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**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**RIN 0648-XD870**

**Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Shallow Geohazard Survey in the Beaufort Sea, Alaska**

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

**ACTION:** Notice; issuance of an incidental take authorization.

**SUMMARY:** In accordance with the Marine Mammal Protection Act (MMPA) regulations, notification is hereby given that NMFS has issued an Incidental Harassment Authorization (IHA) to Hilcorp Alaska, LLC (Hilcorp) to take, by harassment, small numbers of marine mammals incidental to a shallow geohazard survey in the Beaufort Sea, Alaska, during the 2015 Arctic open-water season.

**DATES:** Effective July 1, 2015, through September 30, 2015.

**ADDRESSES:** Inquiry for information on the incidental take authorization should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East West Highway, Silver Spring, MD 20910. A copy of the application containing a list of the references used in this document, NMFS' Environmental Assessment (EA) and Finding of No Significant Impact (FONSI), and the IHA

may be obtained by writing to the address specified above, telephoning the contact listed below (see **FOR FURTHER INFORMATION CONTACT**), or visiting the Internet at:

<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>.

Documents cited in this notice may be viewed, by appointment, during regular business hours, at the aforementioned address.

**FOR FURTHER INFORMATION CONTACT:** Shane Guan, Office of Protected Resources, NMFS, (301) 427-8401.

**SUPPLEMENTARY INFORMATION:**

**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 December 1, 2014, NMFS received an application from Hilcorp for the taking of marine mammals incidental to shallow geohazard surveys in the Beaufort Sea. After receiving NMFS comments, Hilcorp submitted a revised IHA application on January 5, 2015. In addition, Hilcorp submitted a marine mammal mitigation and monitoring plan (4MP) on January 21, 2015. NMFS determined that the application was adequate and complete on February 9, 2015.

The proposed activity would occur between July 1 and September 30, 2015. The actual survey is expected to be complete in 45 days, including weather and equipment downtime. Underwater noises generated from the sonar used for the survey are likely to result Level B harassment of individuals of 6 species of marine mammals.

### **Description of the Specified Activity**

Detailed descriptions of Hilcorp’s shallow geohazard survey are provided in the **Federal Register** notice for the proposed IHA (80 FR 27901; May 15, 2015). No change has been made in the action described in the **Federal Register** notice. Please refer to that document for detailed information about the activities involved in the shallow geohazard survey program.

## Comments and Responses

A notice of NMFS' proposal to issue an IHA to Hilcorp was published in the **Federal Register** on May 15, 2015 (80 FR 27901). That notice described in detail Hilcorp's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals and the availability of marine mammals for subsistence uses. During the 30-day public comment period, NMFS received comment letters from the Marine Mammal Commission (Commission) and a private citizen. All comments are addressed in this section of the **Federal Register** notice.

*Comment 1:* The Commission states that the sub-bottom profiler, echosounder, and other sonars are non-impulsive acoustic sources and that NMFS should use the behavioral harassment threshold of 120 dB re 1  $\mu$ Pa instead of 160 dB, which is the threshold for impulse sound. Further, the Commission recommends that NMFS require Hilcorp to monitor the larger 120-dB re 1  $\mu$ Pa harassment zone of 450 m for the purpose of enumerating marine mammal takes associated with the use of the sub-bottom profiler.

*Response:* NMFS does not agree with the Commission's statement that signals from a sub-bottom profiler, echosounder, and other sonar equipment proposed to be used by Hilcorp are non-impulsive. In classifying underwater noise types, NMFS recognizes two categories: continuous sounds and intermittent sounds. Continuous sounds are those whose sound pressure level remains above that of the ambient sound, with negligibly small fluctuations in level (NIOSH, 1998; ANSI, 2005), while intermittent sounds are defined as sounds with interrupted levels of low or no sound (NIOSH, 1998). Thus, signals from sub-bottom profiler, echosounder, and other sonar equipment to be used by Hilcorp are not continuous sounds but rather

intermittent sounds. Intermittent sounds can further be defined as either impulsive or non-impulsive. Impulsive sounds have been defined as sounds that are typically transient, brief (< 1 sec), broadband, and consist of a high peak pressure with rapid rise time and rapid decay (ANSI, 1986; NIOSH, 1998). Signals from these sources to be used by Hilcorp also have durations that are typically very brief (< 1 sec), with temporal characteristics that more closely resemble those of impulsive sounds than non-impulsive sounds, which typically have more gradual rise times and longer decays (ANSI, 1995; NIOSH, 1998). With regard to behavioral thresholds, we therefore consider the temporal and spectral characteristics of signals from the sub-bottom profiler, echosounder, and other sonar equipment to be used by Hilcorp to more closely resemble those of an impulse sound than a continuous sound.

Therefore, NMFS considers that using the 160 dB re 1  $\mu$ Pa threshold for Level B harassment for marine mammal noise exposure by Hilcorp's sub-bottom profiler is more appropriate than the continuous threshold of 120 dB re 1  $\mu$ Pa. Subsequently, the Level B zone of influence (ZOI) is established as the isopleths where the received level is 160 dB re 1  $\mu$ Pa and higher, which will be monitored by the protected species observers (PSOs).

*Comment 2:* A private citizen states that the **Federal Register** notice (80 FR 27901; May 15, 2015) for the proposed IHA fails to provide adequate information concerning the purpose of Hilcorp's shallow geohazard survey. The person states that the notice refers only obliquely to acquiring data "along the subsea pipeline corridor area" and "a 300 m corridor around the centerline of the proposed pipeline area will be covered". The person states that the notice should be withdrawn until NMFS is able to provide the public with the purpose for the proposed survey and how it would contribute to any future project, pipeline or otherwise, in the Beaufort

Sea.

*Response:* NMFS does not agree with the private citizen's assessment. The **Federal Register** notice for the proposed IHA may not have provided detail on the purpose of Hilcorp's shallow geohazard survey; however the purpose is described in Hilcorp's IHA application (ERM Alaska, Inc. 2014), which is referenced by the notice. As stated in Hilcorp's IHA application, the purpose of the survey is to evaluate development of the Liberty field, with a potential plan of building a gravel island situated over the Liberty reservoir. The proposed shallow geohazard survey is to obtain subsurface information for the potential development of a subsea pipeline. The proposed IHA did not include this detail because NMFS does not believe that this information is critical for NMFS to make a determination of the survey's potential effects to marine mammals. Instead, the **Federal Register** notice provided a detailed description of the activity Hilcorp is proposing to undertake for the shallow geohazard survey in the Beaufort Sea. Hilcorp's plans related to any future project, pipeline or otherwise in the Beaufort Sea are speculative and do not affect NMFS' analysis of the potential impacts on marine mammals as a result of Hilcorp's shallow geohazard survey.

### **Description of Marine Mammals in the Area of the Specified Activity**

The Beaufort Sea supports a diverse assemblage of marine mammals. Table 1 lists the 12 marine mammal species under NMFS jurisdiction with confirmed or possible occurrence in the proposed project area.

**Table 1. Marine mammal species with confirmed or possible occurrence in the proposed shallow geohazard survey area.**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Occurrence</b>	<b>Seasonality</b>	<b>Range</b>	<b>Abundance</b>
<b>Odontocetes</b>					
Beluga whale (Beaufort Sea stock)	<i>Delphinapterus leucas</i>	Common	Mostly spring and fall with some in summer	Mostly Beaufort Sea	39,258
Beluga whale (eastern Chukchi Sea stock)		Common	Mostly spring and fall with some in summer	Mostly Chukchi Sea	3,710
Killer whale**	<i>Orcinus orca</i>	Extralimital	Mostly summer and early fall	California to Alaska	552
Harbor porpoise**	<i>Phocoena phocoena</i>	Extralimital	Mostly summer and early fall	California to Alaska	48,215
Narwhal**	<i>Monodon monoceros</i>	Extralimital	Year round	Arctic Ocean	45,358
<b>Mysticetes</b>					
Bowhead whale*	<i>Balaena mysticetus</i>	Common	Mostly spring and fall with some in summer	Russia to Canada	19,534
Gray whale	<i>Eschrichtius robustus</i>	Somewhat common	Mostly summer	Mexico to the U.S. Arctic Ocean	19,126
Minke whale**	<i>Balaenoptera acutorostrata</i>	Extralimital	Mostly summer	North Pacific Ocean	810-1,003
Humpback whale (Central North Pacific stock)* **	<i>Megaptera novaeangliae</i>	Extralimital	Mostly summer	North Pacific Ocean	21,063
<b>Pinnipeds</b>					
Bearded seal (Beringia distinct population segment)	<i>Erignathus barbatus</i>	Common	Spring and summer	Bering, Chukchi, and Beaufort Seas	155,000
Ringed seal (Arctic stock)*	<i>Phoca hispida</i>	Common	Year round	Arctic Ocean	300,000
Spotted seal	<i>Phoca largha</i>	Common	Summer	Japan to U.S. Arctic Ocean	141,479
Ribbon seal **	<i>Histiophoca fasciata</i>	Occasional	Summer	Arctic Ocean	49,000

\*Endangered, threatened, or species of concern under the Endangered Species Act (ESA); Depleted under the

## MMPA

\*\* These species are so rarely sighted in the proposed project area that take is unlikely.

Minke whales are relatively common in the Bering and southern Chukchi Seas and have recently also been sighted in the northeastern Chukchi Sea (Aerts *et al.*, 2013; Clarke *et al.*, 2013). Minke whales are rare in the Beaufort Sea. They have not been reported in the Beaufort Sea during the Bowhead Whale Aerial Survey Project/Aerial Surveys of Arctic Marine Mammals (BWASP/ASAMM) surveys (Clarke *et al.*, 2011, 2012; 2013; Monnet and Treacy, 2005), and there was only one observation in 2007 during vessel-based surveys in the region (Funk *et al.*, 2010). Humpback whales have not generally been found in the Arctic Ocean. However, subsistence hunters have spotted humpback whales in low numbers around Barrow, and there have been several confirmed sightings of humpback whales in the northeastern Chukchi Sea in recent years (Aerts *et al.*, 2013; Clarke *et al.*, 2013). The first confirmed sighting of a humpback whale in the Beaufort Sea was recorded in August 2007 (Hashagen *et al.*, 2009), when a cow and calf were observed 54 mi east of Point Barrow. No additional sightings have been documented in the Beaufort Sea. Narwhal are common in the waters of northern Canada, west Greenland, and in the European Arctic, but rarely occur in the Beaufort Sea (COSEWIC, 2004). Only a handful of sightings have occurred in Alaskan waters (Allen and Angliss, 2013). These three species are not considered further in this document. Both the walrus and the polar bear could occur in the U.S. Beaufort Sea; however, these species are managed by the U.S. Fish and Wildlife Service (USFWS) and are not considered further in this document.

The Beaufort Sea is a main corridor of the bowhead whale migration route. The main migration periods occur in spring from April to June and in fall from late August/early September through October to early November. During the fall migration, several locations in

the U.S. Beaufort Sea serve as feeding grounds for bowhead whales. Small numbers of bowhead whales that remain in the U.S. Arctic Ocean during summer also feed in these areas. The U.S. Beaufort Sea is not a main feeding or calving area for any other cetacean species. Ringed seals breed and pup in the Beaufort Sea; however, this does not occur during the summer or early fall. Further information on the biology and local distribution of these species can be found in Hilcorp's application (see **ADDRESSES**) and the NMFS Marine Mammal Stock Assessment Reports, which are available online at: <http://www.nmfs.noaa.gov/pr/species/>.

### **Potential Effects of the Specified Activity on Marine Mammals**

Operating active acoustic sources such as sub-bottom profilers, echosounders, and other civilian sonar equipment, and vessel activities has the potential for adverse effects on marine mammals. Potential effects from Hilcorp's shallow geohazard survey on marine mammals in the U.S. Beaufort Sea are discussed in the "**Potential Effects of the Specified Activity on Marine Mammals**" section of the **Federal Register** notice for the proposed IHA (80 FR 27901; May 15, 2015). No changes have been made to the discussion contained in this section of the **Federal Register** notice for the proposed IHA.

### **Anticipated Effects on Habitat**

The primary potential impacts to marine mammal habitat are associated with elevated sound levels produced by sonar equipment and vessels and their effects on marine mammal prey species. These potential effects from Hilcorp's shallow geohazard survey are discussed in the "**Anticipated Effects on Marine Mammal Habitat**" section of the **Federal Register** notice for the proposed IHA (80 FR 27901; May 15, 2015). No changes have been made to the discussion contained in this section of the **Federal Register** notice for the proposed IHA.

## **Mitigation Measures**

In order to issue an incidental take authorization 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 adverse 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 Hilcorp's open-water shallow geohazard survey in the Beaufort Sea, NMFS is requiring Hilcorp to implement the following mitigation measures to minimize the potential impacts to marine mammals in the project vicinity as a result of its survey activities. The primary purpose of these mitigation measures is to detect marine mammals within or about to enter designated exclusion zones and to initiate immediate shutdown or power down of the sonar equipment. There is no change made to the mitigation measures prescribed in the IHA issued to Hilcorp from the **Federal Register** notice (80 FR 27901; May 15, 2015) for the proposed IHA.

### *Vessel Related Mitigation Measures*

The general mitigation measures apply to all vessels that are part of the Foggy Island Bay sonar survey. The source vessel will operate under an additional set of specific mitigation measures during operations.

- To minimize collision risk with marine mammals, vessels shall not be operated at speeds that would make collisions likely. When weather conditions require, such as when visibility drops, vessels shall adjust speed accordingly to avoid the likelihood of marine mammal collisions.

- Vessel operators shall check the waters immediately adjacent to a vessel to ensure that no marine mammals will be injured when the vessel's propellers (or screws) are engaged.
- Vessel operators shall avoid concentrations or groups of whales and vessels shall not be operated in a way that separates members of a group. In proximity of feeding whales or aggregations, vessel speed shall be less than 10 knots.
- When within 900 ft. (300 m) of whales vessel operators shall take every effort and precaution to avoid harassment of these animals by:
  - Reducing speed and steering around (groups of) whales if circumstances allow, but never cutting off a whale's travel path;
  - Avoiding multiple changes in direction and speed.
- In general, the survey design will start in shallow water and work deeper to mitigate the potential “herding” effect.

#### *Establishing Exclusion and Disturbance Zones*

Under current NMFS guidelines, the “exclusion zone” for marine mammal exposure to impulse sources is customarily defined as the area within which received sound levels are  $\geq 180$  dB (rms) re 1  $\mu$ Pa for cetaceans and  $\geq 190$  dB (rms) re 1  $\mu$ Pa for pinnipeds. These safety criteria are based on an assumption that SPL received at levels lower than these will not injure these animals or impair their hearing abilities, but at higher levels might have some such effects.

Disturbance or behavioral effects to marine mammals from underwater sound may occur after exposure to sound at distances greater than the exclusion zones (Richardson *et al.* 1995).

Currently, NMFS uses 160 dB (rms) re 1  $\mu$ Pa as the threshold for Level B behavioral harassment

from impulse noise.

The sounds generated by the multibeam echosounder and sidescan sonar are outside the hearing range of marine mammals. Sounds generated by the sub-bottom profiler are within the hearing range of all marine mammal species occurring in the area. The distance to 160 dB re 1  $\mu$ Pa (rms) zone of influence (ZOI) is estimated at 30 m (Warner & McCrodan 2011). However, Hilcorp will establish a ZOI of 50 m around all sonar sources for more protective measures. The exclusion zones of all sonar equipment are less than 30 m from the sources.

#### *Mitigation Measures for Sonar Equipment*

##### (1) Ramp Up Procedure

A ramp up of the sub-bottom profiler provides a gradual increase in sound levels, and involves a step-wise increase in the number and incremental levels of the sub-bottom profiler firing until the maximum level is achieved. The purpose of a ramp up (or “soft start”) is to “warn” cetaceans and pinnipeds in the vicinity of the survey and to provide time for them to leave the area and thus reducing startling responses from marine mammals.

##### (2) Shutdown Measures

Although there is no exclusion zone expected from the sonar source operated by Hilcorp during its proposed shallow geohazard survey, Hilcorp proposes to implement shutdown measures when a marine mammals is sighted within the 50 m ZOI during the operation of the sub-bottom profiler.

After shutdown for more than 10 minutes, ramp-up shall not start until after the marine mammal is visually seen having left the ZOI; or 15 minutes have passed after the last detection of the marine mammal with shorter dive durations (pinnipeds and small odontocetes); or 30 minutes

have passed after the last detection of the marine mammal with longer dive durations (mysticetes and large odontocetes, including beluga whales).

(3) Poor Visibility Conditions:

If during foggy conditions, heavy snow or rain, or darkness, the full 160 dB ZOI is not visible, sonar equipment cannot commence a ramp-up procedure from a full shut-down. If the sub-bottom profiler has been operational before nightfall or before the onset of poor visibility conditions, it can remain operational throughout the night or poor visibility conditions.

*Mitigation Conclusions*

NMFS has carefully evaluated Hilcorp's mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting 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 measures are expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- 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 sub-bottom profiler, 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 sub-bottom profiler 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 sub-bottom profiler or other activities expected to result in the take of marine mammals (this goal may contribute to 1, 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.

Based on our evaluation of these measures, NMFS has determined that the 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. Mitigation measures to ensure availability of such species or stock for taking for certain subsistence uses are discussed later in this document (see “**Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses**” section).

### **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. Hilcorp submitted a marine mammal monitoring plan as part of the IHA application. The plan may be modified or supplemented based on comments or new information received from the public during the public comment period or from the peer review panel (see the “*Monitoring Plan Peer Review*” section later in this document).

There is no change in the monitoring prescribed in the IHA issued to Hilcorp from the **Federal Register** notice (80 FR 27901; May 15, 2015) for the proposed IHA.

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

1. An increase in our understanding of the likely occurrence of marine mammal species in the vicinity of the action, i.e., presence, abundance, distribution, and/or density of species.
2. An increase in our understanding of the nature, scope, or context of the likely exposure of marine mammal species to any of the potential stressor(s) associated with the action (e.g.

sound or visual stimuli), through better understanding of one or more of the following: the action itself and its environment (e.g. sound source characterization, propagation, and ambient noise levels); the affected species (e.g. life history or dive pattern); the likely co-occurrence of marine mammal species with the action (in whole or part) associated with specific adverse effects; and/or the likely biological or behavioral context of exposure to the stressor for the marine mammal (e.g. age class of exposed animals or known pupping, calving or feeding areas).

3. An increase in our understanding of how individual marine mammals respond (behaviorally or physiologically) to the specific stressors associated with the action (in specific contexts, where possible, e.g., at what distance or received level).

4. An increase in our understanding of how anticipated individual responses, to individual stressors or anticipated combinations of stressors, may impact either: the long-term fitness and survival of an individual; or the population, species, or stock (e.g. through effects on annual rates of recruitment or survival).

5. An increase in our understanding of how the activity affects marine mammal habitat, such as through effects on prey sources or acoustic habitat (e.g., through characterization of longer-term contributions of multiple sound sources to rising ambient noise levels and assessment of the potential chronic effects on marine mammals).

6. An increase in understanding of the impacts of the activity on marine mammals in combination with the impacts of other anthropogenic activities or natural factors occurring in the region.

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

8. An increase in the probability of detecting marine mammals (through improved technology or methodology), both specifically within the safety zone (thus allowing for more effective implementation of the mitigation) and in general, to better achieve the above goals.

#### *Monitoring Measures*

Monitoring will provide information on the numbers of marine mammals potentially affected by the exploration operations and facilitate real-time mitigation to prevent injury of marine mammals by industrial sounds or activities. These goals will be accomplished in the Beaufort Sea during 2015 by conducting vessel-based monitoring and passive acoustic monitoring to document marine mammal presence and distribution in the vicinity of the survey area.

Visual monitoring by Protected Species Observers (PSOs) during shallow geohazard survey operations, and periods when these surveys are not occurring, will provide information on the numbers of marine mammals potentially affected by these activities and facilitate real-time mitigation to prevent impacts to marine mammals by industrial sounds or operations. Vessel-based PSOs onboard the survey vessels will record the numbers and species of marine mammals observed in the area and any observable reaction of marine mammals to the survey activities in the Beaufort Sea.

#### (1) Vessel-based Monitoring

##### (A) *Protected Species Observers (PSOs)*

Vessel-based monitoring for marine mammals will be done by trained PSOs throughout the period of survey activities. The observers will monitor the occurrence of marine mammals near the survey vessel during all daylight periods during operation, and during most daylight

periods when operations are not occurring. PSO duties will include watching for and identifying marine mammals; recording their numbers, distances, and reactions to the survey operations; and documenting “take by harassment.”

Two PSOs will be present on the main sonar vessel. The smaller skiff may only accommodate one at a time. Of these two PSOs, one will be on watch at all times, except during darkness.

PSO teams will consist of Inupiat observers and experienced field biologists. Each vessel will have an experienced field crew leader to supervise the PSO team.

Visual monitoring by the PSOs will be required to meet the following criteria:

- 100% monitoring coverage during all periods of survey operations in daylight;
- Maximum of 4 consecutive hours on watch per PSO; and
- Maximum of 12 hours of watch time per day per PSO.

*(B) PSO Qualifications and Training*

Lead PSOs will be individuals with experience as observers during recent seismic, site clearance and shallow hazards, and other monitoring projects in Alaska or other offshore areas in recent years. New or inexperienced PSOs will be paired with an experienced PSO or experienced field biologist so that the quality of marine mammal observations and data recording is kept consistent.

Resumes for candidate PSOs will be provided to NMFS for review and acceptance of their qualifications. Inupiat observers will be experienced in the region and familiar with the marine mammals of the area. All observers will complete a training course designed to familiarize individuals with monitoring and data collection procedures.

(C) *Marine Mammal Observer Protocol*

The PSOs will watch for marine mammals during all periods of source operations and for a minimum of 30 minutes prior to the planned start of sonar operations after an extended shutdown. Marine mammal monitoring shall continue throughout sonar operations and last for 30 minutes after the finish of sonar operations during daylight hours. Hilcorp vessel crew and operations personnel will also watch for marine mammals, as practical, to assist and alert the PSOs for the sub-bottom profiler to be shut down if marine mammals are observed in or about to enter the 50-m ZOI.

PSOs will also perform vessel-based marine mammal monitoring during vessel transit when the shallow geohazard survey is not being conducted. Marine mammal sighting data collected during the non-survey period will be compared with those during the survey to analyze the effects of the activities.

The PSOs will watch for marine mammals from the best available vantage point on the vessels. The PSOs will scan the area around the vessel systematically with reticle binoculars (e.g., 7 × 50 and 16-40 × 80) and with the naked eye. GPS unit and laptop computer(s) will also be available for PSOs onboard survey vessels.

The observers will give particular attention to the areas within the marine mammal exclusion zones around the source vessels.

When a marine mammal is seen approaching or within the 50-m ZOI, the survey crew will be notified immediately so that mitigation measures called for in the applicable authorization(s) can be implemented.

Information to be recorded by PSOs will include:

- Species, group size, age/size/sex categories (if determinable), physical description of features that were observed or determined not to be present in the case of unknown or unidentified animals;
- Behavior when first sighted and after initial sighting;
- Heading (if consistent), bearing and distance from observer;
- Apparent reaction to activities (e.g., none, avoidance, approach, paralleling, etc.), closest point of approach, and behavioral pace;
- Time, location, speed, and activity of the vessel, sea state, ice cover, visibility, and sun glare; and
- Positions of other vessel(s) (if present) in the vicinity of the observer location.

The vessel's position, speed, water depth, sea state, ice cover, visibility, and sun glare will also be recorded at the start and end of each observation watch, every 30 minutes during a watch, and whenever there is a change in any of those variables.

## (2) Acoustic Monitoring

Passive acoustic monitoring (PAM) will be conducted to document ambient noise conditions, to examine the spatial and temporal distribution of marine mammals based on acoustic detections of their vocalizations, and to characterize the long-range propagation of sounds produced during the geohazard survey. The goal of the program is to address knowledge gaps about ambient sound levels and the distributions and migration paths of several marine mammal species including bowhead whales, beluga whales, and seals.

The acoustic data will be collected with Autonomous Multichannel Acoustic Recorder (AMAR) systems deployed on the seabed for an extended period. Two AMARs with different

sampling rates will be deployed on the seabed for 3 months. An AMAR with a sampling rate of 64 kHz (24 bits) will be deployed at 500 m from the offshore end of the survey line and will record continuously. A high-frequency AMAR with a sampling rate of 380 kHz (16 bits) will be deployed at 5,000 m from the offshore end of the survey line. This high-frequency AMAR will be operated at 380 kHz (16 bits) for 2 minutes each hour and the rest of the time at 64 kHz (24 bits). The AMARs will be calibrated using pistonphone calibrators immediately before and after each deployment. These calibrations are accurate to less than 0.5 dB absolute.

#### *Monitoring Plan Peer Review*

The MMPA requires that monitoring plans be independently peer reviewed “where the proposed activity may affect the availability of a species or stock for taking for subsistence uses” (16 U.S.C. 1371(a)(5)(D)(ii)(III)). Regarding this requirement, NMFS’ implementing regulations state, “Upon receipt of a complete monitoring plan, and at its discretion, [NMFS] will either submit the plan to members of a peer review panel for review or within 60 days of receipt of the proposed monitoring plan, schedule a workshop to review the plan” (50 CFR 216.108(d)).

NMFS has established an independent peer review panel to review Hilcorp’s 4MP for the proposed shallow geohazard survey in the Beaufort Sea. The panel has met in early March 2015, and provided comments and recommendations to NMFS in April 2015. The full panel report can be viewed on the Internet at: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm>.

NMFS provided the panel with Hilcorp’s IHA application and monitoring plan and asked the panel to answer the following questions:

1. Will the applicant’s stated objectives effectively further the understanding of the impacts of their activities on marine mammals and otherwise accomplish the goals stated above?

If not, how should the objectives be modified to better accomplish the goals above?

2. Can the applicant achieve the stated objectives based on the methods described in the plan?

3. Are there technical modifications to the proposed monitoring techniques and methodologies proposed by the applicant that should be considered to better accomplish their stated objectives?

4. Are there techniques not proposed by the applicant (i.e., additional monitoring techniques or methodologies) that should be considered for inclusion in the applicant's monitoring program to better accomplish their stated objectives?

5. What is the best way for an applicant to present their data and results (formatting, metrics, graphics, etc.) in the required reports that are to be submitted to NMFS (i.e., 90-day report and comprehensive report)?

The peer-review panel report contains recommendations that the panel members felt were applicable to the Hilcorp' monitoring plans. The panel believes that the objectives for both vessel-based and passive acoustic monitoring are appropriate, and agrees that the objective of real-time mitigation of potential disturbance of marine mammals would be met through visual monitoring. Nevertheless, the panel is concerned that there may also be behavioral effects resulting from the use of single and multi-beam echosounders and side-scan sonar that may warrant real-time mitigation to avoid disturbance, and provide a series of recommendations to improve efficiencies and effectiveness of monitoring and mitigation measures.

Specific recommendations provided by the peer review panel to enhance marine mammal monitoring and reporting measures are:

(1) Deploying an additional observer on the source vessel such that at least two observers are on watch during all daylight hours;

(2) Monitoring for marine mammals also be conducted during non-survey activities to assist in the collection of baseline information from which to analyze the effects of the activities;

(3) Deploying a third autonomous multichannel acoustic recorder (AMAR) and arrange the AMARs in a triangular array, as depicted in Figure 1 of the panel report, with the 500 m AMAR being a high-frequency AMAR, for marine mammal monitoring;

(4) Using AMAR to collect data on cumulative sound exposure level over 24 hours ( $cSEL_{24}$ ), in particular during the use of the two sub-bottom profilers;

(5) Ground-truthing data collected by AMARs in consultation with biologists experienced in Arctic species vocalizations and to include error rates for automatic detection to ensure the accurate classification of vocalizations by species;

(6) Collaborating with other entities collecting data on marine mammal vocalizations in the Beaufort Sea to improve auto-detection and manual capabilities for identifying species in which acoustic data are limited or lacking (e.g., spotted seals); and

(7) Including information from high frequency acoustic recordings in reports to provide a better understanding of source levels and other acoustic characteristics of the active acoustics survey equipment, such as spectral content, and received levels in root-mean-squared (RMS) dB, sound exposure level (SEL), dB peak to peak and 1/3 octave bands.

In addition, although not requested by NMFS under the MMPA, the panel also provided several mitigation measures. These recommendations are:

(1) Hilcorp limit operations at night or during periods of low visibility so that marine

mammals do not enter the safety zone undetected;

(2) Hilcorp specify that the delay for ramp-up and after a shut-down should be 15 minutes for species with short dive durations (small odontocetes and pinnipeds) and 30 minutes for species with longer diver durations (mysticetes and large odontocetes, including beluga whales);

(3) Additional sound source information from the various active acoustic equipment proposed for the survey be obtained by maneuvering the source vessels over the high frequency AMARs; and

(4) Hilcorp conduct the survey starting closest to shore and proceeding offshore to avoid any potential “herding” effect of marine mammals into shallow waters, as was implicated in a mass stranding of melon headed whales off Madagascar during a multi-beam echosounder survey (Southall *et al.* 2013).

NMFS discussed these recommendations with Hilcorp to improve its monitoring and reporting measures, and to some extent, as well as mitigation measures. As a result, Hilcorp agrees to implement the following recommendations:

(1) Hilcorp will perform vessel-based marine mammal monitoring by protected species observers (PSOs) during vessel transit when the shallow geohazard survey is not being conducted. Marine mammal sighting data collected during the non-survey period will be compared with those during the survey to analyze the effects of the activities.

(2) Hilcorp and its contractor JASCO will deploy a high-frequency AMAR at the 5000 m site for detecting beluga clicks. The high-frequency AMAR would be operated at 380 kHz (16 bits) for about 2 minutes each hour and the rest of the time at 64 kHz (24 bits) for the 3 months deployment. The reason for deploying the high-frequency AMAR at 5000 m location, which

NMFS concurs, is that there is a higher likelihood of detecting marine mammal acoustics in the deeper water farther from the island.

(3) Hilcorp will work with JASCO to use AMAR to collect data on cumulative sound exposure level over 24 hours ( $cSEL_{24}$ ), in particular during the use of the two sub-bottom profilers.

(4) Hilcorp will work with JASCO to ground-truth data collected by AMARs in consultation with biologists experienced in Arctic species vocalizations and to include error rates for automatic detection to ensure the accurate classification of vocalizations by species.

(5) Hilcorp is open to sharing data and work with its contractor JASCO to collaborate with other researchers. In addition, Hilcorp and JASCO will make the passive acoustic recording data, including data on marine mammal vocalizations, publically available for researchers. These data sharing/collaboration efforts will enable scientists to pursue a variety of studies concerning the acoustic environment, marine mammal bioacoustics, and potential activity effects on marine mammals in the survey area.

(6) Hilcorp will include information from high frequency acoustic recordings in reports to provide a better understanding of source levels and other acoustic characteristics of the active acoustics survey equipment, such as spectral content, and received levels in root-mean-squared (RMS) dB, sound exposure level (SEL), dB peak to peak and 1/3 octave bands.

Furthermore, Hilcorp agrees to implement the following mitigation recommendation and provided additional information in regard to the peer-review panel report:

(1) Hilcorp will specify that the delay for ramp-up and after a shut-down should be 15 minutes for species with short dive durations (small odontocetes and pinnipeds) and 30 minutes

for species with longer diver durations (mysticetes and large odontocetes, including beluga whales).

(2) Regarding sound source information from the various active acoustic equipment proposed for Hilcorp's shallow geohazard survey, acoustic characteristics of these equipment or its equivalents were previously measured by JASCO. The measurement results in the following reports that are posted on NMFS website:

- Statoil 2011 Shallow Hazards Survey 90-day Report (Chapter 3)  
[http://www.nmfs.noaa.gov/pr/pdfs/permits/statoil\\_90day\\_report2011.pdf](http://www.nmfs.noaa.gov/pr/pdfs/permits/statoil_90day_report2011.pdf).
- Shell 2013 Shallow Hazards Survey 90-day Report (Chapter 2)  
[http://www.nmfs.noaa.gov/pr/permits/incidental/oilgas/2013\\_shell\\_monitoringreport.pdf](http://www.nmfs.noaa.gov/pr/permits/incidental/oilgas/2013_shell_monitoringreport.pdf).

(3) Regarding the panel's recommendation on Hilcorp's survey transect design, Hilcorp states that it can start in shallow water and work deeper to mitigate the potential "herding" effect. Hilcorp's plan is to divide the corridor into multiple sub-sections based on depth and work each section independently. This method is necessary for side scan sonar operations as each subsection will have a different range setting and line spacing that is related to depth.

All these aforementioned recommendations from the peer-review panel are included in the prescribed mitigation and monitoring measures for Hilcorp's 2015 open-water shallow geohazard survey in the Beaufort Sea.

However, Hilcorp will not be able to increase the number of vessel-based PSOs onboard the survey vessel. The number of PSOs onboard the vessel is limited by the available berth space. The survey vessels used for the proposed shallow geohazard survey can only accommodate

maximum of 2 PSOs. Nevertheless, NMFS considers that due to the exceptionally small ensonified zones (no exclusion zone, with the radius of ZOI at 30 m from the source), one PSO on watch onboard the survey vessel is adequate.

In regard to an additional AMAR to be deployed in the vicinity of the survey area, NMFS worked with Hilcorp and determined that deployment of three AMARs would be cost prohibitive to Hilcorp, given the small project budget of the shallow geohazard survey. In addition, due to the short duration and minimal impact of the proposed shallow geohazard survey, the current passive acoustic monitoring, improved with a high-frequency AMAR, is adequate to provide needed information to assess potential environmental effects from the proposed project.

Finally, NMFS does not agree with one of the panel's recommendations that Hilcorp limit operations at night or during periods of low visibility so that marine mammals do not enter the safety zone undetected. As mentioned previously, there is no safety zone (exclusion zone) because of the low intensity high-frequency sonar equipment being employed in the proposed shallow geohazard survey. In addition, limiting the survey at night or during periods of low visibility would increase the survey duration, thus extend the noise output from survey vessels in the area. NMFS believes that as long as the 50-m ZOI is cleared of marine mammals before the ramp-up of sonar equipment during daylight hours with good visibility, shallow hazard survey can be carried out with minimum adverse effects to marine mammals.

### *Reporting Measures*

#### (1) Technical Report

The results of Hilcorp's 2015 vessel-based monitoring, including estimates of "take" by harassment, will be presented in a "90-day" draft Technical Report, to be submitted to NMFS

within 90 days after the end of the shallow geohazard survey, and then in a final Technical Report, which will address any comments NMFS had on the draft. The Technical Report will include:

(a) Summaries of monitoring effort (e.g., total hours, total distances, and marine mammal distribution through the study period, accounting for sea state and other factors affecting visibility and detectability of marine mammals);

(b) Analyses of the effects of various factors influencing detectability of marine mammals (e.g., sea state, number of observers, and fog/glare);

(c) Species composition, occurrence, and distribution of marine mammal sightings, including date, water depth, numbers, age/size/gender categories (if determinable), group sizes, and ice cover;

(d) Data analysis separated into periods when a sonar source is operating and when it is not, to better assess impacts to marine mammals – the final and comprehensive report to NMFS should summarize and plot:

- Data for periods when a sonar source is active and when it is not; and
- The respective predicted received sound conditions over fairly large areas (tens of km) around operations;

(e) Sighting rates of marine mammals during periods with and without sonar activities (and other variables that could affect detectability), such as:

- Initial sighting distances versus sonar activity state;
- Closest point of approach versus sonar activity state;
- Observed behaviors and types of movements versus sonar activity state;

- Numbers of sightings/individuals seen versus sonar activity state;
- Distribution around the survey vessel versus sonar activity state; and
- Estimates of take by harassment;

(f) Results from all hypothesis tests, including estimates of the associated statistical power, when practicable;

(g) Estimates of uncertainty in all take estimates, with uncertainty expressed by the presentation of confidence limits, a minimum-maximum, posterior probability distribution, or another applicable method, with the exact approach to be selected based on the sampling method and data available; and

(h) A clear comparison of authorized takes and the level of actual estimated takes.

In addition, the technical report will include analysis on acoustic monitoring such as:

(a) Cumulative sound exposure level over 24 hours ( $cSEL_{24}$ ), in particular during the use of the two sub-bottom profilers;

(b) Ground-truth of data collected by AMARs in consultation with biologists experienced in Arctic species vocalizations with error rates for automatic detection to ensure the accurate classification of vocalizations by species; and

(c) Information of source levels and other acoustic characteristics of the active acoustics survey equipment, such as spectral content, and received levels in root-mean-squared (RMS) dB, sound exposure level (SEL), dB peak to peak and 1/3 octave bands.

Finally, Hilcorp will share data and work with its contractor JASCO to collaborate with other researchers. The passive acoustic recording data, including data on marine mammal vocalizations, will be made publically available for researchers. These data sharing/collaboration

efforts will enable scientists to pursue a variety of studies concerning the acoustic environment, marine mammal bioacoustics, and potential activity effects on marine mammals in the survey area.

#### (5) Notification of Injured or Dead Marine Mammals

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 a serious injury, or mortality (e.g., ship-strike, gear interaction, and/or entanglement), Hilcorp 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 Hilcorp to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. Hilcorp would not be able to resume its activities until notified by NMFS via letter, email, or telephone.

In the event that Hilcorp discovers a dead marine mammal, and the lead PSO determines that the cause of the 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), Hilcorp 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 Hilcorp to determine whether modifications in the activities are appropriate.

In the event that Hilcorp discovers a dead marine mammal, and the lead PSO determines that the 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), Hilcorp 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. Hilcorp would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. Hilcorp can

continue its operations under such a case.

### **Estimated Take by Incidental Harassment**

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]. Only take by Level B behavioral harassment is anticipated as a result of the proposed shallow geohazard survey. Noise propagation from subbottom profilers is expected to harass, through behavioral disturbance, affected marine mammal species or stocks.

The full suite of potential impacts to marine mammals from various industrial activities was described in detail in the “**Potential Effects of the Specified Activity on Marine Mammals**” section found earlier in the **Federal Register** notice (80 FR 27901; May 15, 2015) for the proposed IHA. The potential effects of sound from the proposed shallow geohazard survey without any mitigation might include one or more of the following: tolerance; masking of natural sounds; behavioral disturbance; non-auditory physical effects; and, at least in theory, temporary or permanent hearing impairment (Richardson *et al.*, 1995a). As discussed in the following sections in this document, NMFS estimates that Hilcorp’s activities will most likely result in behavioral disturbance, including avoidance of the ensonified area or changes in speed, direction, and/or diving profile of one or more marine mammals. For reasons discussed previously in this document, hearing impairment (TTS and PTS) is highly unlikely to occur

based on the fact that most of the equipment to be used during Hilcorp's proposed shallow geohazard survey does not have source levels high enough to elicit even mild TTS and/or the fact that certain species are expected to avoid the ensonified areas close to the operations. Additionally, non-auditory physiological effects are anticipated to be minor, if any would occur at all.

For impulsive sounds, such as the signals produced by the subbottom profiler sources during the shallow geohazard survey, NMFS uses a received level of 160-dB (rms) to indicate the onset of Level B harassment. Hilcorp provided calculations of the 160-dB isopleth produced by the subbottom profiler and then used that isopleth to estimate takes by harassment. Hilcorp provides a full description of the methodology used to estimate takes by harassment in its IHA application (see **ADDRESSES**), which is also provided in the following sections.

Hilcorp has requested authorization to take bowhead, gray, humpback, minke, killer, and beluga whales, harbor porpoise, and ringed, spotted, bearded, and ribbon seals incidental to shallow geohazard survey in the Beaufort Sea. However, as stated previously in this document, humpback, minke, and killer whales, harbor porpoise, and ribbon seal are considered extralimital in the proposed shallow geohazard survey area. Therefore, NMFS is not proposing to authorize take of these species. In addition, NMFS made a minor adjustment to the take number issued to Hilcorp from the proposed IHA published in the **Federal Register** notice (80 FR 27901; May 15, 2015). In the notice for the proposed IHA, the proposed take numbers were based on Hilcorp's requested takes, which were higher than the estimated takes based on calculation. The takes authorized in the IHA issued to Hilcorp are estimated takes based on calculation, without upward adjustments, except for beluga whales (explained below). No other changes were made from the

proposed IHA.

#### *Basis for Estimating “Take by Harassment”*

“Take by Harassment” is described in this section and was calculated in Hilcorp’s application by multiplying the expected densities of marine mammals that may occur near the shallow geohazard survey areas where received noise levels are higher than 160 dB re 1  $\mu$ Pa (rms) created by the subbottom profiler during the survey.

#### *Marine Mammal Density Estimates*

Whale species are migratory and therefore show a seasonal distribution, with different densities for the summer period (covering July and August) and the fall period (covering September and October). Seal species in the Beaufort Sea do not show a distinct seasonal distribution during the open water period between July and October. Data acquisition of the proposed sonar survey will only take place in summer (before start of Nuiqsut whaling); therefore only estimates of marine mammal densities for the summer are included in the take calculation. Whale and seal densities in the Beaufort Sea will further depend on the presence of sea ice. However, if ice cover within or close to the sonar survey area is more than approximately 10%, sonar survey activities may not start or be halted for safety reasons. Densities related to ice conditions are therefore not included in the take estimates.

Spatial differentiation is another important factor for marine mammal densities, both in latitudinal and longitudinal gradient. Taking into account the shallow water operations of the proposed sonar survey area and the associated area of influence, data from the nearshore zone of the Beaufort Sea is used for the calculation of densities, if available.

Density estimates are based on best available data. Because available data did not always

cover the area of interest, estimates are subject to large temporal and spatial variation. Though correction factors for perception and availability bias have been calculated for certain coastal areas they were not always known for this study area. There is some uncertainty in the 2014 raw data and assumptions were used in the estimated number of exposures. To provide allowance for these uncertainties, maximum density estimates have been provided in addition to average density estimates.

A summary of marine mammal density in the proposed Hilcorp survey area is provided in Table 2.

**Table 2. Estimated summer densities of whales and sighting rates of seals (average and maximum) for the proposed North Prudhoe Bay survey. Densities are provided in number of individuals per km<sup>2</sup> (INDV/km<sup>2</sup>), sighting rates in number of individuals per hour (INDV/hr.).**

SPECIES	SUMMER DENSITIES (INDV/km <sup>2</sup> )	
	AVERAGE	MAXIMUM
Bowhead whale	0.0088	0.0200
Beluga	0.0008	0.0078
	SUMMER SIGHTING RATES (INDV/hr.)	
	AVERAGE	MAXIMUM
Ringed seal	0.122	0.397
Bearded seal	0.033	0.107
Spotted seal	0.039	0.126

#### *Level B Harassment Zone Distance*

As discussed earlier in this document, the operating frequencies of the multibeam, single-beam, and sidescan sonar equipment in Hilcorp’s proposed shallow geohazard survey are above the hearing range of all marine mammals and therefore are not expected to have take of marine mammals. Estimated distance to sound pressure levels of 160 dB re 1 µPa, generated by the proposed sub-bottom equipment is 30 m from the source. However, as stated in this document earlier, Hilcorp proposes to implement a 50 m shutdown zone for the Level B behavioral

harassment. Therefore, the calculation of marine mammal take is based on the number of animals exposed within the 50 m radius.

*Potential Number of “Takes by Harassment”*

This section provides estimates of the number of individuals potentially exposed to pulsed sound levels  $\geq 160$  dB re 1  $\mu$ Pa rms by shallow geohazard survey using a subbottom profiler. The estimates are based on a consideration of the number of marine mammals that might be affected by operations in the Beaufort Sea during 2015 and the anticipated area exposed to those sound levels.

The potential number of bowhead whales and belugas that might be exposed to the 160 dB re 1  $\mu$ Pa (rms) sound pressure level was calculated by multiplying:

- The expected bowhead and beluga density as provided in Table 3;
- The total 160 dB re 1  $\mu$ Pa (rms) ensonified area in a single hour by the vessel travelling at 3 knots; and
- The estimated number of hours that the source vessels are operating.

The calculated area (0.0079 km<sup>2</sup>) expected to be ensonified is determined based on the maximum distance to the 160 dB re 1  $\mu$ Pa (rms) sound pressure level for the Sub-bottom profiler, which is 0.05 km.

The estimated number of 24-hr days of sonar operations was determined by assuming a 25% downtime during the planned 45-day time span of the sonar survey period. Downtime is related to weather, equipment maintenance, mitigation implementation, and other circumstances. The total number of full 24-hr days that data acquisition is expected to occur is ~34 days or 816 hours.

The total 160 dB re 1  $\mu$ Pa (rms) ensonified area in a single hour by the vessel is calculated as 0.556 km<sup>2</sup> / hr.

The average and maximum number of bowhead whales potentially exposed to sonar sound levels of 160 dB re 1 $\mu$ Pa (rms) or more is estimated at 4 and 9 respectively. The limited number of exposures is due to the low estimated density of bowheads in Foggy Island Bay during July and August, the short duration of the survey, and the small acoustic footprint. For the requested authorization, the maximum number was increased by three to account for unexpected bowhead occurrences.

The average and maximum number of potential beluga exposures to 160 dB is < 1. Belugas are known to show aggregate behavior and can occur in large numbers in nearshore zones, as evidenced by the sighting from Endicott in August 2013. Although beluga whales are not expected to frequent the vicinity of the Liberty Unit shallow geohazard survey area, their occurrence is still a possibility. To account for the potential average take of 1 beluga whale per day during the 45-day survey period, NMFS proposed a take authorization of 45 beluga whales for Hilcorp's shallow geohazard survey. Chance encounters with small numbers of other whale species are possible, but exposures to 160 dB or more are very unlikely for these species.

Although gray whale density is not known, this species has been occasionally sighted in the Arctic, and Hilcorp is requesting takes of 3 individuals of gray whales by Level B behavioral harassment (Table 3).

The estimated number of seals that might be exposed to pulsed sounds of 160 dB re 1  $\mu$ Pa (rms) is calculated by multiplying:

- The expected species specific sighting rate as provided in Table 2; and

- The total number of hours that each source vessel will be operating during the data acquisition period.

The estimated number of hours that the sonar equipment will operate was determined by assuming a 25% downtime during a 45-day survey period, which is a total of 816 hours (34 days of 24 hour operations).

These estimated exposures do not take into account the mitigation measures that will be implemented, such as marine mammal observers watching for animals, shutdowns or power downs of the equipment when marine mammals are seen within defined ranges. These measures will further reduce the number of exposures and expected short-term reactions, and minimize any effects on hearing sensitivity.

A summary of the estimated takes and percent take among the population is provided in Table 3.

**Table 3. The total number of potential exposures of marine mammals to sound levels  $\geq 160$  dB re 1  $\mu$ Pa rms during the Hilcorp’s proposed shallow geohazard survey in the Beaufort Sea, Alaska, 2015. Estimates are also shown as a percent of each population**

Species	Abundance	Authorized Level B Take	% Estimated population
Beluga whale (Beaufort Sea stock)	39,258	45	0.11%
Bowhead whale	19,534	9	0.05%
Gray whale	19,126	3	0.02%
Bearded seal	155,000	87	0.06%
Ringed seal	300,000	324	0.11%
Spotted seal	141,479	103	0.07%

## Analysis and 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.

To avoid repetition, this introductory discussion of our analyses applies to all the species listed in Table 3, given that the anticipated effects of Hilcorp’s shallow geohazard survey project on marine mammals are expected to be relatively similar in nature. Where there are meaningful differences between species or stocks, or groups of species, in anticipated individual responses to activities, impact of expected take on the population due to differences in population status, or impacts on habitat, they are described independently in the analysis below.

No injuries or mortalities are anticipated to occur as a result of Hilcorp’s proposed shallow geohazard survey, and none are authorized. Additionally, animals in the area are not expected to incur hearing impairment (i.e., TTS or PTS) or non-auditory physiological effects. The takes that are anticipated and authorized are expected to be limited to short-term Level B behavioral harassment. While the sonar sources are expected to be operated for approximately 45 days, the project timeframe will occur when cetacean species are typically not found in the project area or are found only in low numbers. While pinnipeds are likely to be found in the

proposed project area more frequently, their distribution is dispersed enough that they likely will not be in the Level B harassment zone continuously.

Most of the marine mammals encountered will likely show overt disturbance (avoidance) only if they receive sonar sounds with levels  $\geq 160$  dB re 1  $\mu$ Pa. However, the estimated 160 dB zone is only 30 m from the source, which means that the animals have to be very close to the source vessel to be exposure to noise levels that could cause Level B harassment. In addition, Hilcorp will implement shutdown measures if a marine mammal is sighted within or is moving towards the 160 dB isopleths.

Taking into account the mitigation measures that are planned, effects on marine mammals are generally expected to be restricted to avoidance of a limited area around Hilcorp's proposed open-water activities and short-term changes in behavior, falling within the MMPA definition of "Level B harassment." Mitigation measures, such as controlled vessel speed, dedicated marine mammal observers, non-pursuit, ramp up procedures, and shut downs or power downs when marine mammals are seen within or approaching the ZOI, will further reduce short-term reactions. In all cases, the effects are expected to be short-term, with no lasting biological consequence.

Of the six marine mammal species likely to occur in the proposed marine survey area, bowhead whale and ringed seal are listed as endangered and threatened under the ESA, respectively. These species are also designated as "depleted" under the MMPA. None of the other species that may occur in the project area are listed as threatened or endangered under the ESA or designated as depleted under the MMPA.

#### *Bowhead Whales*

The Bering-Chukchi-Beaufort stock of bowheads has been increasing at a rate of 3.4 percent annually for nearly a decade (Allen and Angliss 2010). Additionally, during the 2001 census, 121 calves were counted, which was the highest yet recorded. The calf count provides corroborating evidence for a healthy and increasing population (Allen and Angliss 2010). There is no critical habitat designated in the U.S. Arctic for the bowhead whales.

Bowhead whales are designated as low-frequency cetacean. Although the hearing sensitivity of low-frequency cetacean is thought to reach 25 kHz based on vocalizations from humpback whales, in general they are not expected to be very sensitive to sound frequencies above several kHz. Therefore, noise impacts on bowhead whales from Hilcorp's sonar equipment are expected to be very mild. Potential impacts to bowhead whales from Hilcorp's shallow geohazard survey would be limited to brief behavioral disturbances and temporary avoidance of the ensonified areas and survey vessels. It is estimated that a maximum of 9 bowhead whales (0.11%) could be taken by Level B harassment.

Bowhead whales are less likely to occur in the proposed project area in July and early August, as they are found mostly in the Canadian Beaufort Sea at this time. The animals are more likely to occur later in the season (late-August through September), as they head west towards Chukchi Sea.

In their westward migration route, bowhead whales have been observed to feed in the vicinity of the survey area in the Beaufort Sea. Most of the feedings are observed in the September to October period as more bowhead whales are moving through the migratory corridor in the Beaufort Sea. Therefore, the areas in offshore Beaufort Sea are considered as biologically important areas (BIAs) for bowhead whales in September and October (Clarke *et al.* 2015).

However, most, if not all of their BIAs are in relatively deeper waters outside the barrier islands, while almost all of Hilcorp's survey area is waters < 31 m within the barrier islands.

The proposed survey area is also mostly outside BIAs where bowhead whale mother/calf pairs are sighted in the summer and fall and BIAs of bowhead whale fall migration (Clarke *et al.*, 2015).

#### *Gray Whales*

Gray whales are not expected to frequent the proposed shallow geohazard survey area in the Beaufort Sea, although occasional sightings of this species occurred in the past several years. Being a member of low-frequency cetacean, the potential acoustic impacts to gray whales are the same to those to bowhead whales as discussed above. It is estimated that a maximum of 3 gray whales (0.02%) could be taken by Level B harassment. There is no BIA for gray whales within Hilcorp's proposed shallow geohazard survey area.

#### *Beluga Whales*

Although the acoustic effects on beluga whale, a mid-frequency cetacean species, are expected to be more noticeable compared to bowhead and gray whales, the adverse effects are still considered minor due to the low intensity sonar equipment being used by Hilcorp's shallow geohazard survey. Potential impacts to beluga whales would be limited to brief behavioral disturbances and temporary avoidance of the ensonified areas and survey vessels.

In addition, beluga whales in Beaufort Sea are typically distributed in deeper waters offshore from Hilcorp's survey area. It is estimated that a maximum of 45 beluga whales (0.05%) could be taken by Level B harassment. There is no BIA for beluga whales within Hilcorp's proposed shallow geohazard survey area.

*Pinnipeds:*

Ringed, spotted, and bearded are expected to be encountered in the Hilcorp's shallow geohazard survey area. However, as stated in the **Federal Register** notice (80 FR 21901; May 15, 2015) for the proposed IHA, they appear to be more tolerant of anthropogenic sound, especially at lower received levels, than other marine mammals, such as mysticetes. Hilcorp's proposed activities would occur at a time of year when these seal species found in the region are not molting, breeding, or pupping. Therefore, these important life functions would not be impacted by Hilcorp's activities. The exposure of pinnipeds to sounds produced by Hilcorp's shallow geohazard survey operations in the Beaufort Sea is not expected to result in more than Level B harassment of individuals from pinnipeds.

It is estimated that maxima of 324 ringed seals (0.11%), 103 spotted seals (0.07%), and 87 bearded seals (0.06%) could be taken by Level B harassment. Level B behavioral harassment to these species from Hilcorp's shallow geohazard survey activity include brief behavioral disturbances and temporary avoidance of the ensonified areas.

No biologically important area exists for seals in the vicinity of Hilcorp's shallow geohazard survey activities.

Although some disturbance of food sources of marine mammals is possible, any impacts are anticipated to be minor enough as to not affect rates of recruitment or survival of marine mammals in the area. The marine survey activities would occur in a localized area, and given the vast area of the Arctic Ocean where feeding by marine mammals occurs, any missed feeding opportunities in the direct project area could be offset by feeding opportunities in other available feeding areas.

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 prescribed monitoring and mitigation measures, NMFS finds that the total marine mammal take from Hilcorp's shallow geohazard survey in the Beaufort Sea, Alaska, will have a negligible impact on the affected marine mammal species or stocks.

#### *Small Numbers*

The requested takes represent less than 0.11% of all populations or stocks potentially impacted (see Table 3 in this document). These take estimates represent the percentage of each species or stock that could be taken by Level B behavioral harassment if each animal is taken only once. The numbers of marine mammals estimated to be taken are small proportions of the total populations of the affected species or stocks. In addition, the mitigation and monitoring measures (described previously in this document) prescribed in the IHA are expected to reduce even further any potential disturbance to marine mammals.

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, NMFS 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 or Stock for Taking for Subsistence Uses**

##### *Relevant Subsistence Uses*

Marine mammals are legally hunted in Alaskan waters by coastal Alaska Natives and represent between 60% and 80% of their total subsistence harvest. The species regularly harvested by subsistence hunters in and around the Beaufort Sea are bowhead and beluga whales,

and ringed, spotted, and bearded seals. The importance of each of the subsistence species varies among the communities and is mainly based on availability and season.

The communities closest to the project area are, from west to east, the villages of Barrow, Nuiqsut and Kaktovik. Barrow is located >200 mi west from the Hilcorp's survey area. It is the largest community on the Alaska's Beaufort Sea coast. Important marine subsistence resources for Barrow include bowhead and beluga whales, and ice seals. Nuiqsut is located near the mouth of the Colville River, about 55 mi southwest of the project area. The most important marine subsistence resource for Nuiqsut is the bowhead whale, and to a lesser extent belugas and seals. Nuiqsut hunters use Cross Island, (~20 mi northwest of the project area) as a base to hunt for bowhead whales during the fall migration and have historically hunted bowhead whales as far east as Flaxman Island. Kaktovik is located on Barter Island, about 120 mi east of the project area. Major marine subsistence resources include bowhead and beluga whales, and seals.

(1) Bowhead Whale

The bowhead whale is a critical subsistence and cultural resource for the North Slope communities of Barrow, Nuiqsut, and Kaktovik. The level of allowable harvest is determined under a quota system in compliance with the International Whaling Commission (IWC 1980; Gambell 1982). The quota is based on the nutritional and cultural needs of Alaskan Natives as well as on estimates of the size and growth of the Bering-Chukchi-Beaufort seas stock of bowhead whales (Donovan 1982; Braund 1992). The AEWC allots the number of bowhead whales that each community is permitted to harvest. Contemporary whaling in Kaktovik dates from 1964 and in Nuiqsut from 1973 (EDAW/AECOM 2007; Galginaitis and Koski 2002). The number of boats used or owned in 2011 by the subsistence whaling crew of the villages of

Kaktovik, Nuiqsut, and Barrow was 8, 12, and 40, respectively. These numbers presumably change from year to year.

Bowhead harvesting in Barrow occurs both during the spring (April-May) and fall (September-October) when the whales migrate relatively close to shore (ADNR 2009). During spring bowheads migrate through open ice leads close to shore. The hunt takes place from the ice using umiaks (bearded seal skin boats). During the fall, whaling is shore-based and boats may travel up to 30 mi a day (EDAW/AECOM 2007). In Barrow, most whales were historically taken during spring whaling. More recently, however, the efficiency of the spring harvest appeared to be lower than the autumn harvest due to ice and weather conditions as well as struck whales escaping under the ice (Suydam *et al.* 2010). In the past few years the bowhead fall hunt has become increasingly important.

Nuiqsut and Kaktovik hunters harvest bowhead whales only during the fall. The bowhead spring migration in the Beaufort Sea occurs too far from shore for hunting because ice leads do not open up nearshore (ADNR 2009). In Nuiqsut, whaling takes place from early September through mid-to-late September as the whales migrate west (EDAW/AECOM 2007). Three to five whaling crews base themselves at Cross Island, a barrier island approximately 20 mi northwest of the Liberty Unit shallow geohazard survey area. Nuiqsut whalers harvest an average of 2 bowheads each year. Whaling from Kaktovik also occurs in the fall, primarily from late August through late September or early October (EDAW/AECOM 2007). Kaktovik whalers hunt from the Okpilak and Hulahula rivers east to Tapkaurak Point (ADNR 2009). Whaling activities are staged from the community rather than remote camps; most whaling takes place within 12 mi of the community (ADNR 2009). Kaktovik whalers harvest an average of 2–3

bowhead whales each year.

(2) Beluga

The harvest of belugas is managed cooperatively through an agreement between NMFS and the Alaska Beluga Whale Committee (ABWC). From 2005-2009, between 5 and 48 belugas were harvested annually from the Beaufort Sea stock (Allen and Angliss 2014); with a mean annual take of 25.8 animals. Both Nuiqsut and Kaktovik harvest few belugas, mostly opportunistically during the fall bowhead hunt.

(3) Seals

Seals represent an important subsistence resource for the North Slope communities. Harvest of bearded seals usually takes place during the spring and summer open water season from Barrow (EDAW/AECOM 2007) with only a few animals taken by hunters from Kaktovik or Nuiqsut. Seals are also taken during the ice-covered season, with peak hunting occurring in February (ADNR 2009). In 2003, Barrow-based hunters harvested 776 bearded seals, 413 ringed seals and 12 spotted seals (ADNR 2009). Nuiqsut hunters harvest seals in an area from Cape Halkett to Foggy Island Bay. For the period 2000-2001, Nuiqsut hunters harvested one bearded seal and 25 ringed seals (ADNR 2009). Kaktovik hunters also hunt seals year-round. In 2002-2003, hunters harvested 8 bearded seals and 17 ringed seals.

*Potential Impacts to Subsistence Uses*

NMFS has defined “unmitigable adverse impact” as an impact resulting from the specified activity. The definition and activities can be found in 50 CFR 216.103.

The shallow geohazard survey will take place between July 1 and September 30, 2015, with data acquisition occurring in July and August. The project area is located >200 mi east from Barrow, approximately 55 mi northeast from Nuiqsut (20 mi southeast of Cross Island), and 120 mi west from Kaktovik. Potential impact on the subsistence hunt from the planned activities is expected mainly from sounds generated by sonar equipment. Due to the timing of the project and the distance from the surrounding communities, there will be no effects on spring harvesting and little or no effects on the occasional summer harvest of beluga and subsistence seal hunts (ringed and spotted seals are primarily harvested in winter while bearded seals are hunted during July-September in the Beaufort Sea). The community of Nuiqsut may begin fall whaling activities in late August to early September from Cross Island (northwest of the survey area).

*Plan of Cooperation or Measures to Minimize Impacts to Subsistence Hunts*

(1) Plan of Cooperation

Regulations at 50 CFR 216.104(a)(12) require IHA applicants for activities that take place in Arctic waters to provide a Plan of Cooperation (POC) or information that identifies what measures have been taken and/or will be taken to minimize adverse effects on the availability of marine mammals for subsistence purposes.

Hilcorp has prepared a POC and is currently establishing a dialogue to coordinate activities with the villages. The POC includes the aforementioned mitigation measures and includes plans for and results of meetings with Alaska Native communities. In addition, Hilcorp has conducted the following meetings and visits to subsistence communities to discuss mitigation and monitoring measures to achieve no unmitigable impacts to subsistence activities.

- December 2, 2014: Open house at Kisik Community Center in Nuiqsut, Alaska

- December 2, 2014: Kuukpik Subsistence Oversight Panel Leadership meeting at Kisik Community Center in Nuiqsut, Alaska
- January 8, 2015: Meeting with Uum's Consulting, LLC in Anchorage, Alaska
- January 12, 2015: Native Village of Barrow Meeting at the Native Village of Barrow Conference Room in Barrow, Alaska
- January 12, 2015: North Slope Borough Mayor's Office Meeting in Barrow, Alaska
- January 12, 2015: North Slope Borough Planning Department Meeting in Barrow, Alaska
- January 12, 2015: North Slope Borough Wildlife Department and Barrow Whaling Captain's Meeting at the Top of the World Hotel in Barrow, Alaska
- January 13, 2015: Alaska Eskimo Whaling Commission meeting at the Top of the World Hotel in Barrow, Alaska
- January 13, 2015: Native Village of Nuiqsut meeting in Nuiqsut, Alaska
- January 13, 2015: Nuiqsut Whaling Captain's meeting at Kuukpik Hotel in Nuiqsut, Alaska
- January 13, 2015: Kuukpik Corporation meeting at Kuukpik Corporation Conference Room in Nuiqsut, Alaska
- January 14, 2015: City of Kaktovik meeting at the City of Kaktovik Community Center in Kaktovik, Alaska
- January 14, 2015: Kaktovik Inupiat Corporation meeting at the Kaktovik Inupiaq Corporation Conference Room in Kaktovik, Alaska

- January 14, 2015: Kaktovik Whaling Captain's meeting at Marsh Creek Hotel in Kaktovik, Alaska

Any subsistence discussions are documented along with meeting minutes, and are provided to the NMFS as part of the POC. Additional pre-season meetings maybe planned if needed to address additional requests for coordination.

(2) Stakeholder Engagement

Hilcorp has signed a Conflict Avoidance Agreement (CAA) intended to minimize potential interference with bowhead subsistence hunting. Hilcorp has attended and participated in the CAA meetings scheduled in 2015. The CAA describes measures to minimize any adverse effects on the availability of bowhead whales for subsistence uses.

The North Slope Borough Department of Wildlife Management (NSB-DWM) was consulted, and the project was also presented to the NSB Planning Commission in January 2015. The following are measures that Hilcorp will take to reduce impacts to the subsistence community:

- Hilcorp will comply with the CAA terms to address plans to meet with the affected community to resolve conflicts and notify the communities of any changes in the operation.
- Inupiat Marine Mammal Observers on board the vessels are tasked with looking out for whales and other marine mammals in the vicinity of the vessel to assist the vessel captain in avoiding harm to whales and other marine mammals.
- Vessels will be operated in a manner to avoid areas where species that are sensitive to noise or movement are concentrated at times when such species are

concentrated.

- Communications and conflict resolution are detailed in the CAA. Hilcorp is planning to participate in the Communications Center that is operated annually during the bowhead subsistence hunt.
- Communications with the villages of Barrow, Kaktovik, and Nuiqsut – discuss community questions or concerns including all subsistence hunting activities.

(3) Future Plan of Cooperation Consultations

Hilcorp plans to engage with the relevant subsistence communities regarding its future Beaufort Sea activities. With regard to the 2015 Liberty Unit shallow geohazard survey project, Hilcorp will present the data on marine mammal sightings and the results of the marine mammal monitoring and mitigation as part of our 90-day report to the regulatory authorities.

*Unmitigable Adverse Impact Analysis and Determination*

NMFS considers that these mitigation measures, including measures to reduce overall impacts to marine mammals in the vicinity of the proposed shallow geohazard survey area and measures to mitigate any potential adverse effects on subsistence use of marine mammals, are adequate to ensure subsistence use of marine mammals in the vicinity of Hilcorp's proposed survey in the Beaufort Sea.

Based on the description of the specified activity, the measures described to minimize adverse effects on the availability of marine mammals for subsistence purposes, and the prescribed mitigation and monitoring measures, NMFS has determined that there will not be an unmitigable adverse impact on subsistence uses from Hilcorp's activities.

**Endangered Species Act (ESA)**

There are two marine mammal species listed as endangered under the ESA with confirmed or possible occurrence in the project area: the bowhead whale and ringed seal. NMFS' Permits and Conservation Division initiated consultation with NMFS' Endangered Species Division under section 7 of the ESA on the issuance of an IHA to Hilcorp under section 101(a)(5)(D) of the MMPA for this activity. In June 2015, NMFS finished conducting its section 7 consultation and issued a Biological Opinion concluding that the issuance of the IHA associated with Hilcorp's shallow geohazard survey in the Beaufort Sea during the 2015 open-water season is not likely to jeopardize the continued existence of the endangered bowhead, humpback and the threatened Arctic sub-species of ringed seal. No critical habitat has been designated for these species, therefore none will be affected.

#### **National Environmental Policy Act (NEPA)**

NMFS prepared an EA that includes an analysis of potential environmental effects associated with NMFS' issuance of an IHA to Hilcorp to take marine mammals incidental to conducting a shallow geohazard survey in the Beaufort Sea, Alaska. NMFS has finalized the EA and prepared a Finding of No Significant Impact for this action. Therefore, preparation of an Environmental Impact Statement is not necessary. NMFS' draft EA was available to the public for a 30-day comment period before it was finalized.

#### **Authorization**

As a result of these determinations, NMFS has issued an IHA to Hilcorp for the take of marine mammals, by Level B harassment, incidental to conducting a shallow geohazard survey in the Beaufort Sea during the 2015 open-water season, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: June 30, 2015.

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Donna S. Wieting,  
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