Seattle, WA. The meeting is open to the public.

DATES: The meeting will be held on Monday, May 19, 2008, from 9 a.m. to 12 noon.

ADDRESSES: The meeting will be held at Leif Erikson Hall, 2245 NW 57th Street, 3rd Floor, Norna Room, Seattle, WA 98107 (in Ballard); telephone: (206) 783–1274.

Council address: North Pacific Fishery Management Council, 605 W. 4th Ave., Suite 306, Anchorage, AK 99501–2252.

FOR FURTHER INFORMATION CONTACT: Dr. Diana Stram, Council Staff, telephone: (907) 271–2809.

SUPPLEMENTARY INFORMATION: The PNCIAC will review the Metadata table and related documentation, which is part of the mandatory economic data reporting (EDR) process for the Bering Sea and Aleutian Islands (BSAI) Crab Rationalization program. The PNCIAC will develop recommendations and report back to the Council.

Although non-emergency issues not contained in this agenda may come before this group for discussion, those issues may not be the subject of formal action during this meeting. Action will be restricted to those issues specifically identified in this notice and any issues arising after publication of this notice that require emergency action under section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act, provided the public has been notified of the Council's intent to take final action to address the emergency.

Special Accommodations

This meeting is physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to Gail Bendixen at (907) 271–2809 at least 7 working days prior to the meeting date.

Dated: April 29, 2008.

Tracey L. Thompson,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. E8–9654 Filed 5–1–08; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN: 0648–XH61

North Pacific Fishery Management Council; Public Meeting

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

ACTION: Notice of a public meeting.

SUMMARY: The North Pacific Fishery Management Council (Council) Ecosystem Committee will meet in Seattle, WA,.

DATES: The meeting will be held on May 20, 2008, from 8 a.m. until 5 p.m.

ADDRESSES: The meeting will be held at the Swedish Culture Center, 1920 Dexter Avenue N., Seattle, WA.

Council address: North Pacific Fishery Management Council, 605 W. 4th Ave., Suite 306, Anchorage, AK 99501–2252.

FOR FURTHER INFORMATION CONTACT: Diana Evans, Council staff; telephone: (907) 271–2809.

SUPPLEMENTARY INFORMATION: The agenda will be as follows: Review progress on the Arctic Fishery Management Plan; Review staff discussion paper on further implementation of the Aleutian Islands Fishery Ecosystem Plan, and approach to identifying desirable/undesirable states of the ecosystem; Review the NOAA Integrated Services Plan.

Although non-emergency issues not contained in this agenda may come before this group for discussion, those issues may not be the subject of formal action during this meeting. Action will be restricted to those issues specifically identified in this notice and any issues arising after publication of this notice that require emergency action under section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act, provided the public has been notified of the Council's intent to take final action to address the emergency.

Special Accommodations

This meeting is physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to Gail Bendixen at (907) 271–2809 at least 7 working days prior to the meeting date.

Dated: April 29, 2008.

Tracey L. Thompson,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. E8–9656 Filed 5–1–08; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XH53

Small Takes of Marine Mammals Incidental to Specified Activities; Ocean Bottom Cable Seismic Survey in the Liberty Prospect, Beaufort Sea, Alaska in 2008

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

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

SUMMARY: NMFS has received an application from BP Exploration (Alaska), Inc. (BPXA) for an Incidental Harassment Authorization (IHA) to take marine mammals incidental to a 3D, ocean bottom cable (OBC) seismic survey in the Liberty Prospect, Beaufort Sea, Alaska in 2008. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an IHA to BPXA to incidentally take, by harassment, small numbers of several species of marine mammals between July and October, 2008, during the aforementioned activity.

DATES: Comments and information must be received no later than June 2, 2008.

ADDRESSES: Comments on the application should be addressed to P. Michael Payne, Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3225. The mailbox address for providing email comments is *PR1.0648XH53@noaa.gov*. Comments sent via e-mail, including all attachments, must not exceed a 10–megabyte file size.

A copy of the application containing a list of the references used in this document may be obtained by writing to the address specified above, telephoning the contact listed below (**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.

A copy of the 2006 Minerals Management Service's (MMS) Final Programmatic Environmental Assessment (PEA) and/or the NMFS/MMS Draft Programmatic

Environmental Impact Statement (DPEIS) are available on the internet at: *http://www.mms.gov/alaska/*.

FOR FURTHER INFORMATION CONTACT: Candace Nachman, Office of Protected Resources, NMFS, (301) 713–2289 or Brad Smith, NMFS Alaska Region, (907) 271–3023.

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.

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.''

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by 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].

Section 101(a)(5)(D) establishes a 45–day time limit for NMFS review of an application followed by a 30–day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

Summary of Request

On November 21, 2007, NMFS received an application from BPXA for the taking, by Level B harassment only, of small numbers of several species of marine mammals incidental to conducting a 3D, OBC seismic survey in the Liberty Prospect area of the Alaskan Beaufort Sea in 2008. The survey would occur over a period of 40–60 days in July and August, 2008, with an ''as needed'' extension into September/October (in compliance with a Conflict Avoidance Agreement (CAA)) after the subsistence whaling season given the uncertainties in ice conditions and other factors that can influence the survey. Seismic data acquisition is planned to start on July 1 depending on the presence of ice. Open water seismic operations can only start when the project area is ice free (i.e., less than 10 percent ice coverage), which in this area normally occurs around July 20 (+/- 14 days). Limited layout of receiver cables might be possible on the mudflats in the Sagavanirktok River delta areas before the ice has cleared.

The Liberty field contains one of the largest undeveloped light-oil reservoirs near the North Slope infrastructure, and the development of this field could recover an estimated 105 million barrels of oil. The field is located in Federal waters of the Beaufort Sea about 8.9 km (5.5 mi) offshore in 6.1 m (20 ft) of water and approximately 8 to 13 km (5 to 8 mi) east of the existing Endicott Satellite Drilling Island (SDI; see Figure 1 of BPXA's application). The project area encompasses 351.8 km^2 (135.8 mi^2) in Foggy Island Bay, Beaufort Sea, of which one percent is on mudflats, 18.5 percent is in water depths of 0.3–1.5 m (1–5 ft), 12.5 percent is in water depths of 1.5–3 m (5–10 ft), 43 percent is in water depths of 3–6.1 m (10–20 ft), and 25 percent is in water depths of 6.1–9.1 m (20–30 ft; see Figure 2 of BPXA's application). The approximate boundaries of the total surface area are between 70° 11' N. and 70° 23' N. and between 147° 10' W. and 148° 02' W.

The Liberty development project design and scope has been changed from an offshore stand-alone development (manmade production/drilling island and subsea pipeline) to the use of ultra-extended-reach drilling from the existing Endicott infrastructure involving an expansion of the SDI and use of existing processing facilities. As a result of this change in scope, BPXA believes that Liberty can be developed with a substantially reduced environmental footprint and impact than the originally proposed offshore stand-alone development. The currently available seismic data focused primarily on deeper targets and hence does not image the shallow overburden sections of the well bore optimally.

The acquisition of additional marine 3D seismic survey data increases the probability of successful implementation of the proposed ultra-extended-reach drilling techniques by providing higher resolution data to assist in imaging for well planning and drilling operations.

The dataset obtained with the proposed seismic survey will replace and augment the data from the Endicott 3D vibroseis survey (1983) and NW Badami (Liberty) 3D vibroseis survey (1995). Various seismic acquisition methods and sound source reduction technologies have been identified and assessed on their technical and environmental performance. The 3D, OBC seismic survey method being proposed is the most appropriate for the specific survey goal and objectives of the current Liberty seismic survey.

Description of Activity

OBC seismic surveys are used to acquire seismic data in water that is too shallow for large marine-streamer vessels and/or too deep to have grounded ice in the winter. This type of seismic survey requires the use of multiple vessels for cable deployment/recovery, recording, shooting, and utility boats. The planned 3D, OBC seismic survey in the Liberty area will be conducted by CGGVeritas. A detailed overview of the activities of this survey is provided below, with focus on the mobilization procedure, seismic and other sound sources, the deployment and retrieval of the receiver cables, and the recording procedure.

Mobilization

The vessel fleet involved in the seismic survey activities will consist of approximately 11 vessels as listed below. Details of these vessels (or equivalents) are provided in Appendix A of BPXA's application. Vessel usage is subject to availability; however, vessels of similar dimensions will be used if those listed below are unavailable.

- Two source vessels, the *M/V Peregrine* (27 x 7 m, 90 x 24 ft) and the *R/V Miss Diane* (17 x 5.5 m, 55 x 18 ft).
- One recorder boat/barge, with *M/V Alaganik* barge (24 x 7 m, 80 x 24 ft) and *Hook Point* boat (9.8 x 4.6 m, 32 x 15 ft).
- Four small bow picker vessels to deploy and retrieve the receiver cables; these are the *F/V Canvasback* (9.8 x 4.3 m, 32 x 14 ft), *F/V Cape Fear* (9.8 x 3.7

m, 32 x 12 ft), *F/V Rumpleminz* (9.8 x 4.3 m, 32 x 14 ft), and *F/V Sleep Robber* (9.8 x 4.3 m, 32 x 14 ft). These vessels can operate in very shallow waters up to approximately 0.5 m (18 in) water depth.

- HSE vessel *F/V Mariah* B (10.4 x 4 m, 34 x 13 ft).
- Crew transport vessel *M/V Qayak Spirit* (12.8 x 4.3 m, 42 x 14 ft) and (Northstar's) hovercraft *M/V Arctic Hawk* (12.8 x 6.1 m, 42 x 20 ft).
- Crew housing and fuel vessel *M/V Arctic Wolf* (41 x 11.6 m, 135 x 38 ft).

To deploy and retrieve cables in water depths less than those accessible by the bow pickers, equipment such as swamp buggies and/or Jon boats will be used. For additional mobilization details, refer to section 1.2 of BPXA's application.

Seismic Survey Area Details

The well path is the area of primary interest that needs to be fully covered by the seismic data. The size of this zone has been reduced to an absolute minimum of 92.1 km^2 (35.6 mi^2). To obtain full data coverage in this area of interest a larger zone needs to be surveyed to account for accurate migration of acoustic reflections. The total seismic survey extent is 351.8 km^2 (135.8 mi^2) and covers some mudflat areas as well.

Receiver cable lines consist of a hydrophone and a Field Digitizing Unit (FDU) placed on the cables at 33.5 m (110 ft) intervals and placed on the seafloor according to a predefined configuration to record the reflected source signals from the airguns. The cables that will be deployed on mudflats and in very shallow water will consist of marsh phones and are placed in a similar configuration as those deployed at the seabottom. The receiver cables will be oriented in a NE-SW direction. A total of approximately 66 NE-SW oriented receiver lines will be deployed with increasing line spacing from west to east of 268 m to 610 m (880 ft to 2,000 ft). Total receiver line length will be approximately 788 km (490 mi) of which approximately 16 km (10 mi) will be laid on mudflats. The source vessels will travel perpendicular over these receiver cables along lines which will have a NW to SE orientation and a varying total length of minimum 3.2 and maximum 5.6 km (2 to 3.5 mi). The total source line length is approximately 3,220 km (2,000 mi) in water depths varying from 1 to 9.1 m (3 to 30 ft). The Liberty seismic survey design is planned such that the most critical data along the well path can be acquired as highest priority, before time becomes limited.

Seismic Source

To limit the duration of the total survey, two source vessels (the *Peregrine* and the *Miss Dianne*) will operate, alternating airgun shots. The sources used for seismic data acquisition will be sleeve airgun arrays with a total discharge volume of 880 in^3 divided over two arrays. Each source vessel will have two 440 in^3 arrays comprised of four guns in clusters of 2 x 70 in^3 and 2 x 150 in^3. The 880 in^3 array has an estimated source level of approximately 250 dB re 1 µPa.

The arrays will be towed at a distance of approximately 8–10 m (26–33 ft) from the source vessel at depths varying from 1–4 m (3–13 ft), depending on the water depth. The vessel will travel along predetermined lines at approximately 1–5 knots (1.9–9.3 km/hr), mainly depending on the water depth. Each source vessel will fire shots every 8 s, resulting in 4 s shot intervals with two operating source vessels. The seismic data acquisition will occur over a 24 hr/day schedule. The dominant frequency components for the source are 5–135 Hz. See Appendix B of BPXA's application for more details of the 8–airgun array.

Cable Deployment and Retrieval

The *Peregrine*, *Miss Dianne*, and four bow pickers will be used for the deployment and retrieval of the receiver cables. Each of the cable vessels will be powered with twin jet diesels and are rigged with hydraulically driven deployment and retrieval systems (''Squirters''). The *Peregrine* and *Miss Dianne* function both as source and cable vessels and will be capable of carrying 120 hydrophone stations. The receiver cables that will be used are extremely small while still allowing a pull of 800 lbs. The smaller bow picker cable vessels will also carry 120 hydrophone stations and are capable of beach landings. All cable vessels will maintain 24–hr operations.

Part of the receiver cables will be deployed on mudflats to pick up reflected source signals and allow for full interpretation of the data in the area of interest, i.e., well path (pink line in Figure 2 of BPXA's application). The deployment of these receiver cables will be conducted by other equipment that can operate in shallow waters and marshy conditions (such as swamp buggies or Jon boats).

The positions of each receiver need to be established. Due to the variable bathymetry in the survey area, receiver positioning may require more than one technique. A combination of Ocean Bottom Receiver Location (OBRL), GPS, and acoustic pingers will be used. For OBRL, the source vessel fires a precisely positioned single gun multiple times along either side of the receiver cables. Multiple gun locations are then calculated at a given receiver to triangulate an accurate position for the receiver. In addition, Dyne acoustical pingers will be located at predetermined intervals at the receiver lines. The pinger locations can be determined using a transponder and allow for interpolation of the receiver locations between the acoustical pingers and as calibration/verification of the OBRL method. The sonar Dyne pingers operate at 19–36 kHz and have a source level of 188–193 dB re 1 µPa at 1 m. Because OBRL methods are not accurate in shallow water (< 4.6 m, 15 ft), the receiver locations at these depths will be recorded as ''as laid'' positions, which is the GPS location where the receivers are deployed.

Recording

A Sercel 428 FDU will be located at each hydrophone. The system is lightweight and robust and rated to 14 m (45 ft) water depth, which allows it to operate well in the water depths for this survey. For approximately each 30 recorder-hydrophone units, one or two battery pack(s) will be deployed at the sea bottom. The battery pack will be equipped with a buoy (or acoustic release) and a pinger to ensure that the battery packs can be located and retrieved when needed.

The data received at each FDU will be transmitted through the cables to a recorder for further processing. This recorder will be installed on a pin-together boat barge combination and positioned close to the area where data are being acquired. While recording, the pin-together boat barge is stationary and is expected to utilize a four point anchoring system.

Crew Housing and Transfer

Both source vessels, the *Peregrine* and the *Miss Dianne*, will be capable of housing crew, including marine mammal observers (MMOs). The *Arctic Wolf*, *Alaganik*, and *Hook Point* will also function as crew housing. Crew transfers will occur from the *Qayak* and the *Spirit*. For more information on crew housing and transfer, refer to Section 1.2 of BPXA's application.

Marine Mammals Affected by the Activity

The Beaufort Sea supports a diverse assemblage of marine mammals, including bowhead (*Balaena mysticetus*), gray (*Eschrichtius robustus*), beluga (*Delphinapterus*

leucas), killer (*Orcinus orca*), minke (*Balaenoptera acutorostrata*), fin (*B. physalus*), and humpback (*Megaptera novaeangliae*) whales, harbor porpoises (*Phocoena phocoena*), ringed (*Pusa hispida*), spotted (*Phoca largha*), and bearded (*Erignathus barbatus*) seals, polar bears (*Ursus maritimus*), and walruses (*Odobenus rosmarus divergens*). These latter two species are under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) and are not discussed further in this document. A separate Letter of Authorization request will be submitted by BPXA for this survey to USFWS specific to walruses and polar bears.

A total of three cetacean species and four pinniped species are known to occur or may occur in the Beaufort Sea in or near the Liberty area (see Table 1 in BPXA's application for information on habitat and abundance). Of these species, only the bowhead whale is listed as endangered under the Endangered Species Act (ESA). The narwhal, killer whale, harbor porpoise, minke whale, fin whale, and humpback whale could occur in the Beaufort Sea, but each of these species is rare or extralimital and unlikely to be encountered in the Liberty area.

The marine mammal species expected to be encountered most frequently throughout the seismic survey in the Liberty area is the ringed seal. The bearded and spotted seal can also be observed but to a far lesser extent than the ringed seal. Presence of beluga, bowhead, and gray whales in the shallow water environment within the barrier islands is possible but expected to be very limited. Descriptions of the biology, distribution, and population status of the marine mammal species under NMFS' jurisdiction can be found in BPXA's application, the 2007 NMFS/MMS DPEIS on Arctic Seismic Surveys, and the NMFS Stock Assessment Reports (SARS). The Alaska SAR is available at: *http://www.nmfs.noaa.gov/pr/pdfs/sars/ak2007.pdf*. Please refer to those documents for information on these species.

Potential Effects of Airgun Sounds on Marine Mammals

The effects of sounds from airguns might include one or more of the following: tolerance, masking of natural sounds, behavioral disturbance, and temporary or permanent hearing impairment or non-auditory effects (Richardson *et al.*, 1995). As outlined in previous NMFS documents, the effects of noise on marine mammals are highly variable, and can be categorized as follows (based on Richardson *et al.*, 1995):

(1) The noise may be too weak to be heard at the location of the animal (i.e., lower than the prevailing ambient noise level, the hearing threshold of the animal at relevant frequencies, or both);

(2) The noise may be audible but not strong enough to elicit any overt behavioral response;

(3) The noise may elicit reactions of variable conspicuousness and variable relevance to the well being of the marine mammal; these can range from temporary alert responses to active avoidance reactions such as vacating an area at least until the noise event ceases;

(4) Upon repeated exposure, a marine mammal may exhibit diminishing responsiveness (habituation), or disturbance effects may persist; the latter is most likely with sounds that are highly variable in characteristics, infrequent, and unpredictable in occurrence, and associated with situations that a marine mammal perceives as a threat;

(5) Any anthropogenic noise that is strong enough to be heard has the potential to reduce (mask) the ability of a marine mammal to hear natural sounds at similar frequencies, including calls from conspecifics, and underwater environmental sounds such as surf noise;

(6) If mammals remain in an area because it is important for feeding, breeding, or some other biologically important purpose even though there is chronic exposure to noise, it is possible that there could be noise-induced physiological stress; this might in turn have negative effects on the well-being or reproduction of the animals involved; and

(7) Very strong sounds have the potential to cause temporary or permanent reduction in hearing sensitivity. In terrestrial mammals, and presumably marine mammals, received sound levels must far exceed the animal's hearing threshold for there to be any temporary threshold shift (TTS) in its hearing ability. For transient sounds, the sound level necessary to cause TTS is inversely related to the duration of the sound. Received sound levels must be even higher for there to be risk of permanent hearing impairment. In addition, intense acoustic or explosive events may cause trauma to tissues associated with organs vital for hearing, sound production, respiration and other functions. This trauma may include minor to severe hemorrhage.

Tolerance

Numerous studies have shown that pulsed sounds from airguns are often readily detectable in the water at distances of many kilometers. For a summary of the characteristics of airgun pulses, see Appendix C of BPXA's application. Numerous studies have shown that marine mammals at distances more than a few kilometers from operating seismic vessels often show no apparent response. That is often true even in cases when the pulsed sounds must be readily audible to the animals based on measured received levels and the hearing sensitivity of that mammal group. Although various baleen whales, toothed whales, and (less frequently) pinnipeds have been shown to react behaviorally to airgun pulses under some conditions, at other times, mammals of all three types have shown no overt reactions. In general, pinnipeds and small odontocetes seem to be more tolerant of exposure to airgun pulses than baleen whales.

Masking

Masking effects of pulsed sounds (even from large arrays of airguns) on marine mammal calls and other natural sounds are expected to be limited, although there are very few data of relevance. Some whales are known to continue calling in the presence of seismic pulses. Their calls can be heard between the seismic pulses (e.g., Richardson *et al.*, 1986; McDonald *et al.*, 1995; Greene *et al.*, 1999; Nieukirk *et al.*, 2004). Although there has been one report that sperm whales cease calling when exposed to pulses from a very distant seismic ship (Bowles *et al.*, 1994), a more recent study reports that sperm whales off northern Norway continued calling in the presence of seismic pulses (Madsen *et al.*, 2002). That has also been shown during recent work in the Gulf of Mexico (Tyack *et al.*, 2003). Bowhead whale calls are frequently detected in the presence of seismic pulses, although the number of calls detected may sometimes be reduced in the presence of airgun pulses (Richardson *et al.*, 1986; Greene *et al.*, 1999). Masking effects of seismic pulses are expected to be negligible given the low number of cetaceans expected to be exposed, the intermittent nature of seismic pulses, and the fact that ringed seals (most probable to be present in the area) are not vocal during this period. Masking effects, in general, are discussed further in Appendix C of BPXA's application.

Disturbance Reactions

Disturbance includes a variety of effects, including subtle changes in behavior, more conspicuous changes in activities, and displacement. Reactions to sound, if any, depend on species,

state of maturity, experience, current activity, reproductive state, time of day, and many other factors. If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or 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 the animals could be significant. Given the many uncertainties in predicting the quantity and types of impacts of noise on marine mammals, it is common practice to estimate how many mammals were present within a particular distance of industrial activities or exposed to a particular level of industrial sound. That likely overestimates the numbers of marine mammals that are affected in some biologically-important manner.

The sound criteria used to estimate how many marine mammals might be disturbed to some biologically-important degree by a seismic program are based on behavioral observations during studies of several species. However, information is lacking for many species. Detailed studies have been done on humpback, gray, and bowhead whales and ringed seals. Less detailed data are available for other species of baleen, sperm, and small toothed whales and sea otters.

Baleen Whales – Baleen whales generally tend to avoid operating airguns, but avoidance radii are quite variable. Whales are often reported to show no overt reactions to pulses from large arrays of airguns at distances beyond a few kilometers, even though the airgun pulses remain well above ambient noise levels out to much longer distances. However, as reviewed in Appendix C of BPXA's application, baleen whales exposed to strong noise pulses from airguns often react by deviating from their normal migration route and/or interrupting their feeding and moving away. In the case of the migrating gray and bowhead whales, the observed changes in behavior appeared to be of little or no biological consequence to the animals. They simply avoided the sound source by displacing their migration route to varying degrees but within the natural boundaries of the migration corridors.

Studies of gray, bowhead, and humpback whales have determined that received levels of pulses in the 160–170 dB re 1 μPa rms range seem to cause obvious avoidance behavior in a substantial fraction of the animals exposed. In many areas, seismic pulses from large arrays of airguns diminish to those levels at distances ranging from 4.5–14.5 km (2.8–9 mi) from the source. For the much smaller airgun array of this seismic survey, distances to received levels in the 160–170 dB re 1 μPa rms range are 1.2–3.5 km (0.7–2.2 mi; Table 3 in BPXA's application and Table 1 below). Baleen whales within these shorter distances may show avoidance or other strong disturbance reactions to the airgun array; however in the Liberty seismic survey area, a limited number of baleen whales are expected to occur. Subtle behavioral changes sometimes become evident at somewhat lower received levels, and recent studies reviewed in Appendix C of BPXA's application have shown that some species of baleen whales, notably bowhead and humpback whales, at times show strong avoidance at received levels lower than 160–170 dB re 1 μPa rms. Bowhead whales migrating west across the Alaskan Beaufort Sea in autumn, in particular, are unusually responsive, with avoidance occurring out to distances of 20–30 km (12.4–18.6 mi) from a medium-sized airgun source (Miller *et al.*, 1999; Richardson *et al.*, 1999). However, more recent research on bowhead whales (Miller *et al.*, 2005) corroborates earlier evidence that, during the summer feeding season, bowheads are not as sensitive to seismic sources. In summer, bowheads typically begin to show avoidance reactions at a received level of about 160–170 dB re 1 μPa rms (Richardson *et al.*, 1986; Ljungblad *et al.*, 1988; Miller *et al.*, 1999). The Liberty seismic project will be conducted in the summer and might occur partly in autumn, when the bowheads are commonly involved in migration. However, because the survey will be located inshore of the barrier islands (where few cetaceans are expected) in shallow water (maximum 9.1 m, 30 ft, deep; where high seismic sound propagation loss is expected) and with seismic airguns of medium discharge volumes (880 in3, compared to the 3,000+ in^3 arrays used offshore), the distance of received levels that might elicit avoidance behavior will likely not (or barely) reach the main migration corridor and then only through the inter-island water passages. Considering that these islands will function as a sound barrier beyond which sound will not propagate much, the propagation of the sounds generated is expected to be very limited offshore of the islands, where most of the baleen whales are expected to occur, which will prevent sound propagation into offshore waters where cetaceans are expected.

Malme *et al.* (1986, 1988) studied the responses of feeding eastern gray whales to pulses from a single 100 in^3 airgun off St. Lawrence Island in the northern Bering Sea. They estimated, based on small sample sizes, that 50 percent of feeding gray whales ceased feeding at an average received pressure level of 173 dB re 1 μPa on an (approximate) rms basis, and that 10 percent of feeding whales interrupted feeding at received levels of 163 dB. Those findings were generally consistent with the results of experiments conducted on larger numbers of gray whales that were migrating along the California coast and on observations of the distribution of feeding Western Pacific gray whales off Sakhalin Island, Russia during a seismic survey (Yazvenko *et al.*, 2007). However, given the infrequent occurrence of gray whales in the Beaufort Sea east of Point Barrow, recent MMO information from the Beaufort Sea indicating that, at least for bowhead whales, sound pressure levels (SPLs) of 160 dB or less did not result in abandonment of feeding areas, and the incorporation of mitigation and monitoring measures, including the use of MMOs and avoidance of concentrated areas of feeding whales, the number of animals exposed to sound levels that could cause disturbance of feeding or other behaviors should be greatly reduced.

Data on short-term reactions of cetaceans to impulsive noises do not necessarily provide information about long-term effects. It is not known whether impulsive noises affect reproductive rate or distribution and habitat use in subsequent days or years. However, gray whales continued to migrate annually along the west coast of North America despite intermittent seismic exploration and much ship traffic in that area for decades (Appendix A in Malme *et al.*, 1984). Bowhead whales continued to travel to the eastern Beaufort Sea each summer despite seismic exploration in their summer and autumn range for many years (Richardson *et al.*, 1987). Populations of both gray and bowhead whales grew substantially during this time, suggesting that there may be no long-term effect from seismic activities. Therefore, the brief exposures to sound pulses from the proposed airgun source are highly unlikely to result in long-term effects to baleen whales.

Toothed Whales – Few systematic information is available about reactions of toothed whales to noise pulses. Few studies similar to the more extensive baleen whale/seismic pulse work summarized above and (in more detail) in Appendix C of BPXAs application

have been reported for toothed whales. However, systematic work on sperm whales is underway (Tyack *et al.*, 2003), and there is an increasing amount of information about responses of various odontocetes to seismic surveys based on monitoring studies (e.g., Stone, 2003; Smultea *et al.*, 2004; Moulton and Miller, 2005).

Seismic operators and MMOs sometimes see dolphins and small toothed whales near operating airgun arrays, but in general there seems to be a tendency for most delphinids to show some limited avoidance of seismic vessels operating large airgun systems. However, some dolphins seem to be attracted to the seismic vessel and floats, and some ride the bow wave of the seismic vessel even when large airgun arrays are firing. There have been indications that small toothed whales sometimes move away or maintain a somewhat greater distance from the vessel when a large airgun array is operating than when it is silent (e.g., Goold, 1996a,b,c; Calambokidis and Osmek, 1998; Stone, 2003). The beluga may be a species that (at least at times) shows long-distance avoidance of seismic vessels. Aerial surveys during seismic operations in the southeastern Beaufort Sea recorded much lower sighting rates of beluga whales within 10–20 km (6.2–12.4 mi) of an active seismic vessel. These results were consistent with the low number of beluga sightings reported by observers aboard the seismic vessel, suggesting that some belugas might avoid the seismic operations at distances of 10–20 km (6.2–12.4 mi; Miller *et al.*, 2005).

Captive bottlenose dolphins and beluga whales exhibit changes in behavior when exposed to strong pulsed sounds similar in duration to those typically used in seismic surveys (Finneran *et al.*, 2002, 2005). However, the animals tolerated high received levels of sound (pk-pk level >200 dB re 1 µPa) before exhibiting aversive behaviors, such as reluctance to station at the test site where subsequent exposure to impulses would be implemented (Finneran *et al.*, 2002). It is uncertain what relevance these observed behaviors in captive, trained marine mammals exposed to single sound pulses may have to free-ranging animals exposed to multiple pulses. With the presently-planned source, such levels would be limited to distances less than 200 m (656 ft) from the 8–airgun array in shallow water and encounters with beluga whales are not likely to occur within these distances. Reactions of toothed whales to large arrays of airguns are variable, and, at least for delphinids, seem to be confined to a smaller radius than has been observed for mysticetes (see Appendix C of BPXA's application).

Pinnipeds – Pinnipeds are not likely to show a strong avoidance reaction to the airgun sources that will be used. Visual monitoring from seismic vessels has shown only slight (if any) avoidance of airguns by pinnipeds, and only slight (if any) changes in behavior (see Appendix C of BPXA's application). Ringed seals frequently do not avoid the area within a few hundred meters of operating airgun arrays (Harris *et al.*, 2001; Moulton and Lawson, 2002; Miller *et al.*, 2005). However, initial telemetry work suggests that avoidance and other behavioral reactions by two other species of seals to small airgun sources may at times be stronger than evident to date from visual studies of pinniped reactions to airguns (e.g., some of the individuals ceased foraging during seismic activity and only resumed after the sound source stopped, and others increased swim speed and/or dive duration; Thompson *et al.*, 1998). The effects noted in the study were short-term in nature (Thompson *et al.*, 1998). Even if reactions of the species occurring in the present study area are as strong as those evident in the telemetry study, reactions are expected to be confined to relatively small distances and durations, with no long-term effects on pinniped individuals or populations.

Hearing Impairment and Other Physical Effects

Temporary or permanent hearing impairment is a possibility when marine mammals are exposed to very strong sounds, but there has been no specific documentation of this for marine mammals exposed to sequences of airgun pulses. Current NMFS policy regarding exposure of marine mammals to high-level sounds is that cetaceans and pinnipeds should not be exposed to impulsive sounds greater than 180 and 190 dB re 1 µPa (rms), respectively (NMFS, 2000). Those criteria have been used in defining the safety (shutdown) radii planned for the proposed seismic survey. However, those criteria were established before there were any data on the minimum received levels of sounds necessary to cause temporary auditory impairment in marine mammals. As discussed in Appendix C and summarized here:

- The 180 dB criterion for cetaceans is precautionary (i.e., lower than necessary to avoid TTS, let alone permanent auditory injury, at least for belugas and delphinids) as it was established prior to empirical research on marine mammals that now indicate that permanent auditory injury would not occur until significantly higher SPLs were encountered.
- The minimum sound level necessary to cause permanent hearing impairment is higher, by a variable and generally unknown amount, than the level that induces TTS.
- The level associated with the onset of TTS is often considered to be a level below which there is no danger of permanent damage.

Several aspects of the planned monitoring and mitigation measures for this project are designed to detect marine mammals occurring near the airguns to avoid exposing them to sound pulses that might cause hearing impairment. In addition, many cetaceans are likely to show some avoidance of the area with high received levels of airgun sound (see above). In those cases, the avoidance responses of the animals themselves will reduce or (most likely) avoid any possibility of hearing impairment.

Non-auditory physical effects might also occur in marine mammals exposed to strong underwater pulsed sound. Possible types of non-auditory physiological effects or injuries that theoretically might occur in mammals close to a strong sound source include stress, neurological effects, bubble formation, and other types of organ or tissue damage. Some marine mammal species (i.e., beaked whales) may be especially susceptible to injury and/or stranding when exposed to strong pulsed sounds. However, as discussed below, there is no definitive evidence that any of these effects occur even for marine mammals in close proximity to large arrays of airguns, and beaked whales do not occur in the present study area. It is unlikely that such effects would occur during the present project given the brief duration of exposure and the planned monitoring and mitigation measures (see below). The following sections discuss the possibilities of TTS, permanent threshold shift (PTS), and non-auditory physical effects in more detail.

(TTS) – 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. At least in terrestrial mammals, TTS can last from minutes or hours to (in cases of strong TTS) days. For sound exposures at or somewhat above the TTS threshold, hearing sensitivity in both terrestrial and marine mammals recovers rapidly after exposure to the noise ends. Few data on sound levels and durations necessary to elicit mild

TTS have been obtained for marine mammals.

For toothed whales exposed to single short pulses, the TTS threshold appears to be, to a first approximation, a function of the energy content of the pulse (Finneran *et al.*, 2002, 2005). Given the available data, the received level of a single seismic pulse might need to be approximately 210 dB re 1 µPa rms (approximately 221 226 dB pk-pk) in order to produce brief, mild TTS. Exposure to several seismic pulses at received levels near 200–205 dB (rms) might result in slight TTS in a small odontocete, assuming the TTS threshold is (to a first approximation) a function of the total received pulse energy. Seismic pulses with received levels of 200–205 dB or more are usually restricted to a radius of no more than 200 m (656 ft) around a seismic vessel operating a large array of airguns. For the smaller airgun array used in the proposed survey, this radius will be no more than 100 m (328 ft).

There are no data on which to determine the kinds or intensities of sound that could cause TTS in baleen whales (NMFS/MMS, 2007). However, no cases of TTS are expected given the medium size of the source, the strong likelihood that baleen whales (especially migrating bowheads) would avoid the approaching airguns (or vessel) before being exposed to levels high enough for there to be any possibility of TTS, and the proposed mitigation measures.

In pinnipeds, TTS thresholds associated with exposure to brief pulses (single or multiple) of underwater sound have not been measured. Initial evidence from prolonged exposures suggested that some pinnipeds may incur TTS at somewhat lower received levels than do small odontocetes exposed for similar durations (Kastak *et al.*, 1999, 2005; Ketten *et al.*, 2001; cf. Au *et al.*, 2000). In the harbor seal, which is closely related to the ringed seal, TTS onset apparently occurs at somewhat lower received energy levels than for odontocetes (see Appendix C of BPXA's application).

A marine mammal within a radius of approximately 60 m (197 ft) around the proposed airgun array might be exposed to a few seismic pulses with levels greater than 205 dB and possibly more pulses if the mammal moved with the seismic vessel. (As noted above, most cetacean species tend to avoid operating airguns, although not all individuals do so.) However, several of the considerations that are relevant in assessing the impact of typical seismic surveys with airgun arrays are applicable here:

(1) ''Ramping up'' (soft start) is standard operational protocol during startup of large airgun arrays in many jurisdictions. Ramping up involves starting the airguns in sequence, usually commencing with a single airgun and gradually adding additional airguns. This practice will be employed during the Liberty seismic project when either airgun array is operated.

(2) It is unlikely that cetaceans would be exposed to airgun pulses at a high enough level for a long enough period to cause more than mild TTS given the relatively small airgun array and the movement of both the vessel and the marine mammal. In this project, most of the planned seismic survey will be in very shallow water nearshore of the barrier islands. The propagation of the sounds generated is expected to be very limited offshore of the islands, where most of the baleen whales are expected to occur.

(3) With a large airgun array, TTS would be most likely in odontocetes that bow-ride or in odontocetes or pinnipeds that linger near the airguns. In the present project, BPXA anticipates the 190 and 180 dB distances to be 390 m and 880 m (0.24 mi and 0.55 mi), respectively, for the 8–gun array (Table 3 in BPXA's application and Table 1 below). Only seals could be expected to be potentially close to the airguns, and no species that occur within the project area are expected to bow-ride.(4) There is a possibility that a small number of seals (which often show little or no avoidance of approaching seismic vessels) could occur close to the airguns and that they might incur slight TTS if no mitigation action (shutdown) were taken.

NMFS (1995, 2000) concluded that cetaceans and pinnipeds should not be exposed to pulsed underwater noise at received levels exceeding, respectively, 180 and 190 dB re 1 Pa (rms). The 180- and 190–dB distances for the airguns operated by BPXA may be found to vary with array depth, however, conservative estimates have been used (390 m and 880 m, 0.24 mi and 0.55 mi, respectively; see Table 3 in the application and Table 1 below) until results from field measurements are available (see Section 13.2 of BPXA's application and the Monitoring section below). Furthermore, established 190- and 180–dB re 1 µPa (rms) criteria are not considered to be the levels above which TTS might occur. Rather, they are the received levels above which, in the view of a panel of bioacoustics specialists convened by NMFS before TTS measurements for marine mammals started to become available, one could not be certain that there would be no injurious effects, auditory or otherwise, to marine mammals. As summarized above, data that are now available imply that TTS is unlikely to occur unless bow-riding odontocetes are exposed to airgun pulses much stronger than 180 dB re 1 µPa rms (Southall *et al.*, 2007). Since no bow-riding species occur in the study area, it is unlikely such exposures will occur.

(PTS) – When PTS occurs, there is physical damage to the sound receptors in the ear. In some cases, there can be total or partial deafness, whereas in other cases, the animal has an impaired ability to hear sounds in specific frequency ranges.

There is no empirical evidence that exposure to pulses of airgun sound can cause PTS in any marine mammal, even with large arrays of airguns (see Southall *et al.*, 2007). However, given the possibility that mammals close to an airgun array might incur TTS, there has been further speculation about the possibility that some individuals occurring very close to airguns might incur PTS. Single or occasional occurrences of mild TTS are not indicative of permanent auditory damage in terrestrial mammals. 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. PTS might occur at a received sound level at least several decibels above that inducing mild TTS if the animal were exposed to the strong sound pulses with very rapid rise time see Appendix C of BPXA's application.

It is highly unlikely that marine mammals could receive sounds strong enough (and over a sufficient duration) to cause permanent hearing impairment during a project employing the airgun sources planned here. In the proposed project, marine mammals are unlikely to be exposed to received levels of seismic pulses strong enough to cause more than slight TTS. Given the higher level of sound necessary to cause PTS, it is even less likely that PTS could occur. In fact, even the levels immediately adjacent to the airgun may not be sufficient to induce PTS, especially because a mammal would not be exposed to more than one strong pulse unless it swam immediately alongside the airgun for a period longer than the inter-pulse interval. Baleen whales, and belugas as well, generally avoid the immediate area around operating seismic vessels. The planned monitoring and mitigation measures, including visual monitoring, power- downs, and shutdowns of the airguns when mammals are seen within the safety radii, will minimize the already-minimal probability of exposure

of marine mammals to sounds strong enough to induce 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, and other types of organ or tissue damage. However, studies examining such effects are very limited. If any such effects do occur, they probably would be limited to unusual situations when animals might be exposed at close range for unusually long periods. It is doubtful that any single marine mammal would be exposed to strong seismic sounds for sufficiently long that significant physiological stress would develop. That is especially so in the case of the proposed project where the airgun configuration focuses most energy downward and the source vessels are moving at 4–5 knots (7.4–9.3 km/hr). The faster a seismic vessel moves, the less time an individual marine mammal would be exposed to the noise source. Only individuals swimming close to, parallel to, and at the same speed as the vessel would incur a number of high intensity sounds. This medium airgun array would only have 190 and 180 dB distances of 390 and 880 m (0.24 and 0.55 mi), respectively.

In general, little is known about the potential for seismic survey sounds to cause auditory impairment or other physical effects in marine mammals. Available data suggest that such effects, if they occur at all, would be limited to short distances or more likely to projects involving large airgun arrays. However, the available data do not allow for 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 seismic vessels, including most baleen whales, some odontocetes (including belugas), and some pinnipeds, are especially unlikely to incur auditory impairment or other physical effects. Also, the planned monitoring and mitigation measures include shutdowns of the airguns, which will reduce any such effects that might otherwise occur.

Stranding and Mortality

Marine mammals close to underwater detonations of high explosives can be killed or severely injured, and their auditory organs are especially susceptible to injury (Ketten *et al.*, 1993; Ketten, 1995). Airgun pulses are less energetic and have slower rise times, and there is no evidence that they can cause serious injury, death, or stranding even in the case of large airgun arrays. However, the association of mass strandings of beaked whales with naval exercises, and, in one case, a seismic survey, has raised the possibility that beaked whales exposed to strong pulsed sounds may be especially susceptible to injury and/or behavioral reactions that can lead to stranding (more details are provided in Appendix C of BPXA's application). However, no beaked whales are found within this project area. Due to the shallow water environment, medium airgun arrays, and planned monitoring and mitigation measures of the proposed survey, the mortality of marine mammal species is not expected.

Potential Effects of Pinger Signals on Marine Mammals

A pinger system (Dyne Acoustical Pingers) and acoustic release/transponders (Benthos) will be used during seismic operations to position the receivers and locate and retrieve the batteries. Sounds from these pingers are very short pulses. The Dyne pinger has a source level ranging from approximately 188–193 dB re 1 μPa at 1 m in a frequency range of 19–36 kHz, and the benthos has sources levels of approximately 192 dB re 1 μPa at 1 m in a frequency range of 7–15 kHz. Pulses are emitted on command from the operator aboard the source vessel.

Masking

The pinger produces sounds within the frequency range that could be detected by some seals and baleen whales, as they can hear sounds at frequencies up to 36 kHz. However, marine mammal communications will not be masked appreciably by the pinger signals. This is a consequence of the relatively low power output, low duty cycle, and brief period when an individual mammal is likely to be within the area of potential effects.

Behavioral Responses

Marine mammal behavioral reactions to other pulsed sound sources are discussed above, and responses to the pinger are likely to be similar to those for other pulsed sources if received at the same levels. However, the pulsed signals from the pinger are much weaker than those from the airgun. Therefore, behavioral responses are not expected unless marine mammals are very close to the source. The maximum reaction that might be expected would be a startle reaction or other short-term response. NMFS (2001) has concluded that momentary behavioral reactions ''do not rise to the level of taking.''

Hearing Impairment and Other Physical Effects

Source levels of the pinger are much lower than those of the airguns (see above). It is unlikely that the pinger produces pulse levels strong enough to cause temporary hearing impairment or physical injuries even in an animal that is (briefly) in a position near the source.

Estimated Take of Marine Mammals by Incidental Harassment

The anticipated harassments from the activities described above may involve temporary changes in behavior. There is no evidence that the planned activities could result in serious injury or mortality, for example due to collisions with vessels or strandings. Disturbance reactions, such as avoidance, are very likely to occur amongst marine mammals in the vicinity of the source vessel. The mitigation and monitoring measures proposed to be implemented (see below) during this survey are based on Level B harassment criteria and will minimize any potential risk to injury.

The methodology used by BPXA to estimate incidental take by harassment by seismic and the numbers of marine mammals that might be affected in the proposed seismic acquisition activity area in the Beaufort Sea is presented here. The density estimates for the species covered under this proposed IHA are based on the estimates by Moore *et al.* (2000b) for beluga whales, Miller *et al.* (2002) for bowhead whales, and Moulton *et al.* (2003) and Frost *et al.* (2003) for ringed seals. The estimates for the number of marine mammals that might be affected during the proposed OBC seismic survey in the Liberty area are based on expected marine mammal density and anticipated area ensonified by levels of greater than 170 and 160 dB re 1 μPa.

In its application, BPXA provides estimates of the number of potential ''exposures'' to sound levels greater than 160 dB re 1 μPa (rms) and greater than 170 dB. BPXA states that while the 160–dB criterion applies to all species of cetaceans and pinnipeds, BPXA believes that a 170–dB criterion should be considered appropriate for delphinids and pinnipeds, which tend to be less responsive, whereas the 160–dB criterion is considered appropriate for other cetaceans (LGL, 2007). However, NMFS has noted in the past that it is unaware of any empirical evidence to indicate that some delphinid species do not respond at the lower level (i.e., 160 dB). As a result, NMFS will estimate Level B harassment takes based on the 160–dB criterion.

Expected density of marine mammals in the survey area of operation and area of influence are based on best available data. Density data derived from studies conducted in or near the proposed survey area are used for calculations, where available. When estimates were derived from data collected in regions, habitats, or seasons that differ from the proposed seismic survey, adjustments to reported population or density estimates were made to account for these differences insofar as possible (see Section 6.1 of BPXA's application).

The anticipated area to be ensonified by levels of greater than 160 dB re 1 µPa is a combination of the area covered by the approximately 3,219 km (2,000 mi) survey lines and the estimated safety radii. The close spacing of neighboring vessel tracklines within the planned seismic survey area results in a limited area exposed to sounds of 160 dB or greater, while much of that area is exposed repeatedly.

Marine Mammal Density Estimates

The duration of the seismic data acquisition in the Liberty area is estimated to be approximately 40 days, based on a continuous 24–hr operation. This can extend to a maximum of 60 days taking into account unpredictable delays. It is expected that the data acquisition can be completed during the months of July and August. However, if further data acquisition is required after August, the seismic activities may resume in September and/or October after completion of the whaling season and in accordance with a CAA. Therefore, the nearshore marine mammal densities for the summer period have been applied to 95 percent of the total trackline kilometers. The fall densities have been applied to the remaining 5 percent.

Most marine mammals in the Alaskan Beaufort Sea are migratory, occupying different habitats and/or locations during the year. The densities can therefore vary greatly within seasons and for different locations. For the purpose of this IHA request, different densities have been derived for the summer (late July through August) and the fall (September through early October). In addition to seasonal variation in densities, spatial differentiation is also an important factor for marine mammal densities, both in latitudinal and longitudinal gradient. Taking into account the size and location of the proposed seismic survey area and the associated area of influence, only the nearshore zone (defined as the area between the shoreline and the 50 m, 164 ft, line of bathymetry) in the western part of the Beaufort Sea (defined as the area west of 141° W.) is relevant for the density calculations. If the best available density data cover other zones than the nearshore zone or areas outside the western part of the Beaufort Sea, densities were derived based on expert judgment.

Ideally, when calculating densities from marine mammal distribution survey data, two correction factors need to be taken into account: (1) detectability bias [f(0)] and (2) availability bias [g(0)]. The detectability bias is associated with the diminishing sightability when the distance between the observation point and marine mammal increases. The availability bias refers to the fact that marine mammals may be present in the area but are not available to the observer to be sighted (i.e., beneath the water surface). The uncorrected number of marine mammals observed is therefore always lower than the actual numbers present. For most density data not enough information is available of the survey specifics or of marine mammal behavior and movement patterns to calculate these two correction factors. The density estimates provided here are based on uncorrected data, except for the beluga and bowhead whale densities. Correction factors were applied to the data from Moore *et al.* (2000b) and Miller *et al.* (2002) derived from Harwood *et al.* (1996).

Because the available density data are not always representative for the area of interest, and correction factors were not always known, there is some uncertainty in the data and assumptions used in the density calculations. To provide allowance for these uncertainties, maximum estimates of the numbers potentially affected have been provided in addition to average densities. The marine mammal densities presented are believed to be close to, and in most cases, higher than the densities that are expected to be encountered during the survey.

Cetaceans

The densities of beluga and bowhead whales present in the Beaufort Sea are expected to vary by season and location. During the early and mid-summer, most belugas and bowheads are found in the Canadian Beaufort Sea or adjacent areas. During fall, both species migrate through the Alaskan Beaufort Sea, sometimes interrupting their migration to feed.

Beluga Whales – Beluga density estimates for the Alaskan Beaufort Sea are derived from aerial survey data obtained by Moore *et al.* (2000b). The overall beluga whale density (i.e., total sightings from all depth regimes) was calculated with these data, and this density was assumed to represent the average offshore density for the summer season in the eastern Beaufort Sea. During the summer season, beluga whales are far more abundant in the offshore area, and so the densities for the nearshore area were estimated to be 10 percent of the offshore densities.

During the summer season, most beluga whales are found in offshore waters of the eastern Beaufort Sea and few are expected to be encountered in the western part of the Beaufort Sea, especially in the inshore waters of the barrier islands (Davis and Evans, 1982; Harwood *et al.*, 1996; Richard *et al.*, 2001). The average density of beluga whales for the proposed survey was therefore estimated to be 10 percent of the density of the eastern Beaufort Sea (see Table 2 in BPXA's application).

In fall, during the westward migration, the offshore density is expected to be roughly equal across the eastern and western regions of the Alaskan Beaufort Sea. Also the depth distribution of migrating beluga whales is expected to be more equally distributed. For the autumn period, the density of beluga whales in the western Beaufort Sea was estimated to be 10 percent of the highest fall density calculated from Moore *et al.* (2000b; see Table 2 of the application). The maximum density estimates of beluga whales were calculated as 4x the average estimates.

Bowhead Whales – Bowhead sightings in the Alaskan Beaufort become more common as the whales start their westward migration in late August. Peak sighting rates occur near Kaktovik (east of the Liberty area) in September. The density data used in this IHA request are derived from Miller *et al.* (2002) who calculated the seasonal distribution and numbers of bowheads observed in the eastern Alaskan Beaufort Sea and adjacent Canadian waters from aerial surveys conducted by various researchers during the late summer and autumn of 1979–2000. Correction factors (Thomas *et al.*, 2002) were applied to these density estimates.Bowheads in the eastern Alaskan Beaufort Sea and Canada occur in offshore habitats in summer. From late August-early September shallower habitats are selected during years with moderate and light ice-cover and deeper waters in years with heavy ice-cover. In the western Beaufort Sea during the period July-August very few bowhead whales are expected to be present in the nearshore zone because spring migration normally ends by mid-June (Braham *et al.*, 1984; Moore and Reeves,

1993), and the fall westward migration usually does not begin until late August or early September (Braham *et al.*, 1980; Moore and Reeves, 1993). The densities calculated from 14 surveys in August in water depths of >50 m (164 ft) in the eastern Alaskan and Canadian Beaufort Sea were used as the basis for the summer density calculations in this IHA request. Because bowheads mainly occur in offshore waters during the summer season with decreasing abundance from east to west, density estimates for the proposed survey were estimated to be 10 percent of the reported densities by Miller *et al.* (2002; see Table 2 in BPXA's application).

Many of the bowhead whales will be migrating westward during the fall period, mostly in the nearshore and continental habitat zones. So, the fall densities of bowhead whales provided for the eastern Alaskan and Canadian Beaufort Sea are considered to be similar as those for the western Beaufort Sea. Average and maximum densities for the autumn period were based on calculated densities of 79 surveys conducted in the period September October for the combined nearshore and continental zones (Miller *et al.*, 2002). Because the whale density during the fall migration is generally higher in the nearshore area (<50m, 164 ft), the estimates provided were multiplied by two to obtain nearshore fall densities (see Table 2 in the application). For the proposed survey, 10 percent of these estimates were used.

Both the summer and autumn densities are assumed to be conservative given that the proposed survey takes place entirely inside the barrier islands.

Pinnipeds

Pinnipeds in the polar regions are mostly associated with sea ice and most census methods count pinnipeds when they are hauled out on the ice. To account for the proportion of animals present but not hauled out (availability bias) or seals present on the ice but missed (detection bias), a correction factor should be applied to the ''raw'' counts. This correction factor is very dependent on the behavior of each species. To estimate the proportion of ringed seals visible resting on the ice surface, radio tags were placed on seals during the spring months during 1999–2003 (Kelly *et al.*, 2006). Applying the probability that seals were visible to the data from past aerial surveys indicated that the fraction of seals visible varied from less than 0.4 to more than 0.75 between survey years. The environmental factors that are important in explaining the availability of seals to be counted were found to be time of day, date, wind speed, air temperature, and days from snow melt (Kelly *et al.*, 2006). No correction factors have been applied to the seal densities reported here. The seismic activities covered by the present IHA request will occur during the open water season. Seal density during this period is generally lower than during spring when animals are hauled out on the ice. No distinction is made in density of pinnipeds between summer and autumn season.

Ringed Seals – Seal counts through springtime aerial surveys, conducted in the period 1997–2002 in Prudhoe Bay and Foggy Island Bay area, reported (uncorrected) ringed seal densities ranging from 0.43 to 0.83 seals per km^2 in water over 3 m (10 ft) in depth (Moulton *et al.*, 2002). Similar surveys in the Prudhoe Bay area conducted during the years 1997, 1998, and 1999 estimated consistent higher densities of seals (0.73 versus 0.43 seals/km^2 in 1997; 0.64 vs 0.39 seals/km^2 in 1998, and 0.87 vs 0.63 seals/km^2 in 1999; Frost *et al.*, 2002, 2004). It is not clear why such different results were obtained from similar surveys with considerable overlap in timing and methods. For this IHA request the average density was calculated from the combined 1997–2002 ringed seal densities from Moulton *et al.* (2003) and Frost *et al.* (2003). The highest observed density for the Prudhoe Bay and Liberty area was used as the maximum. Because these density estimates were calculated from spring data and the numbers of seals is expected to be much lower during the open water season, the densities used for the proposed survey were (conservatively) estimated to be 50 percent of the spring densities (see Table 2 in BPXA's application). Due to the lack of open water seal density data, this number is considered to be realistic.

Bearded Seals – During the 2002 spring aerial seal survey in the Prudhoe Bay area, a total of nine single bearded seal sightings were recorded. Four sightings were in the pack ice north of the ice edge and five were on the landfast ice. Of the bearded seals observed in the landfast ice, two were sighted south of the barrier islands. Several bearded seals were seen in 1999–2001 but none during 1997–1998. Density calculations were not conducted because of the small number of bearded seals recorded (Moulton *et al.*, 2002). During a vessel based marine mammal survey for an OBC survey near and west of the Liberty area, all three seal species were observed, with 92 percent ringed seals, 7 percent bearded seals, and 1 percent spotted seals (Harris *et al.*, 1997). The densities for bearded seals were therefore calculated as 7 percent of the ringed seal densities.

Spotted Seals – Spotted seals have seldom been observed in the survey area. During a vessel based marine mammal survey for an OBC survey near and west of the Liberty area, all three seal species were observed, with 92 percent ringed seals, 7 percent bearded seals, and 1 percent spotted seals (Harris *et al.*, 1997). The densities for spotted seals were therefore calculated as 1 percent of the ringed seal densities.

Exposure Calculations for Marine Mammals

Impacts on marine mammals from the planned seismic survey focus on the sound sources of the seismic airguns. This section describes the methodology used to estimate the safety radii for received levels of 190, 180, and 160 dB re 1 μPa for pulsed sounds emitted by the airgun array with a total discharge volume of 880 in3 and the assumptions underlying these calculations (more specifications of this airgun array are included in Appendix B of BPXA's application). The distance to reach received sound levels of 160 dB re 1 μPa (rms) will be used to calculate the potential numbers of marine mammals that may be exposed to these sound levels. The distances to received levels of 180 and 190 dB re 1 μPa (rms) are mainly relevant as safety radii for mitigation purposes (see below).

Greeneridge estimated radii to specific received sound pressure levels from the airgun arrays that will be operated at BPXA's Liberty site (in Foggy Island Bay) during the open water season in 2008. The results from transmission loss experiments conducted in 1997 (Greene, 1998) during the open-water season at the Liberty Prospect were used to calculate the estimated distances of received levels of the proposed airgun source. Several facts and assumptions were used for the computation, which are described in detail in Section 6.2 of BPXA's application.

Table 3 in BPXAs application and Table 1 here outline the estimated distances for specified received levels from airgun arrays with total discharge volumes of 440 in^3 and 880 in^3 in both 1 and 4 m (3.3 and 13 ft) of water. The estimated distances are based on transmission loss profiles within the barrier islands. It is expected that these islands will function as a sound barrier beyond which sound will not propagate much, although most propagation is expected through the channels between the islands. The estimated distances for 120 dB and maybe 160 dB (especially

for the source lines closest to the islands) may be overestimations.

TABLE 1. ESTIMATED DISTANCES FOR SPECIFIED RECEIVED LEVELS FROM AIRGUN ARRAYS WITH A TOTAL DISCHARGE VOLUME OF 440 IN3 AND 880 IN3. NOTE THAT THE ARRAY DEPTH IS AN IMPORTANT FACTOR FOR SOUND PROPAGATION LOSS.

Received levels (dB re 1 μPa rms) a	Distance in meters b(array depth 1 m)		Distance in meters b(array depth 4 m)	
	440 in^3	880 in^3	440 in^3	880 in^3
190	120	235	200	390
180	280	545	462	880
170	640	1,190	1,030	1,830
160	1,380	2,380	2,090	3,430
120	10,800	13,700	12,900	16,000

[a] The distance in meters for each received level was calculated using the radius calculator available to the public at www.greeneridge.com (courtesy of W.C. Burgess, Ph.D.)

The rms (root mean square) received SPLs that are used as impact criteria for marine mammals are not directly comparable to the peak or peak-to-peak values normally used by geophysicists to characterize source levels of airguns (see Appendix B in BPXA's application). The measurement units used to describe airgun sources, peak or peak-to-peak dB, are always higher than the rms dB referred to in much of the biological literature and in the NMFS criteria. A measured broadband received level of 160 dB re 1 μPa (rms) in the far field would typically correspond to a peak measurement of about 170 to 172 dB re 1 μPa and to a peak-to-peak measurement of about 176 to 178 dB re 1 μPa, as measured for the same pulse received at the same location (Greene, 1997; McCauley *et al.*, 1998, 2000). The precise difference between rms and peak or peak-to-peak values for a given pulse depends on the frequency content and duration of the pulse, among other factors. However, the rms level is always lower than the peak or peak-to-peak level for an airgun-type source. Additional discussion of the characteristics of airgun pulses is included in Appendix C of the application.

The distances from the source to specific received sound levels as summarized in Table 3 of the application and Table 1 above are estimates used for the purpose of this IHA request. These estimated distances will be verified with field measurements at the start of the survey.

The radii associated with received sound levels of 160 and/or 170 dB re 1 μPa (rms) or higher are used to calculate the number of potential marine mammal ''exposures'' to sounds that have the potential to impact their behavior. The 160–dB criterion is applied for all species, and for pinnipeds additional calculations were made for the 170–dB criterion.

The potential number of each species that might be exposed to received levels of 160 and 170 dB re 1 μPa (rms) or greater is calculated by multiplying:

- The expected species density as provided in Table 2 of BPXA's application; by
- The anticipated area to be ensonified to that level during airgun operations.

The area expected to be ensonified was determined by entering the seismic survey lines into a MapInfo Geographic Information System (GIS). GIS was then used to identify the relevant areas by ''drawing'' the applicable 160–dB buffer from Table 3 in the application or Table 1 above around each seismic source line and then to calculate the total area within the buffers. This method avoids the large overlap of buffer zones from each seismic source line and hence an overestimation of the potential number of marine mammals exposed.

Some of the animals, particularly migrating bowhead whales, might show avoidance reactions before being exposed to sound levels of 160 dB re 1 μPa (rms) or higher. During autumn, some migrating bowheads have been found to react to a noise threshold closer to 130 dB re 1 μPa (rms; Miller *et al.*, 1999; Richardson *et al.*, 1999). The numbers potentially impacted at thresholds of 160 and 170 dB re 1 μPa (rms) or greater, however, are calculated as if no avoidance behavior takes place (see Table 4 in BPXA's application).

The estimates show that one endangered cetacean species (the bowhead whale) is expected to be exposed to sound levels greater than 160 dB unless bowheads avoid the survey vessel before this received level is reached. Migrating bowheads are likely to do so, though many of the summering bowheads probably will not. BPXA's respective average and maximum estimated numbers of exposed bowhead whales, as rounded numbers, are shown in the two right-hand columns in Table 4 of the application. Note that 95 percent of the survey coverage is expected in July and August, before the bowhead fall migration, and only 5 percent during fall migration when most bowheads are passing the area, offshore of the barrier islands.

Average and maximum estimates of the number of beluga whales potentially exposed are also summarized in Table 4 of the application. Gray whales are not expected to be encountered but might be present in very low numbers. The maximum expected numbers exposed for this species is provided in Table 6 of the application and Table 2 below.

Pinnipeds are not likely to react to seismic sounds unless the received levels are 170 dB re 1 μPa (rms), and many of those exposed to 170 dB will still not react overtly (Harris *et al.*, 2001; Moulton and Lawson 2002; Miller *et al.*, 2005). The ringed seal is the most widespread and abundant pinniped in ice-covered arctic waters, and there is a great deal of annual variation in population size and distribution of these marine mammals.

Ringed seals account for the majority of marine mammals expected to be encountered, and hence exposed to airgun sounds with received levels of 160 dB and 170 dB re 1 μPa (rms) or greater during the proposed seismic survey. The average (and maximum) estimates of the number of ringed seals exposed to these received levels are

summarized in Table 5 of BPXA's application.

The other two species that could be encountered are the bearded seal and spotted seal. The likelihood of encounters, however, is much lower than for ringed seals with average and maximum numbers potentially exposed to 160 and 170 dB re 1 μPa (rms) or greater as shown in Table 5 of the application.

The following table indicates the requested take levels for each species, as well as the estimated percent of the population that these numbers constitute. Only small numbers of all species are expected to be taken by harassment during the proposed OBC seismic survey, with less than 1 percent of the population of each species requested for take authorization.

TABLE 2. SUMMARY OF THE NUMBER OF MARINE MAMMALS POTENTIALLY EXPOSED TO RECEIVED SOUND LEVELS OF ≥160 DB AND ≥170 DB (FOR PINNIPEDS ONLY) DURING BPXA=S PROPOSED SEISMIC SURVEY IN THE LIBERTY AREA, BASED ON RADII FOR 880 IN3 ARRAY AND 4 M (13 FT) ARRAY DEPTH.

Species	Exposures to ≥160 dB		Exposures to ≥170 dB		Rqstd Take	Estimated % of population
	Average	Maximum	Average	Maximum		
Cetaceans						
Beluga Whale	1	6	NA	NA	6 (50)*	0.02 (0.13)*
Bowhead Whale	2	12	NA	NA	12	0.09
Gray Whale	NA	NA	NA	NA	3	0.02
Pinnipeds						
Ringed Seal	156	222	141	201	225	0.07
Bearded Seal	11	16	10	14	20	0.01
Spotted Seal	2	2	2	5	20	0.01

* Belugas are known to show aggregate behavior and can occur in large numbers in nearshore zones. For the unlikely event that a group of belugas appears in the Liberty area during the seismic survey, this number is added to the requested authorization.

Conclusions

Impacts of seismic sounds on cetaceans are generally expected to be restricted to avoidance of a limited area around the seismic operation and short-term changes in behavior, falling within the MMPA definition of Level B harassment. The requested harassment authorization for each species is based on the estimated maximum numbers exposed to 160 dB re 1 μPa (rms) or greater from an airgun array operating at 4 m (13 ft) depth. This is the highest number of the various estimates.

The estimated numbers of cetaceans and pinnipeds potentially exposed to sound levels sufficient to cause behavioral disturbance are very low percentages of the population sizes in the Bering-Chukchi-Beaufort seas. For the bowhead whale, a species listed as endangered under the ESA, BPXA's estimates include approximately 12 bowheads. This is approximately 0.1 percent of the estimated 2008 Bering-Chukchi-Beaufort population of 13,330 (based on a population size of 10,545 in 2001 and an annual population growth of 3.4 percent, cf Table 1 in the application). The beluga whale is not expected to occur in or near the Liberty area, however some individuals might be observed. Belugas also show aggregate behavior, and so there is the unlikely event that if belugas appear in this area it might be in a larger group. In both circumstances these numbers constitute very low percentages of the estimated population size (see Table 6 in the application and Table 2 above).

The many reported cases of apparent tolerance by cetaceans of seismic operations, vessel traffic, and some other human activities show that co-existence is possible. Mitigation measures such as controlled speed, look outs, non-pursuit, shutdowns or power-downs when marine mammals are seen within defined ranges, and avoiding migration pathways when animals are likely most sensitive to noise will further reduce short-term reactions, and minimize any effects on hearing sensitivity. In all cases, the effects are expected to be short-term, with no lasting biological consequence. Subsistence issues are addressed below.

From the few pinniped species likely to be encountered in the study area, the ringed seal is by far the most abundant marine mammal that could be encountered. The estimated number of ringed seals potentially exposed to airgun sounds at received levels of 160 dB re 1 μPa (rms) during the seismic survey represent less than 0.1 percent of the Bering-Chukchi-Beaufort stock, and these are even smaller portions for bearded and spotted seals (see Table 6 in the application and Table 2 above). It is probable that at this received level, only a small percentage of these seals would actually experience behavioral disturbance. The short-term exposures of pinnipeds to airgun sounds are not expected to result in any long-term negative consequences for the individuals or their stocks.

Potential Impact on Habitat

The proposed seismic survey will not result in any permanent impact on habitats used by marine mammals or to the food sources they utilize. The proposed activities will be of short duration in any particular area at any given time; thus any effects would be localized and short-term. The main impact issue associated with the proposed activity will be temporarily elevated sound levels and the associated direct effects on marine mammals, as discussed above.

During the seismic study only a small fraction of the available habitat would be ensonified at any given time. Disturbance to fish species would be short-term, and fish would return to their pre-disturbance behavior once the seismic activity ceases. Thus, the proposed survey would have little, if any, impact on the abilities of marine mammals to feed in the area where seismic work is planned.

Some mysticetes, including bowhead whales, feed on concentrations of zooplankton. Some feeding bowhead

whales may occur in the Alaskan Beaufort Sea in July and August, and others feed intermittently during their westward migration in September and October (Richardson and Thomson [eds.], 2002; Lowry *et al.*, 2004). A reaction by zooplankton to a seismic impulse would only be relevant to whales if it caused concentrations of zooplankton to scatter. Pressure changes of sufficient magnitude to cause that type of reaction would probably occur only very close to the source, if any would occur at all. Impacts on zooplankton behavior are predicted to be negligible, and that would translate into negligible impacts on feeding mysticetes. More importantly, bowhead whales are not expected to occur or feed in the shallow area covered by the seismic survey. Thus, the proposed activity is not expected to have any habitat-related effects that could cause significant or long-term consequences for individual marine mammals or their populations.

Effects of Seismic Noise and Other Related Activities on Subsistence

The disturbance and potential displacement of marine mammals by sounds from seismic activities are the principal concerns related to subsistence use of the area. Subsistence remains the basis for Alaska Native culture and community. Marine mammals are legally hunted in Alaskan waters by coastal Alaska Natives. In rural Alaska, subsistence activities are often central to many aspects of human existence, including patterns of family life, artistic expression, and community religious and celebratory activities. The main species that are hunted include bowhead and beluga whales, ringed, spotted, and bearded seals, walruses, and polar bears . The importance of each of these species varies among the communities and is largely based on availability.

In the Beaufort Sea, bowhead and beluga whales are the species primarily harvested during the open water season, when the proposed seismic survey is planned. Bowhead whale hunting is the key activity in the subsistence economies of Barrow and two smaller communities, Nuiqsut and Kaktovik. The whale harvests have a great influence on social relations by strengthening the sense of Inupiat culture and heritage in addition to reinforcing family and community ties. Barrow residents focus hunting efforts on bowhead whales during the spring but can also conduct bowhead hunts in the fall. The communities of Nuiqsut and Kaktovik engage only in the fall bowhead hunt. Few belugas are present or harvested by Nuiqsut or Kaktovik.

The Nuiqsut subsistence hunt for bowhead whales has the potential to be impacted by the proposed seismic survey due to its proximity to Cross Island. Around late August, the hunters from Nuiqsut establish camps on Cross Island from where they undertake the fall bowhead whale hunt. The hunting period starts normally in early September and may last as late as mid-October, depending mainly on ice and weather conditions and the success of the hunt. Most of the hunt occurs offshore in waters east, north, and northwest of Cross Island where bowheads migrate and not inside the barrier islands (Galginaitis, 2007). Hunters prefer to take bowheads close to shore to avoid a long tow, but Braund and Moorehead (1995) report that crews may (rarely) pursue whales as far as 80 km (50 mi) offshore. The proposed seismic survey takes place within the barrier islands in very shallow water (<10 m, 33 ft) and has the potential to interfere with the hunt in two ways:

(1) Deflection of whales further offshore from sounds generated by seismic airguns. Due to the medium airgun array in combination with the shallow water environment of the survey and presence of barrier islands, most low frequency sounds are not expected to propagate into the main bowhead migration corridor.

(2) Interference with the hunt due to the presence of vessels near Cross Island.

Both concerns will be discussed with the native communities, and the survey will be conducted in compliance with the mitigation measures outlined in a CAA as a result of these communications.

Ringed seals are hunted mainly from October through June. Hunting for these smaller mammals is concentrated during the ice season because of larger availability of seals on the ice. In winter, leads and cracks in the ice off points of land and along the barrier islands are used for hunting ringed seals. Although ringed seals are available year-round, the seismic survey will not occur during the primary period when these seals are typically harvested.

The more limited seal harvest that takes place during the open water season starts around the second week of June. Hunters take boats on routes in the Colville River and much of Harrison Bay. The main seal hunt occurs in areas far west from the Liberty area, so impacts on the subsistence seal hunt are not expected. The potential for impacts on the seal hunt will however be discussed with the Nuiqsut community and specific provisions will be integrated in the survey in compliance with a CAA where applicable.

Potential impacts on subsistence uses of marine mammals are proposed to be mitigated by application of the procedures established in a CAA between the seismic operators, the Alaska Eskimo Whaling Commission (AEWC), and the Captains' Associations of Barrow, Nuiqsut, Kaktovik, Wainwright, Pt. Lay, and Pt. Hope. Under a CAA, the times and locations of seismic and other noise producing sources would likely be curtailed during times of active bowhead whale scouting and actual whaling activities within the traditional subsistence hunting areas of the potentially affected communities.

Plan of Cooperation (POC)

Regulations at 50 CFR 216.104(a)(12) require IHA applicants for activities that take place in Arctic waters to provide a 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. BPXA has begun negotiating a POC in the form of a CAA with representatives of the community of Nuiqsut, the AEWC, and the North Slope Borough (NSB) for the proposed 2008 Liberty seismic survey in Foggy Island Bay, Beaufort Sea. BPXA is working with the people of these communities and organizations to identify and avoid areas of potential conflict. Meetings that have taken place prior to the survey include:

- October 25, 2007: Meeting with AEWC and NSB representatives during the AEWC convention;
- October 29, 2007: Meeting with NSB Wildlife Group to provide updates of the survey and to obtain information on their opinions and views on mitigation and monitoring requirements.
- April 2008: As in previous years, BPXA participated in the ''open water peer/stakeholder review meeting'' convened by NMFS in Anchorage in mid-April 2008, where representatives of the AEWC and NSB also participated.
- Subsequent meetings with whaling captains, other community representatives, the AEWC, NSB, and any other stakeholders will be held as necessary to negotiate the terms of the plan and to coordinate the planned seismic survey operation with subsistence hunting activity.

A CAA would cover the phases of BPXA's seismic survey planned to occur in July and August and if required after the whaling season or as agreed to in a CAA with the respective communities. The purpose of this plan will be to

identify measures that will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses and to ensure good communication between BPXA (including the seismic team leads), native communities along the coast, and subsistence hunters at sea.

The proposed POC may address the following: (1) operational agreement and communications procedures; (2) where/when agreement becomes effective; (3) general communications scheme; (4) on-board Inupiat observer; (5) conflict avoidance; (6) seasonally sensitive areas; (7) vessel navigation; (8) marine mammal monitoring activities; (9) measures to avoid impacts to marine mammals; (10) measures to avoid conflicts in areas of active whaling; (11) emergency assistance; and (12) dispute resolution process.

It should be noted that NMFS must make a determination under the MMPA that an activity would not have an unmitigable adverse impact on the subsistence needs for marine mammals. While this includes usage of both cetaceans and pinnipeds, the primary impact by seismic activities is expected to be impacts from noise on bowhead whales during its westward fall feeding and migration period in the Beaufort Sea. NMFS has defined unmitigable adverse impact as an impact resulting from the specified activity: (1) That is likely to reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by: (i) causing the marine mammals to abandon or avoid hunting areas, (ii) directly displacing subsistence users, or (iii) placing physical barriers between the marine mammals and the subsistence hunters; and (2) That cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met (50 CFR 216.103).

However, while a signed CAA allows NMFS to make a determination that the activity will not have an unmitigable adverse impact on the subsistence use of marine mammals, if one or both parties fail to sign the CAA, then NMFS will make the determination that the activity will or will not have an unmitigable adverse impact on subsistence uses of marine mammals. This determination may require that the IHA contain additional mitigation measures in order for this decision to be made.

Proposed Mitigation Measures

The introduction of pulsed sounds generated by seismic airguns is the main source of potential impacts on marine mammal species and the focus of this request. The response of the animal depends on various factors, but short-term behavioral responses are the most likely to occur. No serious or lethal injuries are expected. Implementation of the proposed mitigation measures described below will reduce the potential impacts to marine mammals. This section describes the measures that have been included in the survey design and those that are proposed to be implemented during the survey.

Mitigation measures to reduce any potential impact on marine mammals that have been considered and included in the planning and design phase are as follows:

- The area for which seismic data is required, i.e., the well path from SDI to the Liberty Prospect, has been minimized by re-analyzing and re-interpreting existing data (to the extent available and usable). This has led to a reduction in size from approximately 220 km^2 (85 mi^2) to approximately 91 km^2 (35 mi^2). This is not the total seismic area extent that includes the seismic source vessels and receiver lines, although they are related.
- The total airgun discharge volume has been reduced to the minimum volume needed to obtain the required data. The total volume for the proposed survey is 880 in3 (consisting of two 4–gun arrays of 440 in^3).
- Two seismic source vessels will be used simultaneously (alternating their shots) to minimize the total survey period. This will allow the survey to be completed prior to the start of the whale fall migration and whaling season (weather dependent).

The seismic survey will take place inside the barrier islands in nearshore shallow waters. The survey period will be July-August, prior to the bowhead whale migration season, with some contingency to obtain data in September/October after the whaling season, if necessary, in compliance with a CAA. It is unlikely that whales will be present in the nearshore zone where the seismic survey is taking place, and if they are present, the numbers are expected to be low. The main marine mammal species to be expected in the area is the ringed seal. With the proposed mitigation measures (see below), any effect on individuals are expected to be limited to short-term behavioral disturbance with a negligible impact on the species or stock.

The mitigation measures are an integral part of the survey in the form of specific procedures, such as: (1) speed and course alterations; (2) power-down, ramp up, and shutdown procedures; and (3) provisions for poor visibility conditions. For the implementation of these measures, it is important to first establish and verify the distances of various received levels that function as safety zones and second to monitor these safety zones and implement mitigation measures where required.

Establishment and Monitoring of Safety Zones

Greeneridge Sciences, Inc. estimated for BPXA the distances from the 880 in^3 seismic airgun array where sound levels 190, 180, and 160 dB re 1 μPa (rms) would be received (Table 3 in BPXA's application and Table 1 above). For these estimations, the results from transmission loss data obtained in the Liberty area in 1997 were used (Greene, 1998). The calculations included distances for a reduced array of 440 in^3 and two array depths (1 and 4 m, 3 and 13 ft). These calculations form the basis for estimating the number of animals potentially affected.

Received sound levels will be measured as a function of distance from the array prior to the start of the survey. This will be done for: (a) two 440 in^3 arrays (880 in^3), (b) one 440 in^3 array, and (c) one 70 in^3 airgun (smallest volume of array). BPXA will apply appropriate adjustments to the estimated safety zones (see Table 3 in the application or Table 1 above) based on measurements of the 880 in^3 (two 440 in^3) array. Results from measurements of the 440 in^3 and 70 in^3 data will be used for the implementation of mitigation measures to power down the sound source and reduce the size of the safety zones when required.

MMOs on board the vessels play a key role in monitoring the safety zones and implementing the mitigation measures. Their primary role is to monitor marine mammals near the seismic source vessel during all daylight airgun operations and during any nighttime start-up of the airguns. These observations will provide the real-time data needed to implement the key mitigation measures described below. When marine mammals are observed within or about to enter designated safety zones, airgun operations will be powered down (or shut down if necessary) immediately. These safety zones are defined as the distance from the source to a received level of 190 dB for pinnipeds and 180 dB for cetaceans. A specific dedicated vessel monitoring program to detect aggregations of baleen whales (12 or more) within the 160–dB zone or 4 or more bowhead whale cow-calf pairs within the 120–dB zone is not considered applicable here as none of these situations are expected in the proposed survey based on the estimated

safety zones. Monitoring options will be reconsidered if radii measured in the field are significantly larger than the estimated radii (and extend to areas where bowhead whales can be expected).

Speed and Course Alterations

If a marine mammal (in water) is detected outside the safety radius and, based on its position and the relative motion, is likely to enter the safety radius, the vessel's speed and/or direct course would be changed in a manner that does not compromise safety requirements. The animal's activities and movements relative to the seismic vessel will be closely monitored to ensure that the individual does not approach within the safety radius. If the mammal appears likely to enter the safety radius, further mitigative actions will be taken, i.e., either further course alterations or power-down or shutdown of the airgun(s).

Power-down Procedure

A power-down involves decreasing the number of airguns in use such that the radii of the 190–dB and 180–dB zones are decreased to the extent that observed marine mammals are not in the applicable safety zone. Situations that would require a power-down are listed below.

(1) When the vessel is changing from one source line to another, one airgun or a reduced number of airguns is operated. The continued operation of one airgun or a reduced airgun array is intended to: (a) alert marine mammals to the presence of the seismic vessel in the area and (b) retain the option of initiating a ramp up to full operations under poor visibility conditions.

(2) If a marine mammal is detected outside the safety radius but is likely to enter the safety radius, and if the vessel's speed and/or course cannot be changed to avoid the animal from entering the safety zone. As an alternative to a complete shutdown, the airguns may be powered- down before the animal is within the safety zone.

(3) If a marine mammal is already within the safety zone when first detected, the airguns may be powered-down immediately if this is a reasonable alternative to a complete shutdown. This decision will be made by the MMO and can be based on the results obtained from the acoustic measurements for the establishments of safety zones.

Following a power-down, operation of the full airgun array will not resume until the marine mammal has cleared the safety zone. The animal will be considered to have cleared the safety zone if it:

(1) Is visually observed to have left the safety zone;

(2) Has not been seen within the zone for 15 min in the case of small odontocetes and pinnipeds; or

(3) Has not been seen within the zone for 30 min in the case of mysticetes (large odontocetes do not occur within the study area).

Shutdown Procedure

A shutdown procedure involves the complete turn off of all airguns. Ramp-up procedures will be followed during resumption of full seismic operations. The operating airgun(s) will be shut down completely during the following situations:

(1) If a marine mammal approaches or enters the applicable safety zone, and a power-down is not practical or adequate to reduce exposure to less than 190 dB (rms; pinnipeds) or 180 dB (rms; cetaceans).

(2) If a marine mammal approaches or enters the estimated safety radius around the reduced source that will be used during a power-down.

Airgun activity will not resume until the marine mammal has cleared the safety radius. The animal will be considered to have cleared the safety radius as described above for power-down procedures.

Ramp-up Procedure

A ramp-up procedure will be followed when the airgun array begins operating after a specified duration with no or reduced airgun operations. The specified duration depends on the speed of the source vessel, the size of the airgun array that is being used, and the size of the safety zone, but is often about 10 min.

NMFS requires that, once ramp-up commences, the rate of ramp-up be no more than 6 dB per 5 min period. Ramp-up will likely begin with the smallest airgun, in this case, 70 in3. The precise ramp-up procedure has yet to be determined, but BPXA intends to follow the ramp-up guideline of no more than 6 dB per 5 min period (unless otherwise required). A common procedure is to double the number of operating airguns at 5–min intervals. During the ramp-up, the safety zone for the full 8–gun array will be maintained. A ramp-up procedure can be applied only in the following situations:

(1) If, after a complete shutdown, the entire 180 dB safety zone has been visible for at least 30 min prior to the planned start of the ramp-up in either daylight or nighttime. If the entire safety zone is visible with vessel lights and/or night vision devices, then ramp-up of the airguns from a complete shutdown may occur at night.

(2) If one airgun has operated during a power-down period, ramp-up to full power will be permissible at night or in poor visibility, on the assumption that marine mammals will either be alerted by the sounds from the single airgun and could move away or may be detected by visual observations.

(3) If no marine mammals have been sighted within or near the applicable safety zone during the previous 15 min in either daylight or nighttime, provided that the entire safety zone was visible for at least 30 min.

Poor Visibility Conditions

BPXA plans to conduct 24–hr operations. Regarding nighttime observations, note that there will be no periods of total darkness until mid-August. MMOs are proposed not to be on duty during ongoing seismic operations at night, given the very limited effectiveness of visual observation at night. At night, bridge personnel will watch for marine mammals (insofar as practical) and will call for the airguns to be shut down if marine mammals are observed in or about to enter the safety zones. If a ramp-up procedure needs to be conducted following a full shutdown at night, two MMOs need to be present to monitor for marine mammals near the source vessel and to determine if proper conditions are met for a ramp-up. The proposed provisions associated with operations at night or in periods of poor visibility include:

(1) During any nighttime operations, if the entire 180–dB safety radius is visible using vessel lights and/or night vision devices, then start of a ramp-up procedure after a complete shutdown of the airgun array may occur following a 30–min period of observation without sighting marine mammals in the safety zone.

(2) If during foggy conditions or darkness (which may be encountered starting in late August), the full 180–dB safety zone is not visible, the airguns cannot commence a ramp-up procedure from a full shutdown.

(3) If one or more airguns have been operational before nightfall or before the onset of foggy conditions, they can remain operational throughout the night or foggy conditions. In this case, ramp-up procedures can be initiated, even though the entire safety radius may not be visible, on the assumption that marine mammals will be alerted by the sounds from the single airgun and have moved away.

BPXA has considered the use of passive acoustic monitoring (PAM) in

conjunction with visual monitoring to allow detection of marine mammals during poor visibility conditions, such as fog. The use of PAM for this specific survey might not be very effective because the species most commonly present (ringed seal) is not vocal during this time period.

Proposed Monitoring and Reporting Plan

BPXA proposes to sponsor marine mammal monitoring during the Liberty seismic survey in order to implement the proposed mitigation measures that require real-time monitoring, to satisfy the anticipated monitoring requirements of the IHA, and to meet any monitoring requirements agreed to as part of the POC/CAA. The monitoring plan is described below.

The monitoring work described here is planned as a self-contained project independent of any other related monitoring projects that may occur simultaneously in the same area. Provided that an acceptable methodology and business relationship can be worked out in advance, BPXA is prepared to work with other energy companies in its efforts to manage, understand, and fully communicate information about environmental impacts related to its activities.

Vessel-based Visual Monitoring by MMOs

There will be three MMOs on each source vessel during the entire survey. These vessel-based MMOs will monitor marine mammals near the seismic source vessels during all daylight hours and during any ramp-up of airguns at night. In case the source vessels are not shooting but are involved in the deployment or retrieval of receiver cables, the MMOs will remain on the vessels and will continue their observations. The main purpose of the MMOs is to monitor the established safety zones and to implement the mitigation measures described above.

The main objectives of the visual marine mammal monitoring from the seismic source vessels are as follows:

(1) To form the basis for implementation of mitigation measures during the seismic operation (e.g., course alteration, airgun power-down, shutdown and ramp-up);

(2) To obtain information needed to estimate the number of marine mammals potentially affected, which must be reported to NMFS within 90 days after completion of the 2008 seismic survey program;

(3) To compare the distance and distribution of marine mammals relative to the source vessel at times with and without seismic activity; and

(4) To obtain data on the behavior and movement patterns of marine mammals observed and compare those at times with and without seismic activity.

Note that potential to successfully achieve objectives 3 and 4 is subject to the number of animals observed during the survey period.

Two MMOs will also be placed on the mothership the *Arctic Wolf* during its transit from Homer or Anchorage, via the Chukchi Sea and around Barrow to the survey area. Presence of MMOs on this vessel is to prevent any potential impact on beluga whales during the spring hunt, in addition to other measures that will be taken in close communication with the whale hunters of Pt. Lay and Kotzebue, Alaska. According to BPXA, it will be important that at least one Alaska native resident who speaks Inupiat be placed on this vessel.

MMO Protocol – BPXA intends to work with experienced MMOs that have had previous experience working on seismic survey vessels, which will be especially important for the lead MMO. At least one Alaska native resident who speaks Inupiat and is knowledgeable about the marine mammals of the area is expected to be included as one of the team members aboard both source vessels and the mother ship.

At least one observer will monitor for marine mammals at any time during daylight hours and nighttime ramp-ups after a full shutdown (and if the entire safety zone is visible). There will be no periods of total darkness until mid-August. Two MMOs will be on duty whenever feasible and practical, as the use of two simultaneous observers will increase the early detectability of animals present near the safety zone of the source vessels. MMOs will be on duty in shifts of maximum 4 hours, but the exact shift regime will be established by the lead MMO in consultation with each MMO team member.

Before the start of the seismic survey, the lead MMO will explain the function of the MMOs, their monitoring protocol, and mitigation measures to be implemented to the crew of the seismic source vessels *Peregrine* and *Miss Dianne*. Additional information will be provided to the crew by the lead MMO that will allow the crew to assist in the detection of marine mammals and (where possible and practical) in the implementation of mitigation measures.

Both the *Peregrine* and *Miss Dianne* are relatively small vessels but form suitable platforms for marine mammal observations. Observations will be made from the bridges, which are respectively approximately 4.5 m (approximately 15 ft) and approximately 3.7 m (approximately 12 ft) above sea level, and where MMOs have the best view around the vessel. During daytime, the MMO(s) will scan the area around the vessel systematically with reticle binoculars (e.g., 7 50 Fujinon) and the naked eye. During any periods of darkness, night vision devices will be available (ITT F500 Series Generation 3 binocular-image intensifier or equivalent), if and when required. Laser rangefinding binoculars (Leica LRF 1200 laser rangefinder or equivalent) will be available to assist with distance estimation; these are useful in training observers to estimate distances visually, but are generally not useful in measuring distances to animals directly.

Communication Procedures – When marine mammals in the water are detected within or about to enter the designated safety zones, the airgun(s) power-down or shutdown procedures need to be implemented immediately. To assure prompt implementation of power-downs and shutdowns, multiple channels of communication between the MMOs and the airgun technicians will be established. During the power-down and shutdown, the MMO(s) will continue to maintain watch to determine when the animal(s) are outside the safety radius. Airgun operations can be resumed with a ramp-up procedure (depending on the extent of the power-down) if the MMOs have visually confirmed that the animal(s) moved outside the safety zone, or if the animal(s) were not observed within the safety zone for 15 min (pinnipeds) or for 30 min (cetaceans). Direct communication with the airgun operator will be maintained throughout these procedures.

Data Recording – All marine mammal observations and any airgun power-down, shutdown, and ramp-up will be recorded in a standardized format. Data will be entered into a custom database using a notebook computer. The accuracy of the data entry will be verified by computerized validity data checks as the data are entered and by subsequent manual checking of the database. These procedures will allow initial summaries of data to be prepared during and shortly after the field program and will facilitate transfer of the data to statistical, graphical, or other programs for further processing and archiving.

Acoustic Measurements and Monitoring

Acoustic measurements and monitoring will be conducted for three different purposes: (1) To establish the

distances of the safety zones; (2) to measure source levels (i.e., received levels referenced to 1 m (3 ft) from the sound source) of each vessel of the seismic fleet to obtain knowledge on the sounds generated by the vessels; and (3) to measure received levels offshore of the barrier islands from the seismic sound source.

Verification and Establishment of Safety Zones – Prior to, or at the beginning of the seismic survey, acoustic measurements will be conducted to calculate received sound levels as a function of distance from the airgun sound source. These measurements will be conducted for different discharge volumes.

The results of these acoustic measurements will be used to re-define the safety zone distances for received levels of 190 dB, 180 dB, and 160 dB. The 160–dB received level is monitored to avoid any behavioral disturbances of marine mammals that may be in the area. The distances of the received levels as a function of the different sound sources (varying discharge volumes) will be used to guide power-down and ramp-up procedures. A preliminary report describing the methodology and results of the measurement for at least the 190–dB and 180–dB (rms) safety zones will be submitted to NMFS within 72–hrs of completion of the measurements.

Measurements of Vessel Sounds – BPXA intends to measure vessel sounds of each representative vessel. The exact scope of the source level measurements (back-calculated as received levels at 1 m (3 ft) from the source) should follow a pre-defined protocol to eliminate the complex interplay of factors that underlie these measurements, such as bathymetry, vessel activity, location, season, etc. Where possible and practical the monitoring protocol will be developed in alignment with other existing vessel source level measurements.

Received Sound Levels Offshore the Barrier Islands – The proposed seismic survey will take place inside the barrier islands, and, as such, the sounds from the seismic survey activities are not expected to propagate much beyond the shallow areas formed by these barrier islands. However, because the survey might extend partly into September/October, when bowheads migrate past the area, and there are some slightly deeper water channels in between the barrier islands, BPXA intends to develop a simple acoustic monitoring plan to measure received sound levels outside the barrier islands during the seismic survey.

Aerial Surveys

During the July and August timeframe, no bowhead whales are expected to be present in or close to the survey area, so no aerial surveys are planned during this timeframe. If the survey continues into September or October, after the bowhead whale hunt and in compliance with the CAA, aerial surveys will be conducted bi-weekly, when conditions allow, until three days after the seismic survey and cover the area immediately offshore of the barrier islands. If other operators conduct surveys in the vicinity, cooperation regarding sharing data or flight time can be considered, provided that an acceptable methodology and business relationship can be worked out in advance.

Reporting

A report on the preliminary results of the acoustic verification measurements, including as a minimum the measured 190- and 180–dB (rms) radii of the airgun sources, will be submitted within 72–hrs after collection of those measurements at the start of the field season. This report will specify the distances of the safety zones that were adopted for the survey.

A report on BPXA's activities and on the relevant monitoring and mitigation results will be submitted to NMFS within 90 days after the end of the seismic survey. The report will describe the operations that were conducted, the measured sound levels, and the cetaceans and seals that were detected near the operations. The report will be submitted to NMFS, providing full documentation of methods, results, and interpretation pertaining to all acoustic and vessel-based marine mammal monitoring. The 90–day report will summarize the dates and locations of seismic operations, and all whale and seal sightings (dates, times, locations, activities, associated seismic survey activities). Marine mammal sightings will be reported at species level, however, especially during unfavorable environmental conditions (e.g., low visibility, high sea states) this will not always be possible. The number and circumstances of ramp-up, power-down, shutdown, and other mitigation actions will be reported. The report will also include estimates of the amount and nature of potential impact to marine mammals encountered during the survey.

ESA

NMFS has previously consulted under section 7 of the ESA on the issuance of IHAs for seismic survey activities in the Beaufort and Chukchi Seas. NMFS issued a Biological Opinion on June 16, 2006, regarding the effects of this action on ESA-listed species and critical habitat under the jurisdiction of NMFS. The Opinion concluded that this action is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. A copy of the Biological Opinion is available at: *http://www.mms.gov/alaska/ref/BioOpinions/ARBOIII-2.pdf*.

National Environmental Policy Act (NEPA)

In 2006, the MMS prepared Draft and Final Programmatic Environmental Assessments (PEAs) for seismic surveys in the Beaufort and Chukchi Seas. NMFS was a cooperating agency in the preparation of the MMS PEA. On November 17, 2006 (71 FR 66912), NMFS and MMS announced that they were preparing a DPEIS in order to assess the impacts of MMS' annual authorizations under the Outer Continental Shelf Lands Act to the U.S. oil and gas industry to conduct offshore geophysical seismic surveys in the Chukchi and Beaufort Seas off Alaska and NMFS' authorizations under the MMPA to incidentally harass marine mammals while conducting those surveys.

On March 30, 2007 (72 FR 15135), the Environmental Protection Agency (EPA) noted the availability for comment of the NMFS/MMS DPEIS. Based upon several verbal and written requests to NMFS for additional time to review the DPEIS, EPA has twice announced an extension of the comment period until July 30, 2007 (72 FR 28044, May 18, 2007; 72 FR 38576, July 13, 2007). Because of this delay in completion of a Final PEIS, NMFS determined that it would need to update the 2006 PEA in order to meet its NEPA requirements. This approach was warranted as it was reviewing five proposed Arctic seismic survey IHAs for 2008, well within the scope of the PEA's eight consecutive seismic surveys. To update the 2006 Final PEA, NMFS is currently preparing an EA which incorporates by reference the 2006 Final PEA and other related documents. The necessary NEPA analysis will be concluded prior to making a determination on the issuance of the IHA to BPXA.

Preliminary Determinations

Based on the information provided in BPXAs application, this document, and the MMS Final PEA, NMFS has preliminarily determined that the impact of BPXA conducting seismic surveys in the Liberty Prospect, Foggy

Island Bay, Beaufort Sea in 2008 may result, at worst, in a temporary modification in behavior (Level B Harassment) of small numbers of six species of marine mammals, will have no more than a negligible impact on the affected species or stocks, and that there will not be any unmitigable adverse impacts to subsistence communities, provided the mitigation measures described above are implemented.

NMFS has preliminarily determined that the short-term impact of conducting seismic surveys in the Liberty Prospect area of the U.S. Beaufort Sea may result, at worst, in a temporary modification in behavior by certain species of marine mammals. While behavioral and avoidance reactions may be made by these species in response to the resultant noise, this behavioral change is expected to have a negligible impact on the animals. While the number of potential incidental harassment takes will depend on the distribution and abundance of marine mammals (which vary annually due to variable ice conditions and other factors) in the area of seismic operations, the number of potential harassment takings is estimated to be small (less than one percent of any of the estimated population sizes) and has been mitigated to the lowest level practicable through incorporation of the measures mentioned previously in this document. In addition, no take by death and/or serious injury is anticipated, and the potential for temporary or permanent hearing impairment will be avoided through the incorporation of the mitigation and monitoring measures proposed above. No rookeries, mating grounds, areas of concentrated feeding, or other areas of special significance for marine mammals occur within or near the planned area of operations during the season of operations.

NMFS has preliminarily determined that the proposed seismic activity by BPXA in the Beaufort Sea in 2008 will not have an unmitigable adverse impact on the subsistence uses of bowhead whales and other marine mammals. This determination is supported by the information in this **Federal Register** Notice, including: (1) the fall bowhead whale hunt in the Beaufort Sea will either be governed by a CAA between BPXA and the AEWC and village whaling captains or by mitigation measures contained in the IHA; (2) the CAA or IHA conditions will significantly reduce impacts on subsistence hunters to ensure that there will not be an unmitigable adverse impact on subsistence uses of marine mammals; (3) because ringed seals are hunted mainly from October through June, although they are available year-round; however, the seismic survey will not occur during the primary period when these seals are typically harvested; (4) the main seal hunts that occur during the open water season occur in areas farther west than the Liberty Prospect, so it should not conflict with harvest activities; and (5) specific provisions to avoid interference with the seal hunts will be integrated into the survey in compliance with the CAA where applicable.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to BPXA for conducting a seismic survey in the Liberty Prospect, Foggy Island Bay, Beaufort Sea in 2008, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: April 23, 2008.

Helen Golde,

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

[FR Doc. E8–9682 Filed 5–1–08; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF DEFENSE

Office of the Secretary

[Docket No. DoD–2008–DARS–0042]

Submission for OMB Review; Comment Request

ACTION: Notice.

The Department of Defense has submitted to OMB for clearance, the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

DATES: Consideration will be given to all comments received by June 2, 2008.

Title and OMB Number: Defense Federal Acquisition Regulation Supplement (DFARS) Part 239, Acquisition of Information Technology, and the associated clauses at DFARS 252.239–7000 and 252.239–7006; OMB Control Number 0704–0341.

Type of Request: Extension.

Number of Respondents: 521.

Responses per Respondent: 3.76.

Annual Responses: 1,959.

Average Burden per Response: .828 hours.

Annual Burden Hours: 1,622.

Needs and Uses: This requirement provides for the collection of information from contractors regarding security of information technology; tariffs pertaining to telecommunications services; and proposals from common carriers to perform special construction under contracts for telecommunications services. Contracting officers and other DoD personnel use the information to ensure that information systems are protected; to participate in the establishment of tariffs for telecommunications services; and to establish reasonable prices for special construction by common carriers.

Affected Public: Business or other for-profit; not-for-profit institutions.

Frequency: On occasion.

Respondent's Obligation: Required to obtain or retain benefits.

OMB Desk Officer: Ms. Jasmeet Seehra.

Written comments and recommendations on the proposed information collection should be sent to Ms. Seehra at the Office of Management and Budget, Desk Officer for DoD, Room 10236, New Executive Office Building, Washington, DC 20503.

You may also submit comments, identified by docket number and title, by the following method:

• *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.

Instructions: All submissions received must include the agency name, docket number and title for this **Federal Register** document. The general policy for comments and other submissions from members of the public is to make these submissions available for public viewing on the Internet at *http://www.regulations.gov* as they are received without change, including any personal identifiers or contact information.

DoD Clearance Officer: Ms. Patricia Toppings.

Written requests for copies of the information collection proposal should be sent to Ms. Toppings at WHS/ESD/Information Management Division, 1777 North Kent Street, RPN, Suite 11000, Arlington, VA 22209–2133.

Dated: April 25, 2008.

Patricia L. Toppings,

OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. E8–9624 Filed 5–1–08; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Office of the Secretary

[Docket No. DoD–2007–OS–0094]

Submission for OMB Review; Comment Request

ACTION: Notice.