

Recommendations and Committee Recommendations.

4:30 p.m. - 5:30 p.m. - The Sustainable Fisheries/Ecosystem Committee will meet to discuss the Ecosystem SSC Recommendations.

### Wednesday, August 13, 2008

8:30 a.m. - 9 a.m. - CLOSED SESSION. The Joint AP Selection Committee/Outreach & Education Committee will meet in a Closed Session to discuss Selection of Outreach & Education AP members.

9 a.m. - 11 a.m. - The Joint Reef Fish/Mackerel/Red Drum Management Committee will meet to discuss the Aquaculture FMP.

11 a.m. - 12 p.m. - The Shrimp Management Committee will meet to discuss NMFS Status and Health of the Shrimp Stocks; A Stock Assessment Report for Gulf Of Mexico Shrimp 2007; and A Biological Review of the Tortugas Pink Shrimp Fishery Through December 2007.

1:30 p.m. - 3:30 p.m. - The Data Collection Committee will meet to discuss Recommendations of the Ad Hoc Recreational Red Snapper AP and Comments on Proposed Rule for National Saltwater Angler Registry. They will also receive a status report on the MRIP.

Although other non-emergency issues not on the agendas may come before the Council and Committees for discussion, in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), those issues may not be the subject of formal action during these meetings. Actions of the Council and Committees will be restricted to those issues specifically identified in the agendas and any issues arising after publication of this notice that require emergency action under Section 305(c) of the Magnuson-Stevens Act, provided the public has been notified of the Council's intent to take action to address the emergency.

The established times for addressing items on the agenda may be adjusted as necessary to accommodate the timely completion of discussion relevant to the agenda items. In order to further allow for such adjustments and completion of all items on the agenda, the meeting may be extended from, or completed prior to the date established in this notice.

### Special Accommodations

These meetings are physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to Tina O'Hern at the

Council (see **ADDRESSES**) at least 5 working days prior to the meeting.

Dated: July 10, 2008.

**Tracey L. Thompson,**

*Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.*  
[FR Doc. E8-16108 Filed 7-14-08; 8:45 am]

**BILLING CODE 3510-22-S**

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

**RIN 0648-XJ04**

#### 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 Halibut Managers Workgroup (HMW) will hold a work session to discuss implications of the International Pacific Halibut Commission (IPHC) proposed catch apportionment methodology and to develop consensus on issues affecting Area 2A halibut fisheries prior to the IPHC workshop on catch apportionment. The HMW is not a committee of the Pacific Fishery Management Council (Council), however, the Council has expressed interest in having a report from the HMW, and has offered to provide meeting space. The meeting is open to the public.

**DATES:** The meeting will be held Thursday, August 7, 2008, from 9:30 a.m. to 4 p.m.

**ADDRESSES:** The meeting will be held at the Pacific Fishery Management Council Office, 7700 NE Ambassador Place, Suite 101, Portland, OR 97220-1384.

**FOR FURTHER INFORMATION CONTACT:** Mr. Chuck Tracy, Salmon and Halibut Management Staff Officer, Pacific Fishery Management Council, telephone: (503) 820-2280.

**SUPPLEMENTARY INFORMATION:** The purpose of the meeting is to allow an exchange of information and ideas among managers and industry representatives from Area 2A, primarily as they relate to the upcoming IPHC workshop on catch apportionment. The objective of the meeting will be to develop a consensus on a catch apportionment strategy that will be both fair and biologically sound, which can be presented at the IPHC workshop scheduled for September 4, 2008.

Although non-emergency issues not contained in the meeting agendas may come before the HMW for discussion, those issues may not be the subject of formal action during this meeting. Action will be restricted to those issues specifically listed 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 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 Ms. Carolyn Porter at (503) 820-2280 at least 5 days prior to the meeting date.

Dated: July 10, 2008.

**Tracey L. Thompson,**

*Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.*  
[FR Doc. E8-16109 Filed 7-14-08; 8:45 am]

**BILLING CODE 3510-22-S**

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

**RIN 0648-XI81**

#### 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; issuance of an incidental take authorization.

**SUMMARY:** In accordance with the Marine Mammal Protection Act (MMPA) regulations, notification is hereby given that NMFS has issued an IHA to BP Exploration (Alaska), Inc. (BPXA) to take, by harassment, small numbers of six species of marine mammals incidental to a 3D, ocean bottom cable (OBC) seismic survey in the Liberty Prospect, Beaufort Sea, Alaska during July and August, 2008.  
**DATES:** Effective July 8, 2008, through August 25, 2008.

**ADDRESSES:** The application containing a list of the references used in this document, an addendum to the application, and the IHA are available by writing 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 or by telephoning the contact listed below (**FOR FURTHER INFORMATION CONTACT**), or online 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/>. A copy of NMFS' 2008 Supplemental Environmental Assessment (SEA) is available at <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>.

**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. BPXA submitted an addendum to their application on April 21, 2008, which updated the vessel inventory, refined the dates of the survey, and withdrew the request for take of one narwhal. The survey would occur over a period of 40-60 days in July and August, 2008, with operations ceasing on August 25 prior to the start of the Nuiqsut whaling season. Seismic data acquisition is planned to start in early July, 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<sup>2</sup> (135.8 mi<sup>2</sup>) 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.

Additional background information regarding BPXA's request was included in NMFS' Notice of Proposed IHA, which published in the **Federal Register** on May 2, 2008 (73 FR 24236).

##### **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 BPXA contractor. A detailed overview of the activities of this survey were provided in the Notice of Proposed IHA (73 FR 24236, May 2, 2008). No changes have been made to these proposed activities. Additional information is contained in BPXA's application and application addendum, which are available for review (see **ADDRESSES**).

##### **Comments and Responses**

A notice of receipt of BPXA's MMPA application and NMFS' proposal to issue an IHA to BPXA was published in the **Federal Register** on May 2, 2008 (73 FR 24236). That notice described, in detail, BPXA's proposed activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period on BPXA's application, comments were received from the Marine Mammal Commission (MMC), the Center for Biological Diversity (CBD) on behalf of several environmental organizations, the Alaska Eskimo Whaling Commission (AEWC), the North Slope Borough (NSB) Office of the Mayor and the NSB Department of Wildlife Management (DWM), the Native Village of Point Hope (NVPH), and Oceana and the Ocean Conservancy. CBD attached the comments submitted by the Natural Resources Defense Council (NRDC) on the 2006 MMS PEA as an appendix to its comments on the IHA. With the exception of some comments relevant to this specific action which are addressed here, comments on the Draft PEA have been addressed in Appendix D of the

Final PEA and are not repeated here. Copies of those comment letters and the responses to comments can be found at: <http://www.mms.gov/alaska/>. CBD also attached the comments submitted by EarthJustice on the 2007 DPEIS. Those comments are not substantially different from the comments submitted on the PEA. There are no specific comments in that appendix to the BPXA project that were not raised in their comment letter specific to the BPXA proposed IHA or on the PEA. Therefore, they are not addressed separately in this document.

#### General Activity Concerns

*Comment 1:* The AEWG attached a copy of the signed Conflict Avoidance Agreement (CAA) and the addendum to BPXA's application for an IHA. Both documents indicate that BPXA will cease all seismic operations on August 25. The clarification in timing provided by these documents addresses the concerns of the AEWG and the NSB regarding late season monitoring.

*Response:* NMFS has reviewed both of these documents and concurs that additional late season monitoring is not needed for the BPXA Liberty project since seismic activity will not occur after August 25.

*Comment 2:* CBD urges NMFS not to issue any take authorization to BPXA for the proposed activities unless and until the agency can ensure that mitigation measures are in place that truly avoid adverse impacts to all species and their habitats and only after full and adequate public participation has occurred and environmental review of the cumulative impacts of such activities on these species and their habitats has been undertaken. CBD feels that the proposed IHA does not meet these standards and therefore violates the MMPA, the Endangered Species Act (ESA), the National Environmental Policy Act (NEPA), and other governing statutes and regulations.

*Response:* In its proposed IHA **Federal Register** notice (73 FR 24236, May 2, 2008), NMFS outlined in detail the proposed mitigation and monitoring requirements. The implementation of these measures will reduce the impacts of the proposed survey on marine mammals and their surrounding environment to the lowest level practicable. The public was given 30 days to review and comment on these measures, in accordance with section 101(a)(5)(D) of the MMPA. NMFS has prepared a SEA to the 2006 MMS PEA. The PEA was available for comment in 2006. NMFS has fulfilled its obligations under NEPA by completing a SEA, which is not required to be available for public comment prior to its finalization.

These documents fully analyze the cumulative impacts of seismic activity in the Arctic region. Additionally, NMFS completed a Biological Opinion in June, 2006, as required by section 7 of the ESA, which 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. The 2008 seismic survey in the Liberty Prospect area of the Beaufort Sea does not meet any of the triggers that would require reinitiating consultation. Therefore, NMFS has not violated the ESA.

*Comment 3:* CBD assumes that BPXA is seeking authorization from the U.S. Fish and Wildlife Service (USFWS) for the take of polar bears and Pacific walrus that will occur from their proposed activities. While these species are outside of NMFS' jurisdiction for purposes of take authorization, they are clearly part of the "affected environment" adversely impacted by NMFS' action and therefore cannot lawfully be simply discounted, as NMFS has done in the proposed IHA.

*Response:* Since the IHA issued by NMFS can only regulate take of species under NMFS' jurisdiction, the Notice of Proposed IHA does not go into detail regarding species under the jurisdiction of other Federal agencies. However, NMFS does analyze the impacts to these species in its NEPA analysis as part of the "affected environment." The USFWS has issued a Letter of Authorization (LOA) for BPXA to take species under its jurisdiction (i.e., polar bears and walrus).

*Comment 4:* The NSB DWM states that transit of the *M/V Arctic Wolf* through the Chukchi Sea should not occur until the beluga harvest at Point Lay is completed. When it does transit through the Chukchi Sea, it should remain at least 80 km (50 mi) offshore to mitigate potential impacts to subsistence hunting of belugas, seals, or walrus.

*Response:* Transit of the *Arctic Wolf* through the Chukchi Sea will be done in accordance with the requirements in the CAA signed by BPXA on May 30, 2008.

*Comment 5:* Oceana and the Ocean Conservancy state that they agree with the concerns raised in the comment letter submitted on this application by CBD and others. The NVPH incorporated the CBD's comment in their entirety in their letter.

*Response:* NMFS' responses to the CBD's comments are addressed in this section of the document.

#### MMPA Concerns

*Comment 6:* CBD and the NSB state that because the proposed seismic activity carries the real potential to cause injury or death to marine mammals, neither an IHA nor an LOA (because NMFS has not promulgated regulations for mortality by seismic activities) can be issued for BPXA's proposed activities.

*Response:* Section 101(a)(5)(D) of the MMPA authorizes Level A (injury) harassment and Level B (behavioral) harassment takes. While NMFS' regulations indicate that a LOA must be issued if there is a potential for serious injury or mortality, NMFS does not believe that BPXA's seismic surveys require issuance of a LOA. As explained throughout this **Federal Register** Notice, it is highly unlikely that marine mammals would be exposed to sound pressure levels (SPLs) that could result in serious injury or mortality. The best scientific information indicates that an auditory injury is unlikely to occur as apparently sounds need to be significantly greater than 180 dB for injury to occur (Southall *et al.*, 2007). NMFS has determined that exposure to several seismic pulses at received levels near 200–205 dB (rms) might result in slight temporary threshold shift (TTS) in hearing in a small odontocete, assuming the TTS threshold is 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. BPXA's airgun array is considered to be of moderate size. For baleen whales, while there are no data, direct or indirect, on levels or properties of sound that are required to induce TTS, there is a strong likelihood that baleen whales (bowhead and gray whales) would avoid the approaching airguns (or vessel) before being exposed to levels high enough for there to be any possibility of onset of TTS. For pinnipeds, information indicates that for single seismic impulses, sounds would need to be higher than 190 dB rms for TTS to occur while exposure to several seismic pulses indicates that some pinnipeds may incur TTS at somewhat lower received levels than do small odontocetes exposed for similar durations. Consequently, NMFS has determined that it would be lawful to issue an IHA to BPXA for the 2008 seismic survey program.

*Comment 7:* CBD states that the MMPA allows take authorization only for explicitly "specified activities" within a "specified geographic region" (16 U.S.C. 1371(a)(5)(D)(i)). NMFS'

regulations also explicitly require an applicant for take authorization to provide the “date(s) and duration” of the activity and “the specific geographic region where it will occur” (50 CFR 216.104(a)(2)). While BPXA’s application does generally describe the location and duration of the seismic activities themselves, there is minimal description and no analysis of the impacts on marine mammals of the transport and deployment of the 11 vessels that will be involved in the survey. Presumably, some or all of these vessels would transit through U.S. waters in the Bering, Chukchi, and/or Beaufort Seas and harass marine mammals along the way. By failing to adequately specify the activities and impacts of these vessels, BPXA has failed to comply with (16 U.S.C. 1371(a)(5)(D)(i) and 50 CFR 216.104(a)(2)).

*Response:* The majority of the vessels to be used in the seismic survey will be transported to the North Slope on trailers via the haul road to West Dock; however, one vessel will transit the Arctic Ocean to the survey area, leaving from Anchorage and steaming well offshore around Pt Barrow to West Dock. Normal shipping and transit operations do not rise to a level requiring an authorization under the MMPA. To require IHAs and LOAs for standard shipping would reduce the ability of NMFS to review activities that have a potential to cause harm to marine mammal populations. For example, in the Arctic Ocean, NMFS would need to issue authorizations for barging operations that supply the North Slope villages in addition to various onshore and offshore oil and gas projects. Instead, NMFS prefers to seek applications from activities that have a potential impact of a more serious nature, such as shipping and transit operations during the fall bowhead migration and subsistence harvest periods. On this matter, BPXA will (in keeping with the CAA signed by BPXA and the Native communities) follow a route 48 km (30 mi) offshore and will avoid Ledyard Bay.

*Comment 8:* The NSB and CBD both state that an authorization of incidental take of marine mammals from specified activities can only be issued if such take will be limited to “small numbers” and have a “negligible impact” on the species or stock (16 U.S.C. 1371(a)(5)(D)(i)(I); 50 CFR 206.107). These are separate and distinct statutory requirements (Id.). NMFS must find that both requirements are met. CBD states that NMFS does not make a separate finding that only “small numbers” of marine mammals will be harassed by

BPXA’s planned activities. The closest thing to a separate “small numbers” finding is a single sentence in the Preliminary Conclusions section of the proposed IHA. In recent proposed IHAs, NMFS has directly cited its invalid “small numbers” definition. In the current IHA, NMFS does not directly cite to the regulatory definition of “small numbers”, but nevertheless conducts its analysis according to this invalid standard. Yet neither the **Federal Register** document nor BPXA’s application provide any support whatsoever for this “conclusion.” The CBD continues that for BPXA’s proposed seismic surveys in the Beaufort Sea, the number of marine mammals likely to be exposed to sounds of 160 dB re 1  $\mu$ Pa (rms) or greater, and therefore “harassed” according to NMFS’ operative thresholds, is almost 300. In absolute terms this number cannot be considered “small.” Given the MMPA is designed to protect not just populations but *individual* [emphasis added by commenter] marine mammals, any number in the hundreds simply cannot be considered “small.” The proposed seismic surveys simply are not designed to avoid impacting more than small numbers of marine mammals, and, therefore, the IHA must be denied.

*Response:* NMFS believes that the small numbers requirement has been satisfied. The species most likely to be harassed during seismic surveys in the Liberty Prospect area of the Beaufort Sea is the ringed seal, with an “average estimate” of 156 exposures to SPLs of 160 dB or greater at 4 m (13 ft) tow depth. This does not mean that this is the number of ringed seals that will *actually* exhibit a disruption of behavioral patterns in response to the sound source; rather, it is simply the best estimate of the number of animals that potentially could have a behavioral modification due to the noise. For example, Moulton and Lawson (2002) indicate that most pinnipeds exposed to seismic sounds lower than 170 dB do not visibly react to that sound, and, therefore, pinnipeds are not likely to react to seismic sounds unless they are greater than 170 dB re 1 Pa (rms). In addition, these estimates are calculated based upon line miles of survey effort, animal density, and the calculated zone of influence (ZOI). While this methodology is valid for seismic surveys that transect long distances, for those surveys that “mow the lawn” (that is, remain within a relatively small area, transiting back and forth while shooting seismic), the numbers tend to be highly inflated. However, BPXA tried to eliminate some of the overlap by

entering the seismic survey lines into a MapInfo Geographic Information System (GIS) to determine the area of ensonification. GIS was then used to identify the relevant areas by “drawing” the applicable 160–dB buffer 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.

The Level B harassment take estimate of 156 ringed seals is a small number, at least in relative terms, in that it represents only 0.06 percent of the regional stock size of that species (249,000), if each “exposure” at 160 dB represents an individual ringed seal. The percentage would be even lower if a higher SPL is required for a behavioral reaction (as is expected) or, if as expected, animals move out of the seismic area. As a result, NMFS believes that these “exposure” estimates are conservative, and seismic surveys will actually affect less than 0.06 percent of the Beaufort Sea ringed seal population.

The “average estimates” of exposures for the remaining species that could potentially occur in the Liberty Prospect (i.e., beluga, bowhead, and gray whales and bearded and spotted seals) are only between 1 and 11 animals, which constitute at most 0.09 percent of any of these five species populations in the Arctic. Additionally, the presence of beluga, bowhead, and gray whales in the shallow water environment within the barrier islands is possible but expected to be very limited.

Further, NMFS believes that it is incorrect to add the number of exposures together to support an argument that the numbers are not “small.” The MMPA is quite clear “...taking by harassment of small numbers of marine mammals of a species or population stock...” does not refer to an additive calculation (small numbers, not small number).

Based on the fact that only small numbers of each species or stock will possibly be impacted and mitigation and monitoring measures will reduce the number of animals likely to be exposed to seismic pulses and therefore avoid injury and mortality, NMFS finds that BPXA’s 3D OBC seismic survey will have a negligible impact on the affected species or stock.

*Comment 9:* CBD states that in 2006, NMFS required surveys of a 120–dB safety zone for bowhead cow/calf pairs and “large groups” (greater than 12 individuals). If 12 bowheads constitute a “large group,” we do not see how the numerous bowheads that will be

harassed by BPXA are a “small number.” This displacement and the disruption of pod integrity clearly constitute harassment under the MMPA. BPXA’s activities can be expected to have similar effects. As with its “small numbers” conclusion, NMFS’ determination that BPXA’s activities will have a “negligible impact” also does not withstand scrutiny. First, as explained above and in our NEPA comments, the calculation of numbers of marine mammals harassed by BPXA is likely an underestimate as it relies on a received sound threshold (160/170 dB) that is too high. Any negligible impacts determination based on such flawed data is itself unsupported. Moreover, NMFS has previously recognized a harassment threshold of 120 dB for continuous sounds. Given that BPXA is using two seismic ships in conjunction, firing every 4 s, these sources should be treated as “continuous” for purposes of estimating harassment thresholds. The MMPA is precautionary. In making its determinations, NMFS must give the benefit of the doubt to the species. As the D.C Circuit has repeatedly stated, “it is clear that the Act was to be administered for the benefit of the protected species rather than for the benefit of commercial exploitation” (*Kokechik Fishermen’s Association v. Secretary of Commerce*, 839 F.2d 795, 800 (D.C. Cir. 1988) citing *Committee for Humane Legislation, Inc. v. Richardson*, 540 F.2d 1141, 1148 (D.C. Cir. 1976)). NMFS seems to be ignoring this mandate in analyzing the impacts of BPXA’s activities.

*Response:* On CBD’s first point, there is no relationship between the term “large group” and “small numbers.” The first term refers to a number of 12 or more in order to implement additional mitigation measures, the second to a concept found in the MMPA, which has been addressed previously in this notice. NMFS agrees that while the “displacement and the disruption of pod integrity constitute harassment under the MMPA,” NMFS is unaware of any information that seismic survey operations will result in bowhead whale pod integrity disruption. On the contrary, traditional knowledge indicates that when migrating bowhead whales encounter anthropogenic noises, as a group they all divert away from the noise and continue to do so even if the noise ceases.

Secondly, NMFS does not agree that the source used in BPXA’s activity should be considered “continuous.” As mentioned in the IHA application and the **Federal Register** notice of proposed IHA (73 FR 24236, May 2, 2008), each

source vessel will have two 440 in<sup>3</sup> arrays comprised of four guns in clusters of 2 x 70 in<sup>3</sup> and 2 x 150 in<sup>3</sup>. Each source vessel will fire shots every 8 s, resulting in 4 s shot intervals with two operating source vessels. As the total time for each seismic “shot” will last approximately 6 msec, the amount of time without seismic sounds is 99.85 percent. As there is a significant period of time between shot events, this does not qualify as a continuous sound source.

The decision in *Kokechik Fishermen’s Association v. Secretary of Commerce*, 839 F.2d 795 (D.C. Cir. 1988), does not apply to this case because it is factually and legally distinguishable. The incidental take permit challenged in *Kokechik* was for commercial fishing operations, governed by section 101(a)(2) of the MMPA, whereas the incidental authorization that is the subject of this IHA is for an activity other than commercial fishing and is appropriately authorized pursuant to section 101(a)(5)(D). Consequently, as discussed throughout this document, it is not unlawful for NMFS to apply section 101(a)(5)(D) when issuing an IHA to BPXA for the take of marine mammals incidental to seismic surveys.

*Comment 10:* Additionally, CBD and NSB state that NMFS has no idea of the actual population status of several of the species subject to the proposed IHA. For example, in the most recent Stock Assessment Reports (SARs) prepared pursuant to the MMPA, NMFS acknowledges it has no accurate information on the status of ribbon, spotted, bearded, and ringed seals. See 2007 Alaska SAR at 58 (“A reliable abundance estimate for the Alaska stock of ribbon seals is currently not available,” and “reliable data on trends in population abundance for the Alaska stock of ribbon seals are unavailable.”) *Id.* at 45 & 46 (“A reliable estimate of spotted seal population abundance is currently not available,” and “reliable data on trends in population abundance for the Alaska stock of spotted seals are considered unavailable.”) *Id.* at 49 & 50 (“There is no reliable population abundance estimate for the Alaska stock of bearded seals,” and “At present, reliable data on trends in population abundance for the Alaska stock of bearded seals are unavailable.”); and *Id.* at 53 & 54 (“There is no reliable population abundance estimate for the Alaska stock of ringed seals,” and “At present, reliable data on trends in population abundance for the Alaska stock of ringed seals are unavailable.”) CBD and NSB both indicate that without this data, NMFS cannot make a rational “negligible impact” finding. This is

particularly so given there is real reason to be concerned about the status of these populations. Such concerns were raised in a recent letter to NMFS from the MMC following the MMC’s 2005 annual meeting in Anchorage, Alaska. With regard to these species, the MMC cautioned against assuming a stable population. “Given apparent changes in the Bering, Chukchi, and Beaufort Seas and the declines of many other Alaska marine mammals, we are concerned that significant changes in the status of these seal species might go undetected and that the need for management actions would not be recognized in time to assure their conservation and continued function in these ecosystems, as well as their availability for subsistence use” (MMC, January 25, 2006 Letter).

On December 20, 2007, CBD petitioned NMFS to list the ribbon seal under the ESA due to the loss of its sea-ice habitat from global warming and the adverse impacts of oil industry activities on the species. On May 27, 2008, CBD submitted a similar petition seeking listing of the spotted, bearded, and ringed seals. We request that NMFS consider the information contained in these petitions, as well as other information in its files on the status of these species, when analyzing the impacts of the proposed IHA on these increasingly imperiled species. Because the status of the ribbon, spotted, ringed, and bearded seals and other stocks is unknown, NMFS cannot conclude that surveys which will harass untold numbers of individuals of each species will have no more than a “negligible effect” on the stocks.

*Response:* As required by the MMPA implementing regulations at 50 CFR 216.102(a), NMFS has used the best scientific information available in making its determinations required under the MMPA. The Alaska SAR provides population estimates based on past survey work conducted in the region. The proposed survey by BPXA is not expected to have adverse impacts on ice seals. The activity will last for approximately 40 days in the open-water environment of the Beaufort Sea, where bearded and spotted seals are found only occasionally. On March 28, 2008, NMFS published a notice of a 90-day petition finding, request for information, and initiation of status reviews of ribbon, bearded, ringed, and spotted seals (73 FR 16617). The comment period for this action closed on May 27, 2008. NMFS is currently reviewing all relevant information and within 1 year of receipt of the petition, NMFS shall conclude the review with a finding as to whether or not the petitioned action is warranted. The

ribbon seal petition submitted in December, 2007, is not relevant for this survey, as ribbon seals are not found in the project area. Information contained in the May, 2008, petition does not provide sufficient evidence that NMFS' preliminary determination that only small numbers of ringed, bearded, and spotted seals would be affected as a result of BPXA's seismic activity in the Liberty Prospect.

*Comment 11:* CBD states that the analyses in the proposed IHA are largely confined to looking at the immediate effects of BPXA's airgun surveys in the Beaufort Sea on several marine mammal species. However, there is no analysis of the impacts of the 11 vessels and any related aircraft participating in the surveys on marine mammals. The impacts of these activities must be analyzed and mitigated before any "negligible impact" finding can be made. CBD and NSB believe that NMFS must consider these effects together with other oil and gas activities that affect these species, stocks and local populations, other anthropogenic risk factors such as climate change, and the cumulative effect of these activities over time. The effects should be analyzed with respect to their potential population consequences at the species level, stock level, and at the local population level. See *Anderson v. Evans*, 350 F.3d 815 (9th Cir. 2003) as amended by 371 F.3d 475 (9th Cir. 2004) ("Even if the eastern Pacific gray whales overall or the smaller PCFA group of whales are not significantly impacted by the Makah Tribe's whaling, the summer whale population in the local Washington area may be significantly affected. Such local effects are a basis for a finding that there will be a significant impact from the Tribe's hunts.")

*Response:* Under section 101(a)(5)(D) of the MMPA, NMFS is required to determine whether the taking by the applicant's specified activity will have a negligible impact on the affected marine mammal species or population stocks. Cumulative impact assessments are NMFS' responsibility under NEPA, not the MMPA. In that regard, the MMS Final PEA and NMFS SEA address cumulative impacts. The Final PEA's cumulative activities scenario and cumulative impact analysis focused on oil and gas-related and non-oil and gas-related noise-generating events/activities in both Federal and State of Alaska waters that were likely and foreseeable. Other appropriate factors, such as Arctic warming, military activities, and noise contributions from community and commercial activities were also considered. Appendix D of

the Final PEA addresses similar comments on cumulative impacts, including global warming. That information was incorporated into and updated in the NMFS 2008 SEA and into this document by citation. NMFS adopted the MMS Final PEA, and it is part of NMFS' Administrative Record. Finally, the proposition for which CBD cites Anderson was in the context of the court's analysis under NEPA, not MMPA section 101(a)(5)(D) authorizations, which was not at issue in *Anderson*.

NMFS does not require authorizations under section 101(a)(5) of the MMPA for normal shipping or transit. A further explanation was addressed in the response to Comment 7.

*Comment 12:* NSB and CBD are both concerned about cumulative impacts from multiple operations. BPXA's proposal is only one of numerous oil industry activities recently occurring, planned, or ongoing in the U.S. portions of the Chukchi and Beaufort Seas (e.g., proposed IHA for on-ice seismic surveys in Harrison Bay; proposed scientific seismic survey by the National Science Foundation (NSF); NMFS' 5-year regulations for activities related to Northstar; Shell IHA for Beaufort Sea exploratory drilling; Conoco IHA for Beaufort Sea; Shell IHA for Beaufort Sea; two proposed IHAs for Chukchi Sea and two proposed for the Beaufort Sea; and USFWS 5-year regulations for oil and gas activities in the Beaufort Sea). No analysis of seismic surveys in the Russian or Canadian portions of the Chukchi and Beaufort seas is mentioned either. Similarly, significant increases in onshore oil and gas development with attendant direct impacts and indirect impacts on marine mammals such as through increased ship traffic are also occurring and projected to occur at greater rates than in the past (e.g., NMFS' IHA for barge traffic to NPR-A; IHA for barge operations in the Beaufort Sea; and a notice regarding new oil and gas development in the NPR-A). CBD states that further cumulative effects impacting the marine mammals of the Beaufort and Chukchi Seas are outlined in their NEPA comments on the MMS PEA and the DPEIS.

The NSB points out that in addition to the proposed offshore industrial operations listed above, there will be supply and fuel barging to villages, barging for support of onshore development and exploration, scientific cruises, climate change studies, USCG operations, tourist vessel traffic, and other activities as well. The cumulative impacts of all these activities must be factored into any negligible impact determination. Further, without an

analysis of the effects of all of the planned operations, it is impossible to determine whether the monitoring plans are sufficient.

*Response:* See the response to the previous comment. The issue of cumulative impacts has been addressed in the 2006 MMS Final PEA and the 2008 NMFS SEA.

*Comment 13:* According to CBD, another factor causing NMFS' "negligible impact" findings to be suspect is the fact that the Beaufort Sea area is undergoing rapid change as a result of global warming. For species under NMFS' jurisdiction, and therefore subject to the proposed IHA, seals are likely to face the most severe consequences. The Arctic Climate Impact Assessment (ACIA) concluded that ringed, spotted, and bearded seals would all be severely negatively impacted by global warming this century. The ACIA stated that ringed seals are particularly vulnerable: "Ringed seals are likely to be the most highly affected species of seal because all aspects of their lives are tied to sea ice" (ACIA, 2004). In 2003, the NRC noted that oil and gas activities combined with global warming presented a serious cumulative impact to the species: "Climate warming at predicted rates in the Beaufort Sea region is likely to have serious consequences for ringed seals and polar bears, and those effects will accumulate with the effects of oil and gas activities in the region." NMFS' failure to address global warming as a cumulative effect renders its negligible impact findings invalid.

*Response:* Under section 101(a)(5)(D) of the MMPA, "the Secretary shall authorize... taking by harassment of small numbers of marine mammals of a species or population stock by such citizens while engaging in that activity within that region if the Secretary finds that such harassment during each period concerned (I) will have a negligible impact on such species or stock, and (II) will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses." Section 101(a)(5)(D) of the MMPA does not require NMFS to base its negligible impact determination on the possibility of cumulative effects of other actions.

As stated in previous responses, cumulative impact assessments are NMFS' responsibility under NEPA, not the MMPA. In that regard, the MMS 2006 Final PEA and NMFS' 2008 SEA address cumulative impacts. The PEA's cumulative activities scenario and cumulative impact analysis focused on oil and gas-related and non-oil and gas-

related noise-generating events/activities in both Federal and State of Alaska waters that were likely and foreseeable. Other appropriate factors, such as Arctic warming, military activities, and noise contributions from community and commercial activities were also considered. Appendix D of the PEA addresses similar comments on cumulative impacts, including global warming. That information was incorporated into and updated in the NMFS 2008 SEA and into this document by citation. NMFS adopted the MMS Final PEA, and it is part of NMFS' Administrative Record.

*Comment 14:* The NSB states that the proposed IHA should be more specific in defining dates for which seismic activities will be permitted. BPXA suggests the seismic surveys will take 60 days to complete. The company currently intends to conduct sound source verification of the airgun arrays and for the vessels to be used for the seismic surveys on July 15, 2008 (based on recent correspondence from BPXA to the AEWC). Therefore, the surveys are not likely to be completed by the end of August. NMFS should make clear that the IHA permits seismic surveying only until the end of August. Seismic activity should cease during the bowhead whale hunt at Kaktovik and Nuiqsut.

*Response:* BPXA has informed NMFS that they have agreed to end all airgun activity on August 25 before the beginning of the bowhead whale hunt at Kaktovik and Nuiqsut. This change in duration is reflected in this notice.

#### Marine Mammal Impact Concerns

*Comment 15:* CBD states that they referenced the scientific literature linking seismic surveys with marine mammal stranding events in its comments to MMS on the 2006 Draft PEA and in comments to NMFS and MMS on the 2007 DPEIS. NMFS' failure to address these studies and the threat of serious injury or mortality to marine mammals from seismic surveys renders NMFS' conclusory determination that serious injury or mortality will not occur from BPXA's activities arbitrary and capricious.

*Response:* MMS briefly addressed the humpback whale stranding in Brazil on page PEA-127 in the Final PEA. Marine mammal strandings are also discussed in the NMFS/MMS DPEIS. A more detailed response to the cited strandings has been provided in several previous IHA issuance notices for seismic surveys. Additional information has not been provided by CBD or others regarding these strandings. As NMFS has stated, the evidence linking marine mammal strandings and seismic surveys

remains tenuous at best. Two papers, Taylor *et al.* (2004) and Engel *et al.* (2004), reference seismic signals as a possible cause for a marine mammal stranding. Taylor *et al.* (2004) noted two beaked whale stranding incidents related to seismic surveys. The statement in Taylor *et al.* (2004) was that the seismic vessel was firing its airguns at 1300 hrs on September 24, 2004, and that between 1400 and 1600 hrs, local fishermen found live-stranded beaked whales some 22 km (12 nm) from the ship's location. A review of the vessel's trackline indicated that the closest approach of the seismic vessel and the beaked whales' stranding location was 33 km (18 nm) at 1430 hrs. At 1300 hrs, the seismic vessel was located 46 km (25 nm) from the stranding location. What is unknown is the location of the beaked whales prior to the stranding in relation to the seismic vessel, but the close timing of events indicates that the distance was not less than 33 km (18 nm). No physical evidence for a link between the seismic survey and the stranding was obtained. In addition, Taylor *et al.* (2004) indicate that the same seismic vessel was operating 500 km (270 nm) from the site of the Galapagos Island stranding in 2000. Whether the 2004 seismic survey caused two beaked whales to strand is a matter of considerable debate (see Cox *et al.*, 2004). NMFS believes that scientifically, these events do not constitute evidence that seismic surveys have an effect similar to that of mid-frequency tactical sonar. However, these incidents do point to the need to look for such effects during future seismic surveys. To date, follow-up observations on several scientific seismic survey cruises have not indicated any beaked whale stranding incidents.

Engel *et al.* (2004), in a paper presented to the International Whaling Commission (IWC) in 2004 (SC/56/E28), mentioned a possible link between oil and gas seismic activities and the stranding of eight humpback whales (seven off the Bahia or Espirito Santo States and one off Rio de Janeiro, Brazil). Concerns about the relationship between this stranding event and seismic activity were raised by the International Association of Geophysical Contractors (IAGC). The IAGC (2004) argues that not enough evidence is presented in Engel *et al.* (2004) to assess whether or not the relatively high proportion of adult strandings in 2002 is anomalous. The IAGC contends that the data do not establish a clear record of what might be a "natural" adult stranding rate, nor is

any attempt made to characterize other natural factors that may influence strandings. As stated previously, NMFS remains concerned that the Engel *et al.* (2004) article appears to compare stranding rates made by opportunistic sightings in the past with organized aerial surveys beginning in 2001. If so, then the data are suspect.

Second, strandings have not been recorded for those marine mammal species expected to be harassed by seismic in the Arctic Ocean. Beaked whales and humpback whales, the two species linked in the literature with stranding events with a seismic component are not located in the area of the Beaufort Sea where seismic activities would occur (although humpback whales have been spotted in the Chukchi Sea and much farther west in the Beaufort Sea). Moreover, NMFS notes that in the Beaufort Sea, aerial surveys have been conducted by MMS and industry during periods of industrial activity (and by MMS during times with no activity). No strandings or marine mammals in distress have been observed during these surveys; nor reported by NSB inhabitants. Finally, if bowhead and gray whales react to sounds at very low levels by making minor course corrections to avoid seismic noise and mitigation measures require BPXA to ramp-up the seismic array to avoid a startle effect, strandings are highly unlikely to occur in the Arctic Ocean. Ramping-up of the array will allow marine mammals the opportunity to vacate the area of ensonification and thus avoid any potential injury or impairment of their hearing capabilities. In conclusion, NMFS does not expect any marine mammals will incur serious injury or mortality as a result of seismic surveys in the Beaufort Sea in 2008.

*Comment 16:* CBD states that seismic surveys pose the risk of permanent hearing loss by marine mammals, which itself is a "serious injury" likely to lead to the death of these animals. Seismic pulses of sufficient volume, such as those proposed to be used by BPXA, have the potential to cause temporary and permanent hearing loss in marine mammals.

*Response:* NMFS does not expect that animals will be injured, or for that matter seriously injured or killed, if they are within the 180 dB (cetaceans) and 190 dB (pinnipeds) isopleths. These criteria were set to approximate where Level A harassment (defined as "any act of pursuit, torment or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild") from acoustic sources begins. NMFS has determined that a TTS,

which is the mildest form of hearing impairment that can occur during exposures to a strong sound may occur at these levels. For sound exposures at or somewhat above TTS, hearing sensitivity 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, and none of the published data concern TTS elicited by exposure to multiple pulses of sound. TTS is not an injury, as there is no injury to individual cells.

As NMFS has published several times in **Federal Register** notices regarding issuance of IHAs for seismic survey work or in supporting documentation for such authorizations, for whales exposed to single short pulses, the TTS threshold appears to be a function of the energy content of the pulse. Given the data available at the time of the IHA issuance, the received level of a single seismic pulse might need to be approximately 210 dB re 1  $\mu$ Pa rms 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 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. Since BPXA is operating a moderate-sized array, this array would be even smaller. For baleen whales, there are no data, direct or indirect, on levels or properties of sound that are required to induce TTS. However, there is a strong likelihood that baleen whales (bowhead and gray whales) would avoid the approaching airguns (or vessel) before being exposed to levels high enough for there to be any possibility of onset of TTS.

A marine mammal within a radius of 100 m (328 ft) or less around a typical large array of operating airguns may be exposed to a few seismic pulses with levels greater than or equal to 205 dB and possibly more pulses if the marine mammal moves with the seismic vessel. When permanent threshold shift (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. However, there is no specific evidence that exposure to pulses of airgun sound can cause PTS in any marine mammal, even with airgun arrays larger than that proposed to be used in BPXA's survey. 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.

The information provided here regarding PTS is for large airgun arrays. BPXA is proposing to use an 880 in<sup>3</sup> array, which is considered mid-size. Therefore, animals would have to be very close to the vessel to incur serious injuries. Because of the monitoring and mitigation measures required in the IHA (i.e., marine mammal observers [MMOs], ramp-up, power-down, shutdown, etc.), it is expected that appropriate corrective measures can be taken to avoid any injury, including serious injury.

*Comment 17:* The NSB DWM states that the summary in Section 3 of BPXA's application reflects the changes that have been observed in recent years regarding the distribution of marine mammals. Industrial surveys have revealed marine mammals not commonly seen in the Chukchi and Beaufort Seas until recently. These include fin, minke, and humpback whales. Hunters have noticed increased numbers of narwhals as well. While BPXA has appropriately included most of these species in this section, it has not included humpback whales. MMOs hired by industry have encountered humpback whales in the Beaufort Sea more frequently than they have seen fin or minke whales. According to the NSB DWM, humpback whales should too be considered in BPXA's IHA application. Additionally, the NSB feels that Section 4 of BPXA's application provides a good summary of the stocks of marine mammals that may be encountered in the area that BPXA has proposed to conduct seismic surveys. However, humpbacks should be considered in assessments of takes of marine mammals from seismic surveys in the Beaufort and Chukchi Seas.

*Response:* Until 2007, historic and recent information did not indicate humpback whales inhabit northern portions of the Chukchi Sea or enter the Beaufort Sea. No sightings of humpback whales were reported during aerial surveys of endangered whales in summer (July) and autumn (August–October) of 1979–1987 in the Northern Bering Sea (from north of St. Lawrence Island), the Chukchi Sea north of lat. 66°

N. and east of the International Date Line, and the Alaskan Beaufort Sea from long. 157° 01' W. east to long. 140° W. and offshore to lat. 72° N. (Ljungblad *et al.*, 1988). Humpbacks have not been observed during annual aerial surveys of the Beaufort Sea conducted in September and October from 1982–2007 (e.g., Monnett and Treacy, 2005; Moore *et al.*, 2000; Treacy, 2002; Monnett, 2008, pers. comm.). During a 2003 research cruise in which all marine mammals observed were recorded from July 5 to August 18 in the Chukchi and Beaufort Seas, no humpback whales were observed (Bengtson and Cameron, 2003). One observation of one humpback whale was recorded in 2006 by MMOs aboard a vessel in the southern Chukchi Sea outside of the Chukchi Sea Planning Area (Patterson *et al.*, 2007; MMS, 2006, unpublished data). During summer 2007 between August 1 and October 16, humpback whales were observed during seven observation sequence events in the western Alaska Beaufort Sea (1 animal) and eastern and southeastern Chukchi Sea (6 animals; MMS, 2007, unpublished data) and one other observation in the southern Chukchi Sea in 2007 (Sekiguchi, In prep.). The one humpback sighting in the Beaufort Sea in 2007 was in Smith Bay, which is hundreds of kilometers west of the BPXA project area. Therefore, humpback whales are not expected to occur in the Liberty Prospect area, the location of BPXA's survey.

*Comment 18:* CBD and the NSB state that NMFS' estimate of the number of marine mammals that may be harassed under the proposed authorization is based on the assumption that sounds below 160 dB re 1  $\mu$ Pa (rms) do not constitute harassment. This assumption is incorrect, and therefore BPXA's and NMFS' estimated take numbers represent an underestimate of the possible true impact. As noted above, an activity can constitute harassment if it has the "potential" to affect marine mammal behavior. In our NEPA comments on the 2006 PEA, we pointed out the numerous studies showing significant behavioral impacts from received sounds well below 160 dB. Even the 2006 PEA itself acknowledges that impacts to bowheads occur at levels of 120 dB and below. This clearly meets the statutory definition of harassment and demonstrates that the numbers of bowhead estimated in the proposed IHA to be taken by BPXA's activities likely constitute a significant underestimate. NMFS' "small numbers" conclusion is therefore arbitrary and capricious for this reason as well.

The NSB DWM notes that BPXA suggests that bowheads are responsive to industrial sounds to the 160 to 170 dB zones. However, it is not clear why they do not also acknowledge that bowheads avoided an area around active seismic to much lower sound levels, down to 120 dB or lower (Richardson *et al.*, 1999). Furthermore, BPXA has avoided referencing studies from Northstar showing that bowheads are deflected by very low levels of industrial sounds, possibly even lower than 120 dB. Bowheads' sensitivity to very low level of industrial sounds must be considered in assessing impacts from one industrial operation, as well as impacts from cumulative impacts from multiple operations.

*Response:* On the first point, NMFS uses the best science available when making its determinations under section 101(a)(5)(D) of the MMPA. On the second point, CBD misunderstands the purpose of "potential to harass" in the MMPA. This was not meant to mean that highly speculative numbers of marine mammals could "potentially be harassed" but that Congress intended for U.S. citizens to apply for an MMPA authorization prior to its activity taking marine mammals, not waiting until after the taking occurred and someone needed to "prove" that the taking happened.

As stated previously, the "take" numbers provided in BPXA's application are considered the numbers of animals "exposed" to the sounds based on species density, the area potentially affected, and the length of time the noise would be expected to last. This does not necessarily indicate that all animals will have a significant behavioral reaction to that sound at the level of 160 dB. In addition, CBD took the maximum number of marine mammals (based on animal density), instead of the expected density (as explained in BPXA's application). Using maximum density estimates is problematic as it tends to inflate harassment take estimates to an unreasonably high number and is not based on empirical science. As a result, and understanding the assumptions made in BPXA's IHA application, NMFS believes that far fewer marine mammals would receive SPLs sufficient to cause a significant biological reaction by the species. In regard to bowhead whales, while this species reacts to sounds at levels lower than 160 dB, during its fall westward migration (but not while in a non-migratory behavior), those reactions are not detectable by MMOs and that information is obtained only later during computer analysis of collected data.

Richardson *et al.* (1999) monitored the reactions of migrating bowhead whales and found that most avoided the area of seismic activity within 20 km (12.4 mi) of the source at levels as low as 120–130 dB (rms). Also, the Northstar recordings are conducted during the fall migration westward across the Beaufort. Migration will not occur during the time of BPXA's survey. Therefore, the timing of the survey makes it unnecessary to monitor out to the 120-dB radius.

Lastly, the requirement to assess cumulative impacts is required under NEPA, not the MMPA. Cumulative impacts were assessed and analyzed in both the 2006 PEA and the 2008 SEA.

*Comment 19:* The NSB DWM and CBD states that a 160-dB threshold for belugas is similarly flawed. As NMFS is aware, belugas are among the most sensitive of marine mammals to anthropogenic sound. In previous IHA notices, NMFS has acknowledged the impacts of sounds on belugas even at significant distances from a sound source. For example, in a recent proposed take authorization related to seismic surveys by NSF, NMFS noted that belugas can be displaced at distances of up to 20 km (12.4 mi) from a sound source. 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 be avoiding the seismic operations at distances of 10–20 km (6.2–12.4 mi). Such displacement clearly meets the statutory definition of harassment and demonstrates that the number of belugas estimated to be taken by BPXA's activities constitutes a significant underestimate. Belugas are also extremely sensitive to ships. A study of Canadian belugas showed flight responses from ice-breakers at received sound levels as low as 94 dB. Presumed alarm vocalizations of belugas indicated that they were aware of an approaching ship over 80 km (50 mi) away and they showed strong avoidance reactions to ships approaching at distances of 35–50 km (22–31 mi) when received noise levels ranged from 94 to 105 dB re 1 Pa in the 20–1000 Hz band. The "flee" response of the beluga involved large herds undertaking long dives close to or beneath the ice edge; pod integrity broke down and diving appeared asynchronous. Belugas were displaced along ice edges by as much as 80 km (50 mi; Finley *et al.*, 1990). The NSB DWM states that the 120-dB zone should be used for estimating numbers of beluga

whales that may be taken during seismic operations in the Beaufort Sea, especially if BPXA surveys occur in September or later.

*Response:* BPXA will be conducting their activities in shallow waters of maximum 9.1 m (30 ft) deep inside the barrier islands of the Liberty Prospect in Foggy Island Bay in July and August (and not into September or later). Much of the Beaufort Sea seasonal population of belugas enters the Mackenzie River estuary (in Canada) for a short period from July through August to molt their epidermis, but they spend most of the summer in offshore waters of the eastern Beaufort Sea, Amundsen Gulf, and more northerly areas (Davis and Evans, 1982; Harwood *et al.*, 1996; Richard *et al.*, 2001). Belugas are rarely seen in the central Alaskan Beaufort Sea during the early summer. During late summer and autumn, most belugas migrate westward far offshore near the pack ice (Frost *et al.*, 1988; Hazard, 1988; Clarke *et al.*, 1993; Miller *et al.*, 1999), with the main fall migration corridor approximately 160 km (100 mi) or more north of the coast. Therefore, most belugas migrate well offshore away from the proposed project area, although there is a small possibility that they could occur near the project area in small numbers. Additionally, as BPXA does not intend to use ice-breakers during its seismic survey, statements regarding beluga reactions to ice-breaker noise are not relevant to this activity.

#### *Estimated Take Calculation Concerns*

*Comment 20:* The NSB DWM points out that BPXA states that the densities of marine mammals used to estimate takes are based on 95 percent of seismic surveys occurring in summer (i.e., July and August) and 5 percent occurring during fall (i.e., September). If the seismic surveys will last for 60 days and BPXA won't begin until mid-July (as BPXA recently informed the AEWC), the seismic surveys will last into mid-September. The timing and duration of seismic surveys suggests that 75 percent of the seismic surveys will occur in summer and 25 percent will occur in fall. Therefore, the estimated numbers of bowhead and beluga whales in BPXA's application and possibly other marine mammals that will be harassed are too low. The estimates of takes must be recalculated to provide a more realistic estimate of how many marine mammals will be taken. This correction is especially needed in assessing cumulative impacts to marine mammals from the multiple industrial activities planned for 2008.

*Response:* BPXA has informed NMFS that the survey will last for

approximately 40 days and that airgun activity will cease on August 25. Therefore, NMFS believes that a recalculation of the take estimates is not needed, as they may in fact be overestimates now that the duration of the project has been scaled back.

#### *Subsistence Use Concerns*

*Comment 21:* CBD states that the MMPA requires that any incidental take authorized will not have “an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses” by Alaska Natives. Additionally, CBD notes they are aware that the NVPH, a federally recognized tribal government, has submitted comments opposing the proposed take authorizations due to impacts on subsistence, and along with many community members has commented on myriad other related agency documents that have direct bearing on these take authorization such as the Chukchi Sea Sale 193, MMS Five-Year Plan, and the DPEIS. Similarly, the NSB, the AEW, and REDOIL have all filed challenges in federal court and/or the IBLA challenging offshore activities due to impacts on the subsistence hunt of bowheads and other species. In light of the positions of these communities and organizations, we do not see how NMFS can lawfully make the findings required under the MMPA for approving BPXA’s proposed IHA.

*Response:* NMFS believes that the concerns expressed by subsistence hunters and their representatives have been addressed by NMFS through the comments that they submitted to this action, which are responded to in this section of the document.

*Comment 22:* The NSB feels that if BPXA is permitted to conduct seismic after the bowhead hunt, NMFS must impose additional monitoring requirements, as discussed above. Without additional monitoring, it will not be possible for NMFS to determine whether seismic affects the migration in ways that could result in unmitigable adverse impacts to subsistence.

*Response:* As stated previously in this document, BPXA has stated that it no longer plans to conduct seismic data acquisition after the subsistence bowhead hunt in the Beaufort Sea.

*Comment 23:* The NVPH states that the MMPA requires NMFS to find that the specified activities covered by an IHA “will not have an unmitigable adverse impact on the availability of [marine mammal populations] for taking for subsistence uses” (16 U.S.C. 1371(a)(5)(D)(i)(II)). NMFS is required to make a preliminary determination in its **Federal Register** notice that the

proposed activities will not have an unmitigable adverse impact on the availability of marine mammals for subsistence uses. See 16 U.S.C. 1371(a)(5)(D)(iii) (proposed authorizations must be made available for public comment); 50 CFR 216.104(c) (preliminary finding of no unmitigable adverse impact must be proposed for public comment). In its **Federal Register** notice, NMFS makes a preliminary finding that BPXA’s proposed surveys will not have an unmitigable adverse impact on the availability of affected populations of marine mammals—including bowhead whales, beluga whales, and seals—for subsistence uses. That finding is arbitrary because NMFS fails to provide the substantive analysis required to support its conclusory finding.

As an initial matter, NMFS should recognize that bowhead and beluga whales and ringed seals, all of which may be harassed as a result of BPXA’s activities, each provide unique and irreplaceable subsistence resources that are important to the preservation of our culture. Our communities consume bowhead whale meat, which provides food for the ceremonial Nalukataq and important nutritional values. Bones from bowhead whales are used for carving by Inupiat artists, and bowhead jawbones are used to protect graveyards from animals. Communities along the Beaufort and Chukchi Seas also rely on beluga whales and ringed seals for subsistence. Other subsistence resources cannot be substituted for these important resources.

All of these species move widely throughout the Chukchi and Beaufort Seas, and BPXA’s proposed activities may affect subsistence uses of these animals not only in the location of the activities but also elsewhere. In addition, subsistence foods are traditionally shared among communities, so diminishment of subsistence resources in one area—for instance Barrow, Nuiqsut, or Kaktovik—may have a ripple effect throughout other North Slope communities. A threat to these animals and their availability for subsistence is a threat to our culture. Even a slight interference with the availability of these species to communities on the Beaufort and Chukchi Seas will constitute an unmitigable adverse impact to their overall availability for subsistence uses and their unique ability to meet specific subsistence needs in Nuiqsut, Point Hope, and elsewhere.

*Response:* NMFS believes that it has implemented mitigation measures for conducting seismic surveys to avoid, to the greatest extent practicable, impacts

on coastal marine mammals and thereby, the needs of the subsistence communities that depend upon these mammals for sustenance and cultural cohesiveness. For the 2008 season, these mitigation measures are similar to those contained in the CAA signed by BPXA on May 30, 2008, and include black-out periods during subsistence hunts for bowhead and beluga whales, avoidance of transiting in the spring leads, and coastal community communication stations and emergency assistance. BPXA’s activities will cease prior to the beginning of the bowhead hunt in the Beaufort Sea. It will also occur at a time of year when little seal subsistence hunting occurs in the project area.

*Comment 24:* In evaluating the effects of seismic noise on the availability of marine mammals for subsistence uses, NMFS states that BPXA proposes to mitigate impacts to subsistence activities through the negotiation of a CAA among itself, the AEW, and the Whaling Captains’ Associations of the affected North Slope communities, including the NVPH (73 FR 24248, May 2, 2008). This agreement is also supposed to cover impact to subsistence uses of seals. The NSB points out that the CAA does not address potential impacts to seal hunts, however, and NMFS cannot rely on a CAA with AEW and the village whaling captains to ensure that no unmitigable adverse impacts occur to the subsistence hunt of other marine mammals.

The NVPH believes that by relying on this yet-to-be-completed agreement to mitigate impacts to subsistence, NMFS explicitly defers its determination whether BPXA’s activities will have an unmitigable adverse impact on the availability of bowhead whales and seals for subsistence uses until after such a CAA has been negotiated. NMFS does not give any indication how it will assess the sufficiency of a CAA. It states that if no CAA is reached among the parties, NMFS may impose additional mitigation measures in the IHA. It does not identify those mitigation measures. Nevertheless, NMFS issues a preliminary conclusion that seismic activities will not have an unmitigable adverse impact on the subsistence uses of affected marine mammals (73 FR 24253, May 2, 2008). This preliminary conclusion is expressly conditioned on the implementation and effectiveness of restrictions included in a CAA or mitigation measures included in an IHA. NVPH and the NSB both note that absent specification of these restrictions and mitigation measures, NMFS cannot reasonably conclude that they will prove effective. Because it relies on the presumed effectiveness of non-existent

mitigation measures, NMFS' preliminary conclusion is arbitrary and capricious, as NMFS has failed to prescribe measures that will minimize impacts to subsistence.

If NMFS bases its final "unmitigable adverse impact" determination for affected marine mammals on conditions imposed in a CAA, or, absent conclusion of a CAA, subsequent mitigation measures in an IHA, it must provide for another public comment period during which the public is able to evaluate such conditions. Otherwise, the agency has effectively deprived the public of the opportunity to comment on this determination.

*Response:* NMFS understands that the CAA does not address issues related to subsistence hunt of seals and apologizes for this erroneous statement in the proposed IHA notice. However, NMFS feels that BPXA's seismic survey will not have an unmitigable adverse impact on pinniped subsistence hunts in the Arctic region. Ringed seals, the most common pinniped in the project area, are primarily hunted from October through June, outside of the timeframe of the project. Thus, there should be no effect on subsistence harvest of ringed seals from the proposed activity.

BPXA signed a CAA with the AEWC on May 30, 2008. BPXA's activities will not occur during the beluga hunts, and the company agrees to abide by the transit routes to the project site laid out in the CAA. Additionally, BPXA will end seismic shooting by August 25 to avoid impacts on the fall bowhead subsistence hunt in the U.S. Beaufort Sea.

The design of BPXA's proposed surveys is itself a mitigation measure. The location of the project (inside the barrier islands) is in water too shallow to be suitable habitat for most whale species. Additionally, activities will not occur during subsistence hunting of bowheads or belugas. NMFS presented all of this information in its proposed IHA notice. Therefore, additional time for public comment is not warranted.

*Comment 25:* The NVPH states that BPXA appears not to have complied with the regulatory requirement to include a plan of cooperation (POC) or a description of the measures that will be taken to minimize adverse effects on the availability of marine mammals for subsistence uses. For example, the **Federal Register** notes that BPXA had not even met with the very subsistence communities potentially most directly affected by its activities prior to submitting its IHA application. See 73 FR 24248 (noting two meetings with co-management organizations that took place prior to the submission of the IHA

application, but no meetings at all with affected communities such as Nuiqsut or Kaktovik). BPXA also appears to have failed to meet its obligation to provide a "schedule for meeting with the affected subsistence communities to discuss proposed activities and to resolve potential legal conflicts regarding any aspects of either the operation or the plan of cooperation," (50 CFR 216.104(a)(12)(ii)), or to have specified what plans it has to continue to meet with affected communities during its operations in order to resolve conflicts (50 CFR 216.104(a)(12)(iv)). See *id.* (setting forth no schedule to meet with affected communities; noting only that "subsequent meetings" will be held "as necessary"). BPXA also does not appear to have described the measures it will take to ensure that seismic surveys will not interfere with subsistence whaling and seal hunting, as the regulations require, relying instead on a non-existent, hypothetical CAA. Absent a detailed description, it is impossible for NMFS or Point Hope to actually determine how BPXA intends to reduce subsistence impacts, let alone to assess the adequacy and effectiveness of such measures.

*Response:* Since publication of the **Federal Register** notice of proposed IHA (73 FR 24236, May 2, 2008), BPXA has submitted an updated list of POC meetings with affected communities. On February 7, 2008, BPXA met with Nuiqsut and Kaktovik whalers in Deadhorse to introduce the proposed 2008 offshore oil and gas activities. On February 28, 2008, BPXA attended the First Annual Programmatic CAA Meeting in Barrow with AEWC commissioners and representatives from the villages. At the Open-water Meeting in Anchorage in April, BPXA presented its project and monitoring and mitigation plans to NMFS, MMS, the AEWC, the NSB, and other members of the public. On May 13, 2008, BPXA met with the NSB DWM to discuss Liberty seismic environmental monitoring plans and concerns. Also, on June 18, 2008, BPXA held two meetings in Nuiqsut to provide an overview of the seismic projects, one with Nuiqsut whaling captains and one with both Nuiqsut whaling captains and community representatives. Responses to previous comments in this document address the concern that BPXA has not described the measures it will take to avoid interfering with subsistence hunts in the Beaufort Sea.

#### *Mitigation Concerns*

*Comment 26:* CBD states that the MMPA authorizes NMFS to issue a small take authorization only if it can

first find that it has required adequate monitoring of such taking and all methods and means of ensuring the least practicable impact have been adopted (16 U.S.C. 1371(a)(5)(D)(ii)(I)). The proposed IHA largely ignores this statutory requirement. In fact, while the proposed IHA lists various monitoring measures, it contains virtually nothing by way of mitigation measures. The specific deficiencies of the "standard" MMS mitigation measures as outlined in the 2006 PEA are described in detail in our NEPA comments, incorporated by reference, and are not repeated here. The problems with the mitigation measures as explained for NEPA purposes are even more compelling with regard to the substantive standards of the MMPA. Because the MMPA explicitly requires that "means effecting the least practicable impact" on a species, stock, or habitat be included, an IHA must explain why measures that would reduce the impact on a species were not chosen (i.e., why they were not "practicable"). Neither the proposed IHA, BPXA's application, the 2006 PEA, or the 2007 DPEIS attempts to do this.

*Response:* The proposed IHA outlined several mitigation, monitoring, and reporting requirements to be implemented during the Beaufort Sea survey. By way of mitigation, the Notice of Proposed IHA (73 FR 24236, May 2, 2008) described the following actions to be undertaken by BPXA including: speed and course alterations; power-downs and shutdowns when marine mammals are sighted just outside or in the specified safety zones; and ramp-up procedures. Speed or course alteration helps to keep marine mammals out of the 180 or 190 dB safety zones. Additionally, power-down and shutdown procedures are used to prevent marine mammals from exposure to received levels that could potentially cause injury. Ramping-up provides a "warning" to marine mammals in the vicinity of the airguns, providing them time to leave the area and thus avoid any potential injury or impairment of hearing capabilities. Because these mitigation measures will be included in the IHA to BPXA, no marine mammal injury or mortality is anticipated. Numbers of individuals of all species taken are expected to be small (relative to stock or population size), and the take is anticipated to have a negligible impact on the affected species or stock.

Additionally, the survey design itself has been created to mitigate the effects to the lowest level practicable. The total geographic area for which seismic data are required has been minimized by re-analyzing and re-interpreting existing data, thereby reducing the total area

from approximately 220 km<sup>2</sup> (85 mi<sup>2</sup>) to approximately 91 km<sup>2</sup> (35 mi<sup>2</sup>). Also, the total airgun discharge volume has been reduced to the minimum volume needed to obtain the required data.

Lastly, two seismic source vessels will be used simultaneously (alternating their shots) to minimize the total survey period. BPXA has also agreed to complete all of its seismic acquisition by August 25, prior to the westward migration of the bowhead whales across the Beaufort and the start of the subsistence hunt of these animals. Beluga whales are not hunted in the Liberty Prospect area during the time of the BPXA survey. Additionally, although ringed seals are available to be taken by subsistence hunters year-round, the seismic survey will not occur during the primary period when this species is typically harvested (October through June). For these reasons, NMFS believes that it has required all methods and means necessary to ensure the least practicable impact on the affected species or stocks. CBD's comments on the 2006 PEA and the responses to those comments were addressed in Appendix D of the PEA and are not repeated here.

*Comment 27:* CBD states that while NMFS has not performed any analysis of why additional mitigation measures are not "practicable," the proposed IHA contains information to suggest that many such measures are in fact practicable. For example, in 2006, NMFS required monitoring of a 120-dB safety zone for bowhead cow/calf pairs and monitoring of a 160-dB safety zone for large groups of bowhead and gray whales (greater than 12 individuals). The BPXA IHA is silent as to the applicability of these safety zones. Moreover, the fact that a 120-dB safety zone is possible for aggregations of bowheads means that such a zone is also possible for other marine mammals such as belugas which are also subject to disturbance at similar sound levels. The failure to require such, or at least analyze it, violates the MMPA. The NSB DWM adds that the 120-dB zone must be considered for bowheads and possibly belugas if surveys are to occur in September and that sound source verification tests should empirically measure, and not extrapolate, the distance to which BPXA's seismic sounds for Liberty attenuate to 120 dB.

*Response:* NMFS has considered a monitoring and shutdown requirement for the 160-dB and 120-dB safety zones and has determined they would not be applicable to the BPXA survey. These measures are only required if activities occur after August 25 in the Alaskan Beaufort Sea. NMFS has found the 160-dB safety zone to be practicable in the

Chukchi Sea. Therefore, IHA holders operating in the Chukchi Sea will be required to monitor and shutdown within the 160-dB safety radius if an aggregation of 12 or more bowhead or gray whales that appear to be engaged in a non-migratory, significant biological behavior is observed during a monitoring program. Seismic activity will not recommence until two consecutive surveys indicate the animals are no longer present within the 160-dB zone. While aerial surveys out to the 120-dB will be required in the Beaufort Sea for activities occurring after August 25, NMFS has found that such surveys are impractical in the Chukchi Sea because of the lack of adequate landing facilities and the prevalence of fog and other inclement weather in that area, thereby resulting in safety concerns.

Also, because the Liberty seismic survey will take place shoreward of the barrier islands in very shallow waters from 1–9.1 m (3–30 ft; where high seismic propagation loss is expected), few bowhead whales are likely to occur in the project area. The distance of received levels that might elicit avoidance will likely not (or barely) reach the main migration corridor and then only through the inter-island passages. BPXA's activities will cease before the beginning of the fall bowhead migration across the U.S. Beaufort Sea. Additionally, gray whales have not commonly or consistently been seen in the area of the Beaufort Sea where BPXA will conduct its activities over the last 25–30 years.

*Comment 28:* The MMC recommends that NMFS issue the IHA provided that NMFS require: (a) the applicant to implement all practicable monitoring and mitigation measures to protect bowhead whales and other marine mammal species from disturbance and that ramp-up be allowed only when the entire area encompassed by the safety zones is clearly visible for a sufficiently long period to ensure that marine mammals are not present; and (b) operations to be suspended immediately if a dead or seriously injured marine mammal is found in the vicinity of the operations and if that death or injury could be attributable to the applicant's activities. Any suspension should remain in place until NMFS: (1) has reviewed the situation and determined that further deaths or serious injuries are unlikely to occur; or (2) has issued regulations authorizing such takes under section 101(a)(5)(A) of the MMPA.

*Response:* NMFS concurs with the MMC's recommendation and extends the requirement to any type of injury,

not just serious injury, if it could be attributable to BPXA's seismic survey activities. A condition to this effect has been included in the IHA. Ramp-up will not be permitted unless the entire area encompassed by the safety zones has been clearly visible for at least 30 min prior to start-up of the airguns.

#### *Monitoring Concerns*

*Comment 29:* CBD states that MMOs cannot effectively detect 100 percent of the marine mammals that may enter the safety zones. NMFS allows seismic vessels to operate airguns during periods of darkness, but does not require MMOs to monitor the exclusion zones during nighttime operations except when starting airguns at night or if the airgun was powered down due to marine mammal presence the preceding day. Even during the day, visually detecting marine mammals from the deck of a seismic vessel presents challenges and may be of limited effectiveness due to glare, fog, rough seas, the small size of animals such as seals, and the large proportion of time that animals spend submerged. CBD feels that there is no documentation to prove that BPXA's operations will more effectively monitor exclusion zones than in 2006 and 2007. Therefore, marine mammals will likely be exposed to sound levels that could result in permanent hearing loss and therefore serious injury. As such, because BPXA's proposed activities "have the potential to result in serious injury or mortality" to marine mammals, NMFS cannot lawfully issue the requested IHA. Moreover, NMFS cannot authorize some take (i.e., harassment) if other unauthorized take (i.e., serious injury or mortality) may also occur. However, even if an IHA were the appropriate vehicle to authorize take for BPXA's planned activities, because the proposed IHA is inconsistent with the statutory requirements for issuance, it cannot lawfully be granted by NMFS.

*Response:* The seismic vessels will be traveling at speeds of about 1–5 knots (1.9–9.3 km/hr). With a 180-dB safety range of 880 m (0.55 mi) at full strength at 4 m (13 ft) tow depth, a vessel will have moved out of the safety zone within a few minutes. As a result, during underway seismic operations, MMOs are instructed to concentrate on the area ahead of the vessel, not behind the vessel where marine mammals would need to be voluntarily swimming towards the vessel to enter the 180-dB zone. In fact, in some of NMFS' IHAs issued for scientific seismic operations, shutdown is not required for marine mammals that approach the vessel from the side or stern in order to ride the bow

wave or rub on the seismic streamers deployed from the stern (and near the airgun array) as some scientists consider this a voluntary action on the part of an animal that is not being harassed or injured by seismic noise. While NMFS concurs that shutdowns are not likely warranted for these voluntary approaches, in the Arctic Ocean, all seismic surveys are shutdown or powered down for all marine mammal close approaches. Also, in all seismic IHAs, including BPXA's IHA, NMFS requires that the safety zone be monitored for 30 min prior to beginning ramp-up to ensure that no marine mammals are present within the safety zones. Implementation of ramp-up is required because it is presumed it would allow marine mammals to become aware of the approaching vessel and move away from the noise, if they find the noise annoying.

Total darkness will not set in during BPXA's survey. During the first two weeks of data acquisition, there will be 24 hrs of daylight. However, during times of impaired light, MMOs will be equipped with night vision devices. During poor visibility conditions, if the entire safety zone is not visible for the entire 30 min pre-ramp-up period, operations cannot begin.

NMFS believes that an IHA is the proper authorization required to cover BPXA's survey. As described in other responses to comments in this document, NMFS does not believe that there is a risk of serious injury or mortality from these activities. The monitoring reports from 2006 and 2007 do not note any instances of serious injury or mortality. Additionally, NMFS feels it has met all of the requirements of section 101(a)(5)(D) of the MMPA (as described throughout this document) and therefore can issue an IHA to BPXA for seismic operations in 2008.

*Comment 30:* The NSB and CBD states that with regard to nighttime and poor visibility conditions, BPXA proposes essentially no limitations on operations, even though the likelihood of observers seeing marine mammals in such conditions is very low. The obvious solution, not analyzed by BPXA or NMFS, is to simply prohibit seismic surveying when conditions prevent observers from detecting all marine mammals in the safety zone. CBD also states that in its treatment of passive acoustic monitoring (PAM), NMFS and BPXA are also deficient. While past IHAs have required PAM, this IHA completely ignores even discussing the possibility of using such monitoring. Additional mitigation measures that are clearly "practicable" are included in our

NEPA comments on the PEA and DPEIS and incorporated by reference here.

*Response:* The time of year when BPXA will be conducting its survey is a time when total darkness does not occur. During the first 2 weeks of data acquisition, it will be light 24 hr/day. Beginning around July 29, nautical twilight will begin to occur for short periods of time each day, with the amount of time that twilight occurs increasing by about 15–30 minutes each day. Nautical twilight is defined as the sun being approximately 12° below the horizon. At the beginning or end of nautical twilight, under good atmospheric conditions and in the absence of other illumination, general outlines of ground objects may be distinguishable, but detailed outdoor operations are not possible, and the horizon is indistinct. During periods of impaired light or fog, operations will not be allowed to resume after a full shutdown if the entire 180-dB safety radius cannot be monitored for a full 30-min period. Additionally, night vision devices will be onboard each source vessel. BPXA and NMFS considered the use of PAM for this project. However, since cetaceans are not expected to be present in the shallow water environment, it was determined not to be practical to require such monitoring. It should be noted, however, that every fall, BPXA deploys Directional Autonomous Seafloor Acoustic Recorders near its Northstar facility in the Beaufort Sea, which is slightly westward of this survey to record bowhead whale calls during the fall migration. Results of those recordings are available in the Northstar reports and can be found on the NMFS PR website (see **ADDRESSES** for availability).

*Comment 31:* The NSB DWM notes that in its application, BPXA states MMOs "on board of the vessels play a key role in monitoring these safety zones and implementation of mitigation measures." The 190 and 180 dB safety zones (at an airgun depth of 4 m, 13 ft) are 390 m and 880 m (0.24 mi and 0.55 mi), respectively. The NSB DWM is concerned given that BPXA is using relatively small vessels for conducting the seismic surveys, it is not clear that the MMOs will be observing from a high enough position to adequately clear the safety zones, especially in inclement weather or darkness. Additional information is needed regarding the adequacy of MMOs for clearing safety zones, especially with the relatively small safety zones anticipated for these seismic surveys.

BPXA has considered the limitation of MMOs in implementing mitigation

measures to prevent Level A takes. BPXA has not planned on any additional monitoring efforts, however. If seismic surveys are going to extend into September, when darkness and inclement weather are more common than in August, there should be additional monitoring efforts to avoid Level A takes and to evaluate numbers of Level B takes of marine mammals. Aerial surveys or acoustic monitoring would be suitable means to this additional monitoring.

*Response:* Bridge height for the Peregrine is 4.5 m (14.8 ft) and 3.7 m (12.1 ft) for the Miss Dianne. In addition to these heights, one also needs to take into account the height of the MMO (BPXA assumes an average height of 1.7 m, 5.6 ft). From these heights, MMOs are able to clear the 180-dB and 190-dB safety zones. Under conditions of low or poor visibility, the measures mentioned in previous responses will be required. Additionally, night vision devices will be available on all source vessels. Surveys will not extend into September, so there would be no need for additional monitoring efforts.

*Comment 32:* The NSB is concerned that if the seismic surveys do occur in September, bowhead whales have a much greater chance of being exposed to seismic sounds, and BPXA must increase its proposed monitoring program. The NSB and NSB DWM state that aerial surveys and acoustic monitoring programs will be needed if BPXA resumes its seismic surveys in September. The increased monitoring should include: (1) Aerial surveys at least 3 times per week, both inshore and offshore of the barrier islands; (2) enhanced acoustic monitoring, especially in areas offshore of the barrier islands; and (3) increased MMO coverage. Without additional monitoring plans for September and October, the NSB opposes an IHA that permits seismic activity during that time period. The NSB DWM notes that it is not clear where BPXA will deploy acoustic recorders. Further information is needed. If seismic surveys are to extend into September, hydrophones should at least be deployed to the west and east of McClure Islands and shoreward of the barrier islands. The NSB DWM also believes that MMOs should be deployed to vessels other than the source vessels if surveys continue into the fall migration period to help avoid Level A takes and to provide information about how many marine mammals may be affected in the disturbance zones (i.e., 120- and 160-dB zones).

*Response:* As stated previously in this **Federal Register** notice, BPXA has

stated that it no longer plans to conduct seismic data acquisition in September and October.

*Comment 33:* The NVPH notes that NMFS regulations require that an IHA set forth “requirements for the independent peer-review of proposed monitoring plans where the proposed activity may affect the availability of a species or stock for taking for subsistence uses” (50 CFR 216.107(a)(3)). The proposed IHA fails to provide for peer review of BPXA’s proposed monitoring plans. It states only that BPXA participated in the “open water meeting” in Anchorage in April. This does not suffice to meet the independent peer review requirement for BPXA’s monitoring plans. Such peer review, by independent, objective reviewers is both necessary and required.

*Response:* In order for the independent peer-review of Arctic area activity monitoring plans, it must be conducted in an open and timely process. Review by an independent organization, such as the National Academy of Sciences, would be costly (at least \$500,000), take at least a year to complete, would limit NMFS, FWS, MMS, and stakeholder input, would likely provide for an inflexible, multi-year monitoring plan (e.g., any modifications may require reconvening the Committee), and may not address issues of mutual concern (degree of bowhead westward migration, etc.). As a result, NMFS believes that independent peer-review of monitoring plans can be conducted via two means. First, the monitoring plans are made public and available for review by scientists and members of the public in addition to scientists from the NSB, NMFS, and the USFWS. In accordance with the MMPA, the MMC’s Committee of Scientific Advisors reviews all IHA applications, including the monitoring plans. Second, monitoring plans and the results of previous monitoring are reviewed once or twice annually at public meetings held with the industry, the AEWC, the NSB, Federal agencies, and the public. BPXA’s mitigation and monitoring plan was reviewed by scientists and stakeholders at a meeting in Anchorage between April 14, 2008, and April 16, 2008, and by the public between May 2, 2008 (73 FR 24236) and June 2, 2008.

#### *Cumulative Impact Concerns*

*Comment 34:* Oceana and the Ocean Conservancy are concerned that oil and gas activities may have substantial negative effects on marine mammals and other Arctic species. Oceana and the Ocean Conservancy further state that

there has never been a comprehensive evaluation of the cumulative effects of seismic activities in the Arctic. Oceana and the Ocean Conservancy request that in light of the dramatic effects of climate change in the Arctic, NMFS must not approve further seismic activities without such a comprehensive evaluation.

*Response:* While it is possible that substantial negative effects on marine mammals and other Arctic species could occur from oil and gas activities, NMFS believes that proactive conservation measures for protected species, such as NMFS’ initiation of status reviews of ice seals and the recent USFWS ESA-listing of polar bears, coupled with prudent natural resources management and regulations on industrial activities by Federal agencies would reduce these adverse impacts to biologically non-significant or negligible levels. In addition, monitoring and mitigation measures required for conducting particular industrial activities would further reduce and minimize such negative effects to marine mammal species and stocks. Long term research and monitoring results on ice seals in Alaska’s North Slope have shown that effects of oil and gas development on local distribution of seals and seal lairs are no more than slight and are small relative to the effects of natural environmental factors (Moulton *et al.*, 2005; Williams *et al.*, 2006).

NMFS does not agree with Oceana’s and Ocean Conservancy’s statement that there has never been a comprehensive evaluation of the cumulative effects of seismic activities in the Arctic. The MMS 2006 PEA, NMFS 2007 SEA, 2007 MMS/NMFS DPEIS, and NMFS 2008 SEA for the proposed issuance of IHAs for five seismic survey and shallow hazard and site clearance survey activities for the 2008 open water season all provide comprehensive evaluation of the cumulative effects of seismic activities in the Arctic. In issuing the IHA to BPXA for its proposed OBC seismic survey in the Beaufort Sea, NMFS has conducted extensive environmental reviews.

*Comment 35:* The MMC recommends that NMFS, together with the applicant and other appropriate agencies and organizations, develop a broad-based population monitoring and impact assessment program to ensure that these activities, in combination with other risk factors, are not individually or cumulatively having any significant adverse population-level effects on marine mammals or having an unmitigable adverse effect on the availability of marine mammals for

subsistence uses by Alaska Natives. Such a monitoring program should focus initially on the need to collect adequate baseline information to allow for future analyses of effects.

As the MMC has noted in previous letters to NMFS, the NRC (2003) report *Cumulative Environmental Effects of Oil and Gas Activities on Alaska’s North Slope* states that the predicted rate of climate change in the Beaufort Sea region may, at some point, have more than a negligible impact on marine mammal populations, particularly when combined with the effects of oil and gas operations and other human activities that are likely to be initiated or to increase in Arctic regions. The MMC therefore questions whether there is sufficient basis for concluding that the cumulative effects of the proposed activities, coupled with past, ongoing, and planned activities in the Beaufort and Chukchi Seas, will be negligible for bowhead whales and other marine mammals and will not have an unmitigable adverse impact on their availability to Alaska Natives for subsistence use.

*Response:* The report *Cumulative Environmental Effects of Oil and Gas Activities on Alaska’s North Slope* (Report) released by the National Academy of Science lists industrial noise and oil spills as major impacts to marine mammals from oil and gas development. So far, the prevalent human induced mortalities on marine mammals (bowhead whales, seals, and polar bears) in this region are from subsistence hunting. The Report further predicts that “if climate warming and substantial oil spills did not occur, cumulative effects on ringed seals and polar bears in the next 25 years would likely be minor and not accumulate”. In its findings, the Report concludes that “industrial activity in marine waters of the Beaufort Sea has been limited and sporadic and likely has not caused serious accumulating effects on ringed seals or polar bears; and “careful mitigation can help to reduce the effects of North Slope oil and gas development and their accumulation, especially if there is no major oil spill”. The proposed activity would have no potential for an oil spill. It is also highly unlikely given the mitigation and monitoring measures required in the IHA and the distribution of marine mammals during the survey activity period that injury or mortality of marine mammals would occur as a result of BPXA’s seismic survey.

A description of the monitoring program submitted by BPXA was provided in BPXA’s application, outlined in the **Federal Register** notice

of the proposed IHA (73 FR 24236, May 2, 2008), and posted on the NMFS PR IHA webpage. As a result of a dialogue on monitoring by scientists and stakeholders attending NMFS' public meetings in Anchorage in April, 2006, October, 2006, and April, 2007, the industry has expanded its monitoring program in order to fulfill its responsibilities under the MMPA. For the third year, industry participants have included a marine mammal research component designed to provide baseline data on marine mammals for future operations planning. A description of this research is provided later in this document (see "Joint Industry Program" section). Scientists are continuing discussions to ensure that the research effort obtains the best scientific information possible. Finally, it should be noted that this far-field monitoring program follows the guidance of the MMC's recommended approach for monitoring seismic activities in the Arctic (Hofman and Swartz, 1991), that additional research might be warranted when impacts to marine mammals would not be detectable as a result of vessel observation programs.

Additionally, although not required as part of the IHA issued by NMFS to BPXA, at the request of the NSB, BPXA has agreed to conduct three fish related studies in the proposed project area. First, BPXA will conduct a literature review on the effects of airgun sounds on fish and lower-level animals, including larval fish and invertebrates. Secondly, BPXA will sample behind the operation seismic airgun survey vessels to gather qualitative data on fish mortality. Lastly, BPXA has agreed to analyze catch-per-unit-effort data from fyke net in the Endicott area to look for a "seismic effect." These studies will aid in collecting baseline ecosystem data in Foggy Island Bay.

#### ESA Concerns

*Comment 36:* CBD states that the proposed IHA will affect, at a minimum, three endangered species, the bowhead and humpback whales and the polar bear. As a consequence, NMFS must engage in consultation under Section 7 of the ESA prior to issuing the IHA. Previous recent biological opinions for industrial activities in the Arctic (e.g., the 2006 Arctic Regional Biological Opinion (ARBO)) have suffered from inadequate descriptions of the proposed action, inadequate descriptions of the status of the species, inadequate descriptions of the environmental baseline, inadequate descriptions of the effects of the action, inadequate analysis of cumulative effects, and inadequate

descriptions and analysis of proposed mitigation. We hope NMFS performs the full analysis required by law and avoids these problems in its consultation for the proposed IHA.

*Response:* Under section 7 of the ESA, NMFS has completed consultation with the MMS on the issuance of seismic permits for offshore oil and gas activities in the Beaufort and Chukchi seas. In a Biological Opinion issued on June 16, 2006, NMFS concluded that the issuance of seismic survey permits by MMS and the issuance of the associated IHAs for seismic surveys are not likely to jeopardize the continued existence of threatened or endangered species (specifically the bowhead whale) under the jurisdiction of NMFS or destroy or adversely modify any designated critical habitat. The 2006 Biological Opinion takes into consideration all oil and gas related activities that are reasonably likely to occur, including exploratory (but not production) oil drilling activities.

NMFS has indicated that the findings in the 2006 ARBO are still relevant to BPXA's 2008 open water seismic survey planned for the Liberty Prospect, Foggy Island Bay, Beaufort Sea. MMS and NMFS are conducting a section 7 consultation for 2008 activities in the Chukchi Sea only, as there is evidence that humpback and fin whales may be affected by seismic surveys in 2008. However, since these species are not likely to occur in BPXA's project area, reinitiation of consultation for this particular IHA is not warranted. In addition, NMFS has issued an Incidental Take Statement under this Biological Opinion which contains reasonable and prudent measures with implementing terms and conditions to minimize the effects of take of bowhead whales. Regarding the polar bear, MMS has contacted the USFWS about conducting a section 7 consultation.

*Comment 37:* Additionally, CBD states, NMFS may authorize incidental take of the listed marine mammals under the ESA pursuant to Section 7(b)(4) of the ESA, but only where such take occurs while "carrying out an otherwise lawful activity." To be "lawful," such activities must "meet all State and Federal legal requirements except for the prohibition against taking in section 9 of the ESA". As discussed above, BPXA's proposed activities violate the MMPA and NEPA and therefore are "not otherwise lawful." Any take authorization for listed marine mammals would, therefore, violate the ESA, as well as these other statutes.

*Response:* As noted in this document, NMFS has made the necessary determinations under the MMPA, the

ESA, and NEPA regarding the incidental harassment of marine mammals by BPXA while it is conducting activities permitted legally under MMS' jurisdiction.

#### NEPA Concerns

*Comment 38:* The NSB, NVPH, and CBD state that NEPA requires Federal agencies to prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment." In the notice of proposed IHA, NMFS cites the 2006 PEA and the 2007 DPEIS. As explained in our comment letters on these two documents (incorporated by reference), neither of these documents satisfy NMFS' NEPA obligation. The 2006 PEA explicitly limited its scope to the 2006 seismic season. Additional seismic work cannot be authorized without further NEPA analysis of the cumulative impacts of increasing activity offshore in the Arctic Ocean.

The monitoring reports from 2006 and 2007 seismic testing must be considered in any NEPA analysis for further seismic testing. Moreover, these reports indicate that the 120 dB and 160 dB zones from seismic surveys were much larger than anticipated or analyzed in the PEA. As such, the analysis of the PEA is simply inaccurate and underestimates the actual impacts from seismic activities. Also, in 2007, significant bowhead feeding activity occurred in Camden Bay, rendering the PEA's analyses of important bowhead feeding areas inadequate and inaccurate. Additionally, sea ice in 2007 retreated far beyond that predicted or analyzed in the PEA, rendering any discussion of cumulative impacts of seismic activities in the context of climate change horribly out of date.

Moreover, even if the EA was not of limited scope and out of date, the proposed surveys threaten potentially significant impacts to the environment, and must be considered in a full EIS. (See 42 U.S.C. 5 4332(2)(c); *Idaho Sporting Cong v. Thomas*, 137 F.3d 1146, 1149 (9th Cir. 1998)). "[A]n EIS must be prepared if "substantial questions are raised as to whether a project . . . may cause significant degradation of some human environmental factor" *Idaho Sporting Cong.*, 137 F.3d at 1149). As explained in our comment letter of May 10, 2006, on the PEA (incorporated by reference), seismic surveys trigger several of the significance criteria enumerated in NEPA regulations. Additionally, the "significance thresholds" in the PEA are, as explained in our comment letters, arbitrary and unlawful. Moreover, the 120 dB and 160 dB safety zones that NMFS relied upon to avoid

a finding of significance in the 2006 PEA are not part of the current proposal and cannot in anyway support a finding of no significant impact (FONSI). Finally, where, as here, a proposed action may have cumulatively significant impacts, an EIS must be prepared, and cannot be avoided by breaking a program down into multiple actions. See *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1215 (9th Cir. 1998); *Kern v. Bureau of Land Mgmt.*, 284 F.3d 1062, 1078 (9th Cir. 2002).

*Response:* NMFS prepared a Final SEA to analyze further the effects of BPXA's (and other companies') proposed open-water seismic survey activities for the 2008 season. NMFS has incorporated by reference the analyses contained in the MMS 2006 Final PEA and has also relied in part on analyses contained in the DPEIS submitted for public comment on March 30, 2007.

The 2006 PEA analyzed a broad scope of proposed seismic activities in the Arctic Ocean. In fact, the PEA assessed the effects of multiple, ongoing seismic surveys (up to 8 surveys) in the Beaufort and Chukchi Seas for the 2006 season. Although BPXA's proposed activity for this season was not explicitly identified in the 2006 PEA, the PEA did contemplate that future seismic activity, such as BPXA's, could occur. NMFS believes the range of alternatives and environmental effects considered in the 2006 PEA, combined with NMFS' SEA for the 2008 season are sufficient to meet the agency's NEPA responsibilities. In addition, the 2008 SEA includes new information obtained since the 2006 Final PEA was issued, including updated information on cumulative impacts. NMFS also includes a new section in the 2008 SEA, which provides a review of the 2006 and 2007 monitoring reports. As a result of this review and analysis, NMFS has determined that it was not necessary to prepare an EIS for the issuance of an IHA to BPXA in 2008 for seismic activity in the Beaufort Sea but that preparation of an SEA and issuance of a FONSI were sufficient under NEPA.

NMFS has determined that it is not necessary for BPXA to monitor a 120-dB safety radius, as stated in several of the preceding responses. BPXA will establish a 160-dB safety radius to monitor for Level B harassment exposures; however, no serious injury or mortality is expected of any marine mammal species that enters this radius. Because BPXA will be conducting its activities in shallow water, inshore of the barrier islands, sound is not expected to propagate as far as it would outside the islands. The islands are also

expected to absorb the majority of the sound produced by the airguns.

*Comment 39:* The NSB and CBD state that NMFS also appears to rely on the NEPA analysis in the DPEIS in clear violation of NEPA law. NEPA requires agencies to prepare a draft EIS, consider public and other agency comments, respond to these comments in its final EIS, and wait 60 days before issuing a final decision. Before the record of decision has been issued on the final PEIS, NMFS cannot authorize BPXA's proposed seismic surveys. Here, the very purpose of the PEIS process is to consider seismic surveys in the Chukchi and Beaufort Seas for the years 2008 and beyond. NMFS cannot authorize such activities before the NEPA process is complete. See *Metcalf v. Daley*, 214 F.3d 1135, 1143-44 (9th Cir. 2000). In sum, NMFS seems to either be relying on a NEPA document that is not just inadequate, but which by its very terms only covers activities from two years ago (the 2006 PEA), or one which is nowhere near complete (the 2007 DPEIS). Neither of these is sufficient to meet NMFS' NEPA obligations under the law. The NSB believes that NMFS may not avoid the requirements of NEPA by only completing a SEA this season.

*Response:* See previous responses on this concern. Contrary to the NSB's and CBD's statement, NMFS relied on information contained in the MMS 2006 Final PEA, as updated by NMFS' 2008 SEA for making its determinations under NEPA and that the DPEIS was not the underlying document to support NMFS' issuance of BPXA's IHA. NMFS merely relied upon specific pieces of information and analyses contained in the DPEIS to assist in preparing the SEA. It is NMFS' intention that the PEIS currently being developed will be used to support, in whole, or in part, future MMPA actions relating to oil and gas exploration in the Arctic Ocean. Additionally, NMFS believes that a SEA is the appropriate NEPA analysis for this season as the amount of activity for 2008 is less than what was analyzed in the 2006 PEA.

*Comment 40:* The NVPH states that because NMFS has not yet made a copy of its SEA available to the public, it is impossible to comment fully on the agency's NEPA analysis of BPXA's shallow hazard surveys. Nevertheless, we hereby incorporate by reference in their entirety the following comments that identify the flaws with the analysis provided in the PEA and explain why it is inappropriate for NMFS to continue to rely on that document: (i) our comments on NMFS proposed IHA for Arctic Slope Regional Corporation

Energy Services (AES), submitted on May 28, 2008; (ii) our comment on the 2006 PEA, submitted on May 24, 2006; and (iii) the comments submitted to NMFS by the NRDC on May 10, 2006. As these comments recount, the analysis in the PEA understates the risk of significant impacts to bowhead whales and all marine mammals, fails to provide site-specific analysis, fails to evaluate activities beyond 2006, and uses arbitrary significance criteria for non-endangered marine mammals, among many other failures.

*Response:* The NVPH alleges that NMFS violated NEPA's standards when it failed to circulate the draft SEA for public comment prior to finalizing the SEA. Neither NEPA, nor the Council on Environmental Quality's regulations explicitly require circulation of a draft EA for public comment prior to finalizing the EA. The Federal courts have upheld this conclusion, and in one recent case, the Ninth Circuit squarely addressed the question of public involvement in the development of an EA. In *Bering Strait Citizens for Responsible Resource Development v. U.S. Army Corps of Engineers* (9th Cir., 2008), the court held that the circulation of a draft EA is not required in every case; rather, Federal agencies should strive to involve the public in the decision-making process by providing as much environmental information as is practicable prior to completion of the EA so that the public has a sufficient opportunity to weigh in on issues pertinent to the agency's decision-making process. In the case of BPXA's MMPA IHA request, NMFS involved the public in the decision-making process by distributing BPXA's IHA application for a 30-day notice and comment period. The IHA application and NMFS' **Federal Register** notice of the proposed IHA (73 FR 24236, May 2, 2008) contained information relating to the project. For example, the application includes a project description, its location, environmental matters such as species and habitat to be affected by project construction, and measures designed to minimize adverse impacts to the environment and the availability of affected species or stocks for subsistence uses. As documented herein, NMFS considered all of the public comments received on the IHA application, in particular issues related to the availability of marine mammals for subsistence uses and means for effecting the least practicable impact on the availability of marine mammal populations for subsistence uses and addressed many of the public's environmental concerns in the final

SEA. NMFS also incorporated, where appropriate, measures to reduce impacts to marine mammals resulting from the surveys. As NMFS stated earlier, the final SEA will be made available to the public upon its completion.

NMFS responded to comments submitted regarding the 2006 PEA in Appendix D of that document and will not repeat those comments and responses here. The comments submitted by the NVPH for the AES proposed IHA regarding NEPA issues are addressed in comments 41–43 in this document.

*Comment 41:* The NVPH believes that the analysis in the PEA understates the risk of significant impacts to bowhead whales and all marine mammals. It assumes the source vessels—both 3D seismic and shallow hazard vessels—will ensonify much smaller zones than those which have been subsequently measured in the field. In practice, seismic airgun noise has propagated far greater distances than NMFS anticipated in the PEA and thus authorized activity presumably has displaced marine mammals from far more habitat, including important feeding and resting habitats, than NMFS' analysis in the PEA anticipated. See, e.g., PEA Figures III.F–10 and III.F–11 (assuming 20 km avoidance of surveys by bowhead whales). Based on the propagation actually measured in 2006 and 2007, the impacts of a single 3D seismic survey are two to three times as large as NMFS anticipated or more. The impacts of a single shallow hazard survey are comparable to the impacts NMFS anticipated from a single 2D or 3D seismic survey. Before authorizing further seismic surveying activity or shallow hazard surveys in the Arctic Ocean, NMFS must complete the PEIS that it began in 2006 to evaluate the potentially significant impacts of such activities.

*Response:* The subject PEA was written by MMS, not NMFS. However, NMFS was a cooperating agency under NEPA in its preparation. As noted in your cited part in the PEA, 20 km (12.4 mi) was used for illustrative purposes in an exercise to estimate the impact of four seismic vessels operating within 24 km (15 mi) of each other. To do so, MMS created a box (that was moveable along the Beaufort Sea coast) to make these estimates. NMFS believes that the use of 20 km (12.4 mi) remains the best information available at this time and was the radius agreed to by participants at the 2001 Arctic Open-water Noise Peer Review Workshop in Seattle, Washington. This estimate is based on the results from the 1998 aerial survey (as supplemented by data from earlier

years) as reported in Miller *et al.* (1999). In 1998, bowhead whales below the water surface at a distance of 20 km (12.4 mi) from an airgun array received pulses of about 117–135 dB re 1 Pa rms, depending upon propagation. Corresponding levels at 30 km (18.6 mi) were about 107–126 dB re 1  $\mu$  Pa rms. Miller *et al.* (1999) surmise that deflection may have begun about 35 km (21.7 mi) to the east of the seismic operations, but did not provide SPL measurements to that distance, and noted that sound propagation has not been studied as extensively eastward in the alongshore direction, as it has northward, in the offshore direction. Therefore, while this single year of data analysis indicates that bowhead whales may make minor deflections in swimming direction at a distance of 30–35 km (18.6–21.7 mi), there is no indication that the SPL where deflection first begins is at 120 dB, it could be at another SPL lower or higher than 120 dB. Miller *et al.* (1999) also note that the received levels at 20–30 km (12.4–18.6 mi) were considerably lower in 1998 than have previously been shown to elicit avoidance in bowheads exposed to seismic pulses. However, the seismic airgun array used in 1998 was larger than the ones used in 1996 and 1997. Therefore, NMFS believes that it cannot scientifically support adopting any single SPL value below 160 dB and apply it across the board for all species and in all circumstances. For this reason, until more data collection and analyses are conducted on impacts of anthropogenic noise (principally from seismic) on marine mammals in the Beaufort and Chukchi Seas, NMFS will continue to use 20 km (12.4 mi) as the radius for estimating impacts on bowhead whales during the fall migration period.

In regards to the NVPH statement, “The impacts of a single shallow hazard survey are comparable to the impacts NMFS anticipated from a single 2D or 3D seismic survey,” NMFS notes that BPXA's seismic program is not a shallow hazards survey but a 3D seismic survey conducted in shallow water, inside the barrier islands. This OBC survey is similar to those conducted for BPXA by Western Geophysical in the late 1990s at the nearby Northstar Prospect (see Richardson, W.J. (ed) 1997, 1998, 1999, 2000a, and 2000b for acoustic measurements and marine mammal impact assessments from OBC surveys during 1996 through 2000, respectively). As a result of these previous acoustic propagation measurements, NMFS believes that the sound propagation characteristics for

the 880 in<sup>3</sup> airgun array proposed by BPXA for its 2008 OBC survey at the Liberty Prospect, has been accurately calculated for the 190 dB, 180 dB and 160 dB (rms) zones, as shown in Table 3 of BPXA's IHA application and Table 1 below. Also, it should be recognized that since BPXA will not be operating after August 25 (prior to the start of the bowhead whale westward migration), “exposure” estimates to the 120-dB isopleth are unnecessary, as no animals are presumed to be affected to that distance. In addition, in compliance with the terms and conditions of its IHA, BPXA will conduct a sound source verification test prior to conducting its OBC survey to ensure that the correct distances are applied to the safety and monitoring zones (see “Mitigation Measures” section later in this document).

*Comment 42:* The NVPH states that the PEA fails to provide site-specific analysis. Thus, in order to reduce the likelihood of significant impacts, NMFS has imposed 160-dB and 120-dB safety zones when authorizing surveys pursuant to the PEA. At a minimum, it must do the same for BPXA's surveys but with the modifications to the safety zones discussed above.

*Response:* The SEA prepared for the 2008 open-water season activities provides site specific information for the various projects, in particular BPXA's project. NMFS has determined that it is unnecessary to impose 160-dB and 120-dB safety zones on BPXA since their activities will cease prior to such zones being required in the Beaufort Sea. The 160-dB zone is for large aggregations of bowhead whales. Since the majority of the stock will be in the Canadian Beaufort during BPXA's activities, NMFS has determined that this measure is not necessary. Additionally, NMFS has determined that BPXA does not need to monitor a 120-dB shutdown zone since this is only necessary when 4 or more cow/calf pairs are sighted. Since the animals are not normally located in the part of the Beaufort Sea where BPXA will be conducting its survey in July and August and the shallow water depths (which are not considered suitable bowhead habitat), it is highly unlikely that 4 or more cow/calf pairs will be sighted during BPXA's activity.

*Comment 43:* The scope of the PEA is explicitly limited to activities that occur during 2006. Those seismic survey activities have already occurred, as well as an additional season worth of activities in 2007. The PEA does not evaluate activities that will occur over a period of several years, though NMFS has continued to rely on it as if its scope

were for a multi-year program of seismic surveys. In addition, the PEA uses arbitrary significance criteria for non-endangered marine mammals that would allow long-lasting impacts to populations, or in fact the entire Arctic ecosystem, that would nonetheless be deemed insignificant. These significance criteria are inappropriate for an evaluation of impacts from seismic surveys, as indicated by MMS' use of more defensible significance criteria based on potential biological removal from marine mammal populations affected by seismic surveys in the Gulf of Mexico.

*Response:* The NMFS has prepared and released to the public, a SEA for seismic surveys that are expected to occur in 2008 (see **ADDRESSES** for availability). This SEA incorporates by reference the relevant information contained in the 2006 PEA and updates that information where necessary to assess impacts on the marine environment from the 2008 seismic survey activities. NMFS believes that it is fully compliant with the requirements of NEPA in its preparation of its NEPA documents.

#### Marine Mammals Affected by the Activity

The Beaufort Sea supports a diverse assemblage of marine mammals, including bowhead, gray, beluga, killer, minke, fin, and humpback whales, harbor porpoises, ringed, spotted, and bearded seals, polar bears, and walrus. These latter two species are under the jurisdiction of the USFWS and are not discussed further in this document. A separate LOA was issued to BPXA by the USFWS specific to walrus 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 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 because bowhead and beluga whales are mostly found farther east in the Mackenzie Delta, Camden Bay, and other parts of the Canadian Beaufort Sea in July and August. Also, during this time, gray whales are mostly found in the northern Bering and Chukchi Seas and are rarely seen in the project area. 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, and the NMFS 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 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.

The notice of the proposed IHA (73 FR 24236, May 2, 2008) included a discussion of the effects of sounds from airguns on mysticetes, odontocetes, and pinnipeds, including tolerance, masking, behavioral disturbance, hearing impairment and other physical effects, and non-auditory physiological effects. Additional information on the behavioral reactions (or lack thereof) by all types of marine mammals to seismic vessels can be found in Appendix C of BPXA's application.

The notice of proposed IHA also included a discussion of the effects of pinger signals on marine mammals. Because of the low power output and the weaker signals produced by the pingers than by the airguns, NMFS believes it unlikely that marine mammals will be exposed to pinger signals at levels at or above those likely to cause harassment.

#### 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, strandings, or from sound levels high enough to result in PTS. Disturbance reactions, such as avoidance, are very likely to occur among 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 the potential for serious injury or mortality.

The notice of the proposed IHA (73 FR 24236, May 2, 2008) included an in-depth discussion of 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 seismic acquisition activity area in the Beaufort Sea. Additional information was included in BPXA's application. A summary is provided 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  $\mu$ Pa.

In its application, BPXA provides estimates of the number of potential "exposures" to sound levels greater than 160 dB re 1  $\mu$ Pa (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 current policy to estimate Level B harassment takes based on the 160-dB criterion for all species.

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 Pa 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. 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.

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, although NMFS relies on the average density estimate to derive potential exposure estimates. 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. However, since survey activity will cease prior to the fall migration period, few cetaceans are expected to be taken. Additional species specific information for both bowhead and belugas was contained in the notice of proposed IHA.

#### *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, not in open-water where seismic surveys are conducted. Consequently, the density and potential take (exposure) numbers for seals in the Beaufort Sea will likely overestimate the number of seals that would likely be encountered and/or exposed to seismic airguns because only animals in the water near the survey area would be exposed to the seismic activity sound sources. Because seals would be more widely dispersed at this time of the year, animal densities would be less than when seals are concentrated on and near the ice. However, 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. Additional species specific information for ringed, bearded, and spotted seals was contained in the proposed IHA notice.

#### *Exposure Calculations for Marine Mammals*

Impacts on marine mammals from the planned seismic survey focus on the

sound sources of the seismic airguns. A complete description of 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 in<sup>3</sup> and the assumptions underlying these calculations were provided in the proposed IHA notice and BPXA's application (more specifications of this airgun array are included in Appendix B of BPXA's application). A summary is

provided here. 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).

Table 3 in BPXA's application and Table 1 here outline the estimated distances for specified received levels from airgun arrays with total discharge

volumes of 440 in<sup>3</sup> and 880 in<sup>3</sup> 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. Therefore, 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 IN<sup>3</sup> AND 880 IN<sup>3</sup>. NOTE THAT THE ARRAY DEPTH IS AN IMPORTANT FACTOR FOR SOUND PROPAGATION LOSS.

Received levels (dB re 1 µPa rms) <sup>a</sup>	Distance in meters <sup>b</sup> (array depth 1 m)		Distance in meters <sup>b</sup> (array depth 4 m)	
	440 in <sup>3</sup>	880 in <sup>3</sup>	440 in <sup>3</sup>	880 in <sup>3</sup>
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

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

<sup>b</sup> Received levels of airgun sounds are expressed in dB re 1 µPa (rms, averaged over pulse duration).

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.

The following table indicates the authorized 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 authorized for take by Level B (behavioral) harassment.

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 SEISMIC SURVEY IN THE LIBERTY AREA, BASED ON RADII FOR 880 IN<sup>3</sup> ARRAY AND 4 M (13 FT) ARRAY DEPTH.

Species	Exposures to ≥160 dB		Exposures to ≥170 dB		Estimated % of population <sup>*</sup>
	Average	Maximum	Average	Maximum	
<b>Cetaceans</b>					
Beluga Whale	1	6	NA	NA	0.003
Bowhead Whale	2	12	NA	NA	0.02
<b>Pinnipeds</b>					

TABLE 2. SUMMARY OF THE NUMBER OF MARINE MAMMALS POTENTIALLY EXPOSED TO RECEIVED SOUND LEVELS OF  $\geq 160$  DB AND  $\geq 170$  DB (FOR PINNIPEDS ONLY) DURING BPXA'S SEISMIC SURVEY IN THE LIBERTY AREA, BASED ON RADII FOR 880 IN<sup>3</sup> ARRAY AND 4 M (13 FT) ARRAY DEPTH.—Continued

Species	Exposures to $\geq 160$ dB		Exposures to $\geq 170$ dB		Estimated % of population*
	Average	Maximum	Average	Maximum	
Ringed Seal	156	222	141	201	0.06
Bearded Seal	11	16	10	14	0.004
Spotted Seal	2	2	1	2	0.003

\* The percentage is based on the average number of animals potentially exposed to 160 dB or greater.

### 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 authorized harassment for each species is based on the estimated average numbers exposed to 160 dB re 1  $\mu$ Pa (rms) or greater from an airgun array operating at 4 m (13 ft) depth.

The estimated numbers of cetaceans and pinnipeds potentially exposed to sound levels sufficient to cause behavioral disturbance are very low percentages of the regional stock or population size in the Bering-Chukchi-Beaufort seas. For the bowhead whale, a species listed as endangered under the ESA, BPXA's estimates include approximately 2 bowheads. This is approximately 0.02 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). Although the best available data suggest that beluga whales are not likely to be present in or near the Liberty area, it is possible that 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. Even so, this larger number still constitutes a very low percentage of the estimated regional stock or population size (see Table 6 in the application).

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. Additionally, the fact that BPXA does not intend to conduct any activities during or after the fall migration period further reduces the potential for effects to cetaceans. 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  $\mu$ Pa (rms) during the seismic survey represent 0.06 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, if any at all. 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. Additionally, since these numbers do not take into account that mitigation and monitoring measures will be implemented during the survey (see below), the numbers should in fact be even lower.

#### Potential Impact on Habitat

The seismic survey will not result in any permanent impact on habitats used by marine mammals or to the food sources they utilize. The 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 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 ensounded 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 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 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, walrus, 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 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 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. BPXA's seismic survey will take place within the barrier islands in very shallow water (<10 m, 33 ft). BPXA discussed potential concerns with the affected communities (see "POC" section) throughout the early part of 2008 and recently signed a CAA with the AEW and affected community whaling captains. One of the agreements reached by the parties to reduce impacts on subsistence was that BPXA will cease all activity by August 25.

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.

Potential impacts on subsistence uses of marine mammals will be mitigated by application of the procedures established in the CAA between the seismic operators, the AEW, and the Captains' Associations of Barrow, Nuiqsut, Kaktovik, Wainwright, Pt. Lay, and Pt. Hope. The CAA curtails the times and locations of seismic and other noise producing sources during times of active bowhead whale scouting and actual whaling activities within the traditional subsistence hunting areas of the potentially affected communities.

#### 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 negotiated a POC in the form of a CAA with representatives of the communities of Nuiqsut and Kaktovik, the AEW, and the NSB for the 2008 Liberty seismic survey in Foggy Island Bay, Beaufort Sea. BPXA worked 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 AEW and NSB representatives during the AEW 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.
- February 7, 2008: Meeting in Deadhorse with Nuiqsut and Kaktovik whaling captains to provide an introduction to the planned 2008 Liberty seismic survey.
- February 28, 2008: First Annual Programmatic CAA Meeting with AEW commissioners and community representatives from the affected villages in Barrow.
- 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 AEW and NSB also participated.

- May 13, 2008: Meeting with the NSB DWM to discuss monitoring plans and project concerns.

- June 18, 2008: Two meetings in Nuiqsut to provide a survey overview to the whaling captains and representatives from the community.

The CAA covers the phases of BPXA's seismic survey planned to occur in July and August. This plan identifies 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.

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).

Based on the signed CAA, the mitigation and monitoring measures included in the IHA (see next sections), and the project design itself, NMFS has determined that there will not be an unmitigable adverse impact on subsistence uses from BPXA's activities.

#### Mitigation Measures

This section describes the measures that have been included in the survey design and those that are required 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<sup>2</sup> (85 mi<sup>2</sup>) to approximately 91 km<sup>2</sup> (35 mi<sup>2</sup>). 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 in<sup>3</sup> (consisting of two 4-gun arrays of 440 in<sup>3</sup>).

- 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.

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. 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 required mitigation measures (see below), any effect on individuals is expected to be limited to short-term behavioral disturbance with a negligible impact on the affected 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<sup>3</sup> seismic airgun array where sound levels 190, 180, and 160 dB re 1  $\mu$ Pa (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<sup>3</sup> 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<sup>3</sup> arrays (880 in<sup>3</sup>), (b) one 440 in<sup>3</sup> array, and (c) one 70 in<sup>3</sup> 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<sup>3</sup> (two 440 in<sup>3</sup>) array. Results from measurements of the 440 in<sup>3</sup> and 70 in<sup>3</sup> 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 survey based on the estimated safety zones, as well as the time of year that activities will occur.

#### *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 will 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 begin with the smallest airgun, in this case, 70 in<sup>3</sup>. BPXA intends to follow the ramp-up guideline of no more than 6 dB per 5 min period. 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 during the survey. There will be 24 hrs of daylight each day for the first two weeks, after which, nautical twilight will set in for 1–7.5 hrs at a time each day. 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 considered the use of 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.

#### **Monitoring and Reporting Plan**

BPXA will sponsor marine mammal monitoring during the Liberty seismic survey in order to implement the required mitigation measures that require real-time monitoring, to satisfy the 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 previously in this document.

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 will 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 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 hrs, 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). 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 will 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.

#### *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 or required for BPXA's activity.

#### *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.

Additionally, BPXA participates in and contributes money to the Joint Industry Studies Program. This includes coastal aerial surveys in the Chukchi Sea, acoustic "net" arrays in the Chukchi Sea, and acoustic arrays in the Beaufort Sea. These studies aid in the gathering of data on abundance and distribution of marine mammals in the Chukchi and Beaufort Seas.

#### *Comprehensive Monitoring Report*

In November, 2007, Shell (in coordination and cooperation with other Arctic seismic IHA holders) released a final, peer-reviewed edition of the 2006 Joint Monitoring Program in the Chukchi and Beaufort Seas, July–November 2006 (LGL, 2007). This report is available for downloading on the NMFS website (see **ADDRESSES**). A draft comprehensive report for 2007 was provided to NMFS and those attending the NMFS/MMS Arctic Ocean open water meeting in Anchorage, AK on April 14–16, 2008. Based on reviewer comments made at that meeting, Shell and others are currently revising this report and plans to make it available to the public shortly.

Following the 2008 open water season, a comprehensive report describing the proposed acoustic, vessel-based, and aerial monitoring programs will be prepared. The 2008 comprehensive report will describe the methods, results, conclusions and limitations of each of the individual data sets in detail. The report will also integrate (to the extent possible) the studies into a broad based assessment of industry activities and their impacts on marine mammals in the Beaufort Sea during 2008. The 2008 report will form the basis for future monitoring efforts and will establish long term data sets to help evaluate changes in the Beaufort/Chukchi Sea ecosystems. The report will also incorporate studies being conducted in the Chukchi Sea and will attempt to provide a regional synthesis of available data on industry activity in offshore areas of northern Alaska that may influence marine mammal density, distribution, and behavior.

This comprehensive report will consider data from many different sources including two relatively

different types of aerial surveys; several types of acoustic systems for data collection (net array, PAM, vertical array, and other acoustical monitoring systems that might be deployed), and vessel based observations. Collection of comparable data across the wide array of programs will help with the synthesis of information. However, interpretation of broad patterns in data from a single year is inherently limited. Much of the 2008 data will be used to assess the efficacy of the various data collection methods and to establish protocols that will provide a basis for integration of the data sets over a period of years.

#### **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>.

#### **NEPA**

In 2006, the MMS prepared Draft and Final 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 NMFS has been unable to complete the PEIS, it was determined that the 2006 PEA would need to be updated in order to meet NMFS' NEPA requirement. 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 prepared a SEA which incorporates by reference the 2006 Final PEA and other related documents.

#### **Determinations**

Based on the information provided in BPXA's application and addendum, public comments received on BPXA's application, the proposed IHA notice (73 FR 24236, May 2, 2008), this document, the 2006 and 2007 Comprehensive Monitoring Reports by Shell Oil Inc. and others, public review of BPXA's mitigation and monitoring program in Anchorage, Alaska, in April, 2008, and the analysis contained in the MMS Final PEA and NMFS' 2008 Final SEA, NMFS has determined that the impact of BPXA conducting seismic surveys in the Liberty Prospect, Foggy Island Bay, Beaufort Sea in 2008 will have a negligible impact on the affected species or stock of marine mammals and that there will not be an unmitigable adverse impact on their availability for taking for subsistence uses provided the mitigation measures required under the authorization are implemented. Moreover, as explained below, NMFS has determined that only small numbers of marine mammals of a species or population stock would be taken by BPXA's seismic activities. The impact of conducting a seismic survey in this area will result, at worst, in a temporary modification in behavior of small numbers of the affected marine mammal species.

NMFS has 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 affected species or stocks. In addition, no take by death and/or serious injury is anticipated or authorized, and the potential for temporary or permanent hearing impairment will be avoided through the incorporation of the mitigation and monitoring measures described above.

For reasons explained in this document, NMFS does not expect that any marine mammals will be seriously injured or killed during BPXA's seismic survey activities, even if some animals are not detected prior to entering the 180-dB (cetacean) and 190-dB (pinniped) safety zones. These criteria

were set originally by the HESS Workshop (1997, 1999) to approximate where Level A harassment (i.e., defined as “any act of pursuit, torment or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild”) from acoustic sources begins. Scientists have determined that these criteria are conservative as they were set for preventing TTS, not PTS. NMFS has determined that a TTS which is the mildest form of hearing impairment that can occur during exposure to a strong sound may occur at these levels. When a marine mammal experiences TTS, the hearing threshold rises and a sound must be stronger in order to be heard. 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 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, and none of the published data concern TTS elicited by exposure to multiple pulses of sound. It should be understood that TTS is not an injury, as there is no injury to individual cells.

For whales exposed to single short pulses (such as seismic), the TTS threshold appears to be a function of the energy content of the pulse. As noted in this document, the received level of a single seismic pulse might need to be  $\leq 210$  dB re 1 Pa rms (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 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. As a result, NMFS believes that injury or mortality is highly unlikely due to the injury zone being close to the airgun array (astern of the vessel), the establishment of conservative safety zones and shutdown requirements (see “Mitigation Measures”) and the fact that there is a strong likelihood that baleen whales (bowhead and gray whales) would avoid the approaching airguns (or vessel) before being exposed to levels high enough for there to be any possibility of onset of TTS.

For pinnipeds, information indicates that for single seismic impulses, sounds would need to be higher than 190 dB rms for TTS to occur while exposure to several seismic pulses indicates that some pinnipeds may incur TTS at somewhat lower received levels than do

small odontocetes exposed for similar durations. This indicates to NMFS that the 190–dB safety zone provides a sufficient buffer to prevent PTS in pinnipeds.

In conclusion, NMFS believes that a marine mammal within a radius of <100 m (<328 ft) around a typical large array of operating airguns (larger than that to be used by BPXA) may be exposed to a few seismic pulses with levels of >205 dB, and possibly more pulses if the marine mammal moved with the seismic vessel. However, there is no specific evidence that exposure to pulses of airgun sound can cause PTS in any marine mammal, even with large arrays of airguns. The array to be used by BPXA is of moderate size. Given the possibility that marine 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.

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, NMFS has determined that the location for seismic activity in the Beaufort Sea meets the statutory requirement for the activity to identify the “specific geographical region” within which it will operate. With regards to dates for the activity, BPXA intends to work beginning the second week of July and ceasing activity on August 25.

Finally, NMFS has determined that the seismic activity by BPXA in the Beaufort Sea in 2008 will not have an unmitigable adverse impact on the availability of marine mammals for subsistence uses. This determination is supported by the information in this **Federal Register** Notice, including: (1) activities will cease prior to the fall bowhead whale hunt in the Beaufort Sea; (2) the CAA and 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; and (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.

#### Authorization

As a result of these determinations, NMFS has issued 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: July 8, 2008.

**Helen M. Golde,**

*Deputy Director, Office of Protected Resources, National Marine Fisheries Service.*  
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## CORPORATION FOR NATIONAL AND COMMUNITY SERVICE

### Proposed Information Collection; Submission for OMB Review; Comment Request

**AGENCY:** Corporation for National and Community Service.

**ACTION:** Notice.

**SUMMARY:** The Corporation for National and Community Service (hereinafter the “Corporation”), has submitted a public information collection request (ICR) entitled Learn and Serve America Application Instructions to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act of 1995 (Pub. L. 104–13), (44 U.S.C. Chapter 35). A copy of the ICR, with applicable supporting documentation, may be obtained by calling the Corporation for National and Community Service, Cara Patrick, 202–606–6905 ([cpatrick@cns.gov](mailto:cpatrick@cns.gov)). Individuals who use a telecommunications device for the deaf (TTY–TDD) may call (202) 565–2799 between 8:30 a.m. and 5 p.m. Eastern time, Monday through Friday.

**ADDRESSES:** Comments may be submitted, identified by the title of the information collection activity, to the Office of Information and Regulatory Affairs, Attn: Ms. Katherine Astrich,