

**Finding of No Significant Impact for the Issuance of an
Incidental Harassment Authorization to BP Exploration Alaska Inc. to
Take Marine Mammals Incidental to an Ocean-bottom Cable Seismic
Survey in the Liberty Prospect, Beaufort Sea, Alaska in 2008
National Marine Fisheries Service**

Background

The National Marine Fisheries Service (NMFS) received an application from BP Exploration Alaska Inc. (BPXA) for an incidental harassment authorization (IHA) pursuant to its responsibility to authorize the take of small numbers of marine mammals incidental to an otherwise lawful activity other than commercial fishing, provided that NMFS determines that the action will have a negligible impact on the affected species or stocks of marine mammals, will not have an unmitigable adverse impact on the availability of those species or stocks of marine mammals intended for subsistence uses, and that the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takes are set forth. NMFS has satisfied those requirements for this authorization for the take of small numbers of six species of marine mammals, by Level B Harassment only, incidental to the seismic survey in the Liberty Prospect, Beaufort Sea, Alaska, in summer 2008.

NMFS was a cooperating agency in the preparation of both a Draft and Final Programmatic Environmental Assessment (PEA) prepared and submitted for public review by the Minerals Management Service (MMS) in connection with the subject MMS-permitting activity and NMFS' issuance of IHAs in 2006. A Final PEA was released by MMS on June 22, 2006 and adopted by NMFS. In 2007, NMFS prepared a Supplemental EA (SEA) and Finding of No Significant Impact (FONSI) to update the 2006 Final PEA for analysis of an arctic seismic survey incidental take authorization, including NMFS' issuance of an IHA to Shell Oil Inc., for the 2007 season. For 2008, NMFS has prepared a SEA to update the 2006 Final PEA for analysis of arctic seismic survey incidental take authorizations for 2008, including NMFS' issuance of an IHA to BPXA for the 2008 season.

PEA/SEA Analysis

The activities analyzed in the Final PEA/SEA include conducting marine-streamer 3D and 2D seismic surveys, high-resolution site-clearance seismic surveys, and ocean-bottom-cable (OBC) seismic surveys. The Final PEA and 2008 SEA contain an analysis of the impact of an OBC seismic survey, such as the one proposed by BPXA, on various marine resources and human activities. For purposes of this analysis, marine resources of interest include fish, marine mammals (including endangered marine mammals) and their habitats, and seabirds. 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 occurred in the past and which were likely and reasonably foreseeable. Other past, present, and reasonably foreseeable actions, such as arctic warming, military activities, and noise

contributions from community and commercial activities were also considered. The cumulative impacts analysis was updated in the SEA to include additional activities and analyses of oil and gas exploration in the region since 2006 and newer information related to arctic warming.

The Final PEA, 2007 SEA, and 2008 SEA analyzed the potential for adverse and significant impacts of these activities on environmental resources and identified mitigation measures to avoid and/or minimize those impacts. The following were considered the meaningful resources and issues warranting detailed description and analysis in the Final PEA/SEA: (1) Protection of subsistence resources and the Inupiat culture and way of life; (2) disturbance to bowhead whale migration patterns; (3) impacts of seismic survey operations on marine fish reproduction, growth, and development; (4) harassment and potential harm to wildlife, including marine mammals and marine birds, by vessels' operations and movements; (5) impacts on water and air quality; (6) changes in the socioeconomic environment; (7) impacts to threatened and endangered species; (8) impacts to marine mammals; (9) incorporation of traditional knowledge in the decision-making process; and (10) level of implementation of marine mammal monitoring and other mitigation measures.

NMFS Determinations

Based on the Final PEA/SEA, an examination of the potential impacts associated with the proposed action and a review of comments received from the public and agencies during the Marine Mammal Protection Act (MMPA) process, NMFS has selected Alternative 6 (Title: Seismic Surveys for Geophysical- Exploration Activities would be Authorized with Existing Alaska OCS Geological and Geophysical Exploration Stipulations and Guidelines and Additional Protective Measures for Marine Mammals, Including a 180/190 dB Specified Exclusion Zone) and associated mitigation measures, outlined here, as its Preferred Alternative. NMFS and MMS developed additional mitigation and monitoring measures within the Final PEA which were incorporated by reference into the SEA to further reduce the level of any potential adverse effects. These additional measures, several of which were proposed by BPXA and contained in their IHA application, have become part of NMFS' Preferred Alternative and were analyzed by NMFS as part of the specified activity. The suite of mitigation measures described in Sections V.B.1. and V.B.2. of the 2008 SEA will be included as conditions in BPXA's 2008 IHA for open-water seismic survey activities in the Beaufort Sea. However, BPXA will not be required to follow some of these additional mitigation measures since all surveying activities will cease by August 25. For example, aerial monitoring in the Beaufort Sea and vessel-based monitoring of a 160-dB shutdown zone for large aggregations of bowhead whales will not be included in BPXA's IHA, as these mitigation measures are only enforced after August 25, once the bowhead whale fall migration begins. Based on NMFS' review of BPXA's proposed action, the measures contained in Alternative 6, and the additional mitigation and monitoring requirements, NMFS has determined that no significant impacts to the human environment would occur from implementing the Preferred Alternative.

In addition, BPXA signed a Conflict Avoidance Agreement (CAA) with the Alaska Eskimo Whaling Commission (AEWC) and the affected villages' Whaling Captains Associations on May 30, 2008. The purpose of the CAA is to mitigate the potential impacts of oil and gas exploration, drilling, seismic, development, or production and related activities on marine mammals, including migrating bowhead whales and the Alaskan Eskimo Subsistence hunt of those whales. NMFS will require BPXA to abide by the terms of the CAA as part of its authorization to take marine mammals. These measures include a prohibition on conducting seismic surveys during the bowhead whale hunting season in the Beaufort Sea, dispute resolution, and emergency assistance to whalers at sea. Implementation of these measures ensures that there will not be significant social or economic impacts on the coastal inhabitants of the Beaufort Sea nor unmitigable adverse impact of the subsistence uses of marine mammals. Additionally, BPXA has agreed to conclude its seismic operations by August 25, before the fall bowhead whale migration westward across the Beaufort Sea begins. By concluding operations on this date, it ensures that the Native subsistence hunters would not have to contend with whale deflections, thus making it easier for the communities to harvest the animals. BPXA does not plan to continue operations after the conclusion of the Native Alaska bowhead whale hunt in the Beaufort Sea.

Significance Review

National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. §1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on NOAA's criteria and CEQ's context and intensity criteria. These include:

1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish (EFH) habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act and identified in fishery management plans?

Response: NMFS does not anticipate that the proposed activity and NMFS' action (i.e., issuing an IHA to BPXA) would cause substantial damage to the ocean and coastal habitats. Relatively short-term exposure to seismic sounds (approximately 40 days of seismic shooting) is unlikely to have significant impacts on marine life, although some deleterious effects may occur within the small high-intensity sound impact areas near the seismic vessels. Although OBCs for seismic recordings would be deployed during the surveys, the OBCs would be promptly retrieved upon survey completion, and the cables would not be expected to damage or alter the benthic habitat because of the minimal amount of time that the cables will be deployed. (Cables will be retrieved and then relayed throughout the operation.) Adult fish near seismic operations are likely to avoid the immediate vicinity of the source due to hearing the sounds at greater distances,

thereby avoiding injury. The NMFS SEA and the 2006 Final PEA indicate that impacts, if they were to occur, would add an incremental degree of adverse impacts to fish resources, but these impacts would not be significant.

The action area has been identified and described as EFH for five species of Pacific salmon (pink [humpback], chum [dog], sockeye [red], chinook [king], and coho [silver]) occurring in Alaska. The issuance of an IHA for BPXA's Arctic Ocean OBC seismic survey in 2008 is not anticipated to have any adverse effects on EFH. EFH consultations with the NMFS Office of Habitat Conservation on arctic seismic activities were completed in 2006 and summarized in the PEA. Consistent with the 2006 determinations, NMFS finds that there will not be substantial damage to EFH as a result of the proposed seismic survey, as it falls within the scope of the 2006 consultation. Therefore, additional consultation for EFH would not be needed unless implementation of the plan or operational conditions changes.

2) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

Response: NMFS does not expect the proposed action to have a substantial impact on biodiversity or ecosystem function within the affected area. The impacts of the seismic survey action on marine mammals are specifically related to the acoustic activities, and these are expected to be temporary in nature and not result in substantial impact to marine mammals or to their role in the ecosystem. In accordance with selected alternative 6, the IHA anticipates, and will authorize, the take, by Level B Harassment only (temporary behavioral disturbance), of three species of cetaceans and three species of pinnipeds. However, neither injury or mortality is anticipated nor authorized, and the Level B Harassment of marine mammals is not expected to affect biodiversity or ecosystem function.

The potential for the BPXA activity to affect other ecosystem features and biodiversity components, including fish, invertebrates, seabirds, and physical features, is fully analyzed in the PEA and incorporated by reference into the 2008 SEA. NMFS evaluation indicates that any direct, indirect, or cumulative effects of the action would not result in a substantial impact on biodiversity or ecosystem function. In particular, the potential for effects to these resources are considered here with regard to the potential effects on diversity or functions that may serve as essential components of marine mammal habitat. Most effects are considered to be short-term and unlikely to affect normal ecosystem function or predator/prey relationships; therefore, NMFS believes that there will not be a substantial impact on marine life biodiversity or on the normal function of the nearshore or offshore Beaufort Sea ecosystems.

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

feed in the area where seismic work is planned. Although not required as part of the IHA issued by NMFS to BPXA, at the request of the North Slope Borough (NSB), BPXA has informed NMFS that it would 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.”

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) after completion of the survey. 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 availability of mysticete prey. More importantly, bowhead whales are not expected to feed in the shallow area covered by this seismic survey; therefore, no impacts to mysticete feeding are anticipated.

Little or no mortality to fish and/or invertebrates is anticipated. The proposed Beaufort Sea seismic program is predicted to have negligible to low physical effects on the various life stages of fish and invertebrates. Though these effects do not require authorization under an IHA, the effects on these features were considered by NMFS with respect to consideration of effects to marine mammals and their habitats, and NMFS finds that these effects from the survey itself on fish and invertebrates are not anticipated to have a substantial effect on biodiversity and/or ecosystem function within the affect area.

3) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

Response: NMFS does not expect this action to have a substantial adverse impact on public health or safety. The constant monitoring for marine mammals and other marine life during seismic operations effectively eliminates the possibility of any humans being inadvertently exposed to levels of sound that might have adverse effects. As described in question 5 below, mitigation measures imposed by the IHA will prohibit BPXA from conducting the activity whenever natives are hunting bowheads in the Beaufort Sea. Although the nature of the seismic survey does not preclude the potential for injury or mortality of involved personnel (i.e., boat or mechanical accidents during surveys), the applicant and those individuals working with the applicant would be required to be adequately trained or supervised in performance of the underlying activity (i.e., the seismic survey) to minimize such risk to personnel.

4) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

Response: NMFS has determined that the proposed seismic survey may result in some Level B Harassment (in the form of short-term and localized changes in behavior) of small numbers, relative to the population sizes, of six species of marine mammals. No injury or mortality is anticipated or authorized. Behavioral effects may include temporary and short-term displacement of marine mammals from within certain ensonified zones, generally within 0.15 to 1.48 mi from the source vessel for the 880 in³ airgun array at 1 m tow depth and 0.24 to 2.13 mi for the 880 in³ airgun array at 4 m tow depth. The mitigation measures required for the activity are designed to minimize the exposure of marine mammals to sound and to minimize conduct of the activity in the vicinity of habitats that might be used by certain cryptic marine mammals (i.e., those that are more difficult to detect).

Taking into account the mitigation measures that are planned (speed or course alteration when a marine mammal appears likely to enter the safety zone, power-down procedures when marine mammals are detected within or about to enter the safety zone, shutdown procedures when marine mammals are detected in the safety zone while the airgun array is at full volume or during a power-down, and ramp-up procedures), effects on marine mammals from the selected alternative are expected to be limited to avoidance of the area around the seismic operation and short-term behavioral changes, falling within the MMPA definition of “Level B harassment”. 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 species abundance), and the take is anticipated to have a negligible impact on the species or stock.

This action may adversely affect, but will not jeopardize the continued existence of species listed under the Endangered Species Act (ESA). The ESA-listed species that might be affected by this action is the bowhead whale (fin whales and humpback whales are not expected in the proposed project area).

For bowhead whales, adverse effects will be limited to short-term behavioral disturbances that may constitute Level B harassment. No injury or mortality is expected due to bowhead whales avoiding active seismic operations by 20 km (12.4 mi) or more and other marine mammals likely taking similar actions to avoid the proximity of seismic vessels and the resultant noise. The Arctic Regional Biological Opinion (ARBO) issued by NMFS on June 16, 2006, for this action supports this determination. Impacts to marine mammals, if any, are expected to be limited to short-term behavioral harassment. This action has been determined to be consistent with determinations made under section

101(a)(5)(D) of the MMPA as the taking of marine mammals by seismic survey activities in the Arctic Ocean will have a negligible impact on affected species and be at the lowest level practicable through implementation of mitigation and monitoring measures. Migrating bowhead whales are not expected in the proposed survey area during July and August. Seismic operations will cease on August 25, prior to the bowheads beginning their westward migration from the Canadian Beaufort Sea. In addition, if there are small numbers of feeding bowhead whales in the U.S. Beaufort during the summer, the animals are not expected to be found in Foggy Island Bay because of the shallow depths, which is not considered suitable bowhead whale habitat.

5) Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: Other than impacts to native subsistence needs and culture, this action will not have a significant social or economic impact as there is no commercial fishing or other activities that might be affected by offshore seismic surveys for oil and gas deposits. Marine mammals are legally hunted in Alaskan waters by coastal Alaska Natives. The species hunted include: bowhead and beluga whales; ringed, spotted, and bearded seals; walruses; and polar bears. The importance of each of the various species varies among the communities and is based largely on availability. Bowhead whales, belugas, and walruses are the marine mammal species primarily harvested during the time of the proposed seismic surveys. Bowhead whale hunting is the key activity in the subsistence economies of Barrow, 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. Harvesting of beluga whales does not occur in the area during the time of the proposed seismic survey. Ringed seals are available year-round; however, the seismic survey will not occur during the primary period when these seals are typically harvested (i.e., October through June). Additionally, the main seal hunt occurs in areas far west from the Liberty area. Therefore, seismic survey activities should not conflict with harvest activities.

To avoid having an unmitigable adverse impact on subsistence uses of marine mammals, NMFS is required to implement mitigation measures to ensure that BPXA's seismic activities do not have an unmitigable adverse impact on subsistence uses of marine mammals. However, because BPXA signed the 2008 CAA with the AEWC and the affected villages' Whaling Captains Association, NMFS has determined that there will not be an adverse impact on the species or stocks of marine mammals for subsistence uses. These mitigation measures include a prohibition on conducting seismic surveys during the fall bowhead whale hunting season in the Beaufort Sea, dispute resolution, and emergency assistance to whalers at sea. Implementation of these measures ensures that there will not be significant social or economic impacts on the coastal inhabitants of the Beaufort Sea. While the CAA only seeks to resolve conflicts regarding the subsistence of bowhead whales, NMFS has determined (based on the above stated reasons) that BPXA's activities will not have an unmitigable adverse impact on the subsistence uses of the other species hunted by Alaska Natives.

6) Are the effects on the quality of the human environment likely to be highly controversial?

Response: There is a lack of agreement and some controversy within the scientific and stakeholder communities about the potential effects of noise on marine mammals, including in this instance, bowhead whales. This was demonstrated recently by the National Research Council (NRC, 2005) report and by the lack of consensus among participants in the Marine Mammal Commission's (MMC) Sound Advisory Panel (MMS, 2006). The 2006 PEA considered and incorporated recommendations from the NRC (2005) in its analyses and conclusions about the potential significance of effects. Additionally, the PEA was released for public comment, and those comments were considered in the finalization of the PEA. Moreover, the analyses in the PEA are cautious in that NMFS and MMS attempted to err on the side of overestimating potential effects, and then building in mitigation measures to reduce such potential effects. While any maritime noise issue can be considered controversial because of several marine mammal stranding incidents allegedly due to military sonar, comments from seven industry groups (including two of the three oil companies and two contractors participating in the 2006 Arctic seismic activity), one environmental consortium, and three native communities and organizations on the 2006 Draft PEA and NMFS' proposals to issue multiple IHAs in 2006 mainly: (1) concerned requirements under the National Environmental Policy Act (NEPA) and the MMPA; and (2) critiqued the mitigation and monitoring measures proposed by NMFS and MMS. Similar concerns were expressed in response to the release of the proposed IHA in 2008. In reviewing these concerns (which are more specifically addressed and will be publicly available in NMFS' final IHA determination), NMFS believes that its actions are in full compliance with NEPA, the MMPA, and the ESA. As noted elsewhere in this FONSI, NMFS is requiring, as proposed by BPXA, a detailed mitigation and monitoring program designed to gather additional data and reduce impacts on affected marine mammal stocks to the lowest level practicable. In addition, the oil industry will jointly implement for the third year, a research program to gather additional data on the status of Arctic Ocean marine mammal populations.

In 2006, industry concerns focused on the practicability of implementing some of the mitigation measures and the transfer of these mitigation measures to other areas of the world where oil and gas exploration occurs. These concerns were addressed in the final IHA *Federal Register* notice, indicating that all IHAs are reviewed independently based upon the marine mammal species affected, the level of impact, and mitigation and monitoring measures required to reduce those impacts to the lowest level practicable and whether the activity would have an unmitigable adverse impact on subsistence uses of marine mammals. Specific to the BPXA application, a notice of receipt and request for 30-day public comment on the application and proposed authorization was published in the *Federal Register* on May 2, 2008 (73 FR 24236). During the comment period, NMFS received six sets of comments from the following groups and organizations: the MMC; the AEWC; the NSB and the NSB Department of Wildlife Management; Oceana and the Ocean Conservancy; the Center for Biological Diversity, Pacific Environment, Alaska Wilderness League, Natural Resources Defense Council, and Sierra Club; and the Native

Village of Point Hope. Inupiat concerns on the potential impact on their traditional lifestyle have been addressed through both the mitigation and monitoring measures in the IHA and the signed 2008 CAA. As a result, the industry will avoid significant sociocultural impacts. Little additional information that would augment or contradict the scientific basis for NMFS' determinations has been provided by the public comment on the IHA and NMFS continues to make its determinations under the MMPA based on the best available science. As a result, while NMFS believes that offshore oil and gas exploration and development in U.S. waters is controversial, the activity proposed by BPXA in the Liberty Prospect area of the Beaufort Sea in the Arctic Ocean in 2008 is not highly controversial with regard to environmental consequences.

7) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas?

Response: NMFS does not anticipate any substantial impacts to park land, prime farmlands, wetlands, or wild and scenic rivers as a result of conducting the proposed OBC seismic survey. Similarly, NMFS does not expect any substantial impacts to EFH as described in the response to question 1 above. Detailed information about the affected environment, bowhead whales, other marine mammals, and marine life are provided in the Final PEA and 2008 SEA. NMFS and MMS attempted to substantially reduce the potential for significant effects on bowhead calving by building into the base action a ban on conducting seismic surveys during the spring bowhead migration period. Additionally, BPXA will cease operations before the beginning of the bowhead whale western migration through the Beaufort Sea, which usually occurs in early September. Therefore, the migration pathways for the species should not be affected by the proposed activities.

Where data are available and sufficient, NMFS has attempted to identify other areas where aggregations of bowheads are known to occur and where feeding aggregations repeatedly have been observed. NMFS has summarized information that is available about the timing of habitat use. Where analyses identified areas where effects to bowheads potentially could be significant, NMFS has identified monitoring and mitigation measures to reduce the potential for such impacts to non-significant levels. Such mitigation includes prohibiting in the Beaufort Sea, the generation of seismic sounds when four or more cow/calf pairs are detected visually or when feeding aggregations of bowhead or gray whales are sighted.

8) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

Response: As discussed in the Final PEA, and incorporated by reference in the 2008 SEA, more information is needed about the importance of feeding areas within the Alaskan Beaufort Sea during the summer before September 1, especially the western Alaskan Beaufort Sea, to the bowhead population as a whole and, more specifically, to certain segments of the population. While it is clear that there is interannual variability in

the use of the Beaufort Sea for feeding by bowheads, the factors underlying such variability are not entirely clear (MMS, 2006). More importantly, the importance of the areas to segments of the population and to the population as a whole during years when large aggregations are observed feeding is unclear.

More information is needed about the potential effects of such disturbance from single vessel and multiple seismic vessels operating concurrently to the health of females and young calves and to the next year's reproductive potential of adult females. There is a current lack of scientific data about the effects of sound on the hearing of mysticete whales, particularly very young calves. In the Final PEA analyses, MMS and NMFS acknowledged that more information was needed and designed appropriate and practicable mitigation measures aimed at gathering additional data on these species while also reducing the potential for there to be adverse effects on bowhead whales, especially cow/calf pairs. In this SEA, NMFS again reviewed this information and determined that, because only one other company will be conducting a seismic survey in the Beaufort Sea with some overlap to BPXA's activities, impacts to bowhead whales, especially cow/calf pairs, are likely to be reduced appreciably. NMFS has determined that it is unnecessary for BPXA to monitor a 120-dB safety zone during its activities since work will cease prior to the fall bowhead migration and because BPXA's activities will occur inside the barrier islands, where sound is expected to be absorbed before it reaches the migration corridor. Additionally, NMFS determined that a 160-dB shutdown zone is not necessary for BPXA since large aggregations of whales are not expected in the Liberty area in July and August.

NMFS has reviewed the 90-day marine mammal monitoring and mitigation reports for the 2006 and 2007 open water seismic survey and shallow hazard and site clearance survey conducted by Shell Offshore Inc. (SOI), ConocoPhillips Alaska Inc., and GX Technology in 2006 and by SOI in 2007 (Ireland *et al.*, 2007a; 2007b; Patterson *et al.*, 2007; Funk *et al.*, 2007; 2008). Based on the results of these studies collectively, NMFS concludes that the previous monitoring and mitigation measures prescribed in these marine mammal take authorizations were effective. In addition, actual take of marine mammals by Level B harassment were generally lower than expected due to the implementation of monitoring and mitigation measures. No Level A harassment (injuries included) or mortality occurred.

9) Is the proposed action related to other actions with individually insignificant but cumulatively significant impacts?

Response: There are other seismic survey activities in Alaskan waters and around the world that may impact marine mammals, but most are dispersed both geographically and temporally (Gulf of Mexico, North Sea, West Africa), are relatively short-term in nature, and all either currently use, or will likely use in the future, standard mitigation and monitoring measures to minimize impacts to marine life. Within the Beaufort Sea there are other activities, such as oil-and-gas exploration and production (four other companies have applied for IHAs to conduct seismic surveys in 2008 in the Arctic Ocean) and scientific seismic activities (in 2008, the U.S. Coast Guard *Cutter Healy* is conducting

bathymetric multi-beam sonar surveys for NOAA approximately 200 mi north of Barrow). However, these activities are temporally dispersed, relatively short-term (except for the Northstar facility) and use appropriate mitigation designed to reduce impacts on marine life to the lowest level practicable. Finally, this area is not known for heavy ship traffic and is primarily used for barge traffic to supply villages and onshore and offshore oil facilities. Since, BPXA's activities will only occur for approximately 40 days, take of only small numbers of each species by behavioral disturbance would be authorized, and no serious injury or mortality is expected nor authorized. Thus, as all activities (other than village barging activities) are under IHAs or regulations, reducing impacts to the lowest level practicable through mitigation measures tailored to the specific activity, NMFS believes that the cumulative effect of BPXA's 3D OBC seismic survey, and other nearby projects (e.g., Northstar, other commercial seismic surveys, barging, proposed drilling) will not result in significant cumulative impacts.

10) Is the proposed action likely to adversely affect district, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historic resources?

Response: The action proposed by NMFS will have some potential to adversely affect native cultural resources along the Arctic Coast. As described in question 5 above, implementation of mitigation measures in the IHA issued to BPXA and under the signed CAA between BPXA and the native whaling communities ensures that there will not be significant social or economic impacts on the coastal inhabitants of the Beaufort Sea or an unmitigable adverse impact of the subsistence uses of marine mammals by these residents. The proposed action is not likely, directly or indirectly, to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, as none are known to exist at the site of the proposed action.

11) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

Response: The primary concern regarding the introduction or spread of a non-indigenous species from the proposed seismic survey is through ballast water exchange. BPXA is responsible for ensuring that their ships are in compliance with all international and U.S. national ballast water requirements.

12) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

Response: This action will not set a precedent for future actions with significant effects or represent a decision in principle. NMFS' actions under section 101(a)(5)(D) of the MMPA must be considered individually and be based on the best available information, which is continuously evolving to ensure they satisfy the statutory and regulatory standards. Moreover, each action for which an incidental take authorization is sought must be considered in light of the specific circumstances surrounding the action,

and mitigation and monitoring may vary depending on those circumstances. In addition, the 2006 Final PEA, the 2007 SEA, as well as the 2008 SEA, evaluated the potential effects of seismic survey activities that could occur in the 2008 open water (ice-free) season. Regarding bowhead whales, there is extensive history and regulatory and procedural structure to evaluate the effects of seismic survey noise on bowhead whales and other marine mammal species. For these reasons, NMFS does not believe that issuance of an IHA to BPXA to conduct a 3D OBC seismic survey in the Liberty Prospect, Foggy Island Bay, Beaufort Sea, Alaska in 2008 is precedent setting.

13) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

Response: NMFS does not expect this action to violate any Federal law or requirements imposed for the protection of the environment, as responsibilities under Section 7 of the ESA have been fulfilled (see response to question 4 above) and the MMPA (by submitting an application for an IHA) for this action. Additionally, in compliance with the Coastal Zone Management Act, BPXA has completed a coastal consistency determination with the Division of Coastal and Ocean Management (DCOM) in the State of Alaska's Department of Natural Resources. DCOM concurs that the project as described by BPXA is consistent with the Alaska Coastal Management Program's enforceable policies.

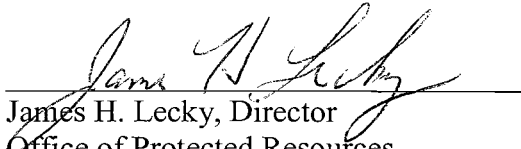
14) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

Response: This action will not target any marine species, but may affect certain non-target species, such as cetaceans and pinnipeds in the area, particularly bowhead and gray whales. BPXA's seismic survey will only use a moderate-sized seismic source (880 in³ array) for a short period of time (approximately 40 days) in very shallow waters. This will create smaller ensonified areas. Because of the smaller size of the safety radii, it will be easier for biological observers to detect marine mammals and enforce necessary mitigation measures to reduce the impacts to bowhead whales and other marine mammal species. In addition, BPXA will cease all seismic operations by August 25 before the beginning of the fall bowhead whale migration across the Beaufort Sea. In order to avoid, and if not possible, minimize, adverse effects, NMFS is requiring BPXA to implement mitigation measures, such as monitoring exclusion zones to prevent injury, ramp-up, and power-down and shutdown procedures when marine mammals are observed just outside or inside the safety zones. These mitigation measures further reduce the potential for cumulative adverse effects. The survey would also not be expected to have a substantial cumulative effect on any fish or invertebrate species. Although some loss of fish and other marine life might occur as a result of being in close proximity to the seismic airguns, this loss is not expected to be significant. Due to the relatively large habitat area for marine mammals (and other marine species) in the Arctic Ocean and the small area of the Beaufort Sea that is of interest for conducting this seismic survey in 2008, the relatively short time that seismic operations will be in the area (mid-July to late-August), the dispersed nature of marine mammals (particularly

pinnipeds), the relatively low density of all marine mammal species in this part of the Arctic, avoidance behavior by some species (bowheads and belugas) to the activity area, and the implementation of mitigation measures (e.g., black-out periods), NMFS does not anticipate that the proposed action will result in cumulative adverse effects that could have a substantial effect on marine mammals or other marine species.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting SEA prepared for issuance of an IHA to BPXA to take marine mammals incidental to conducting a 3D OBC seismic survey in the Beaufort Sea off Alaska in the summer of 2008, it is hereby determined that issuance of this IHA will not significantly impact the quality of the human environment, as described above and in the supporting SEA and other related documents. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.


James H. Lecky, Director
Office of Protected Resources
National Marine Fisheries Service

JUL - 2 2008

Date