoring plan) will be monitored by the field monitor stationed either on the pile driving rig or in the vicinity, and by a second qualified field monitor stationed on or in the vicinity of Halibut Island near the 2,150 meter limit of the Level B harassment zone. A third qualified observer will also monitor from a boat that is conducting a transect along the 2,150 meter limit of the Level B harassment zone. Marine mammal presence within this Level B harassment zone, if any, will be monitored, but impact pile driving activity will not be stopped if marine mammals are found to be present. Any marine mammal documented within the Level B harassment zone during impact driving would constitute a Level B take (harassment), and will be recorded and reported as such.

(iv) During vibratory pile driving, the area within 10 meters of pile driving activity will be monitored and maintained as marine mammal buffer area in which pile installation will not commence or will be suspended temporarily if any marine mammals are observed within or approaching the area of potential disturbance. The Level B harassment area will be monitored by three qualified observers (Figure B-2). One individual will be stationed either on the pile driving rig or in the immediate vicinity, a second individual will be stationed on either Halibut Island or a location in the vicinity, and a third observer will be located on a vessel that is conducting meander transects throughout the Level B harassment zone. The monitoring staff will record any presence of marine mammals by species, will document any behavioral responses noted, and record Level B takes when sightings overlap with pile installation activities.

(v) The individuals will scan the waters within each monitoring zone activity using binoculars (Vector 10X42 or equivalent), spotting scopes (Swarovski 20-60 zoom or equivalent), and visual observation

(vi) If waters exceed a sea-state which restricts the observers' ability to make observations within the marine mammal buffer zone (the 100 meter radius) (e.g. excessive wind or fog), impact pile installation will cease until conditions allow the resumption of monitoring.

(vii) The waters will be scanned 20 minutes prior to commencing pile driving at the beginning of each day, and prior to commencing pile driving after

any stoppage of 20 minutes or greater. If marine mammals enter or are observed within the designated marine mammal buffer zone (the 100m radius) during or 20 minutes prior to impact pile driving, the monitors will notify the on-site construction manager to not begin until the animal has moved outside the designated radius

(viii) The waters will continue to be scanned for at least 20 minutes after pile driving has completed each day, and after each stoppage of 20 minutes or greater.

(b) Data Collection

(i) Observers are required to use approved data forms. Among other pieces of information, HTC will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. In addition, HTC will attempt to distinguish between the number of individual animals taken and the number of incidents of take. At a minimum, the following information be collected on the sighting forms:

1. Date and time that monitored activity begins or ends;
2. Construction activities occurring during each observation period;
3. Weather parameters (e.g., percent cover, visibility);
4. Water conditions (e.g., sea state, tide state);
5. Species, numbers, and, if possible, sex and age class of marine mammals;
6. Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
7. Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
8. Locations of all marine mammal observations; and
9. Other human activity in the area.

(c) Reporting Measures

(i) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), HTC would immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinators. The report would include the following information:

1. Time, date, and location (latitude/longitude) of the incident;
2. Name and type of vessel involved;
3. Vessel's speed during and leading up to the incident;
4. Description of the incident;
5. Status of all sound source use in the 24 hours preceding the incident;
6. Water depth;

7. Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
8. Description of all marine mammal observations in the 24 hours preceding the incident;
9. Species identification or description of the animal(s) involved;
10. Fate of the animal(s); and
11. Photographs or video footage of the animal(s) (if equipment is available).

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

(iii) In the event that HTC discovers an injured or dead marine mammal, and the lead MMO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), HTC 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 Coordinators. 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 HTC to determine whether modifications in the activities are appropriate.

(iv) In the event that HTC discovers an injured or dead marine mammal, and the lead MMO 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), HTC 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 Coordinators, within 24 hours of the discovery. HTC would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

6. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein, or if NMFS determines the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.

Request for Public Comments

NMFS requests comment on our analysis, the draft authorization, and any other aspect of the Notice of Proposed IHA for HTC's redevelopment of the Icy Strait Cruise Ship Terminal in Hoonah, Alaska. Please include with your comments any supporting data or literature citations to help inform our final decision on HTC's request for an MMPA authorization.

Dated: March 16, 2015.

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Perry F. Gayaldo,
Deputy Director,
Office of Protected Resources,
National Marine Fisheries Service.

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