

**Finding of No Significant Impact for the Issuance of an  
Incidental Harassment Authorization to ASRC Energy Service to  
Take Marine Mammals Incidental to a Shallow Hazard and Site Clearance Survey  
in the Chukchi Sea, Alaska in 2008**

**National Marine Fisheries Service**

Background

The National Marine Fisheries Service (NMFS) received an application from ASRC Energy Service (AES) for an incidental harassment authorization (IHA) pursuant to NMFS' 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 for taking 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 11 species of marine mammals, by Level B Harassment only, incidental to a shallow hazard and site clearance survey in the Chukchi 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 for "Arctic Ocean Outer Continental Shelf Seismic Surveys – 2006" was released by MMS on June 22, 2006 and adopted by NMFS. For 2008, NMFS has prepared a SEA (2008 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 AES for the 2008 season.

PEA/SEA Analysis

The activities analyzed in the Final PEA/SEA include conducting marine-streamer 3D and 2D seismic surveys, shallow hazard and site clearance seismic surveys, and ocean-bottom-cable (OBC) seismic surveys. The Final PEA and 2008 SEA contain an analysis of the impact of a shallow hazard and site clearance survey, such as the one proposed by AES, on various marine resources and human activities. For purposes of this finding, NMFS analyzed the impact of the AES survey on 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 and 2008 SEA analyzed the potential for 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/2008 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 as its action. In addition to the 180/190 dB specified exclusion zone, NMFS and MMS developed 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 AES and contained in their IHA application, are part of NMFS' Preferred Alternative as described in the 2008 SEA 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 AES' 2008 IHA for open-water seismic survey activities in the Chukchi Sea. Based on NMFS' review of the AES' 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 selected alternative (i.e., Alternative 6).

In addition, AES informed NMFS that they intend to sign a Conflict Avoidance Agreement (CAA) with the Alaska Eskimo Whaling Commission (AEWC) and the affected villages' Whaling Captains Associations before the commencement of the

seismic surveys.<sup>1</sup> 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 AES to abide by the terms of the CAA (should one be signed) as part of the IHA. These measures include a prohibition on conducting seismic surveys during the bowhead whale hunting season in the Chukchi Sea, a dispute resolution process, and provision for emergency assistance to whalers at sea. Implementation of these measures provides additional assurance that there will not be significant social or economic impacts on the coastal inhabitants of the Chukchi Sea or an unmitigable adverse impact on the availability of those species or stocks of marine mammals for taking for subsistence uses. Additionally, AES has agreed to conclude its seismic operations by September 25, before the fall bowhead whale migration westward across the Chukchi 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.

### 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 are:

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 AES) would cause substantial damage to the ocean and coastal habitats. Relatively short-term exposure (approximately 60 days of seismic shooting) to low-intensity seismic sounds (the most powerful acoustic equipment would have an impulse source level of 214 dB re 1  $\mu$ Pa (rms)) is unlikely to have significant impacts on marine life, although some mortality to fish may occur within the small high-intensity sound impact areas near the seismic vessels. Most adult fish in the vicinity of 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.

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<sup>1</sup> Absent a signed CAA, NMFS will require, through the MMPA IHA that AES implement mitigation and monitoring measures to ensure that its activities do not have an unmitigable adverse impact on the availability of those species or stocks of marine mammals for taking for subsistence uses.

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 AES' Chukchi Sea shallow hazard and site clearance 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 will have a substantial impact on biodiversity or ecosystem function within the affected area. The impacts of the seismic survey on marine mammals are specifically related to the acoustic activities, and these are expected to be temporary in nature and not result in a 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 (temporary behavioral disturbance) only, of seven species of cetaceans and four species of pinnipeds. However, neither injury nor 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 AES 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 Chukchi Sea ecosystems.

During the seismic survey, 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 in a specific area 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 conducted.

Some mysticetes, including bowhead whales, feed on concentrations of zooplankton. Some feeding bowhead whales may occur in the Alaskan Chukchi Sea. 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.

Little or no mortality to fish and/or invertebrates is anticipated. The proposed Chukchi Sea seismic survey is predicted to have minor 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 survey 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 the seismic survey or the issuance of an IHA associated with the survey 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 AES from conducting the activity whenever natives are hunting bowheads in the Chukchi 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 11 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 by acoustic equipment used for seismic surveys, generally within 4 km (2.5 mi) from the operating seismic vessel. 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 AES, 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 affected 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 are the bowhead and humpback whales.

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 this species 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 July 17, 2008, 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 or stock 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 between July and September. Seismic operations will cease on September 25, prior to the bowheads beginning their westward migration from the Beaufort Sea. In addition, the distribution of humpback and fin whales is considered extralimital in the Chukchi Sea, thereby causing NMFS to conclude that the probability of any humpback and fin whales being exposed would be small. Even if humpback and fin whales are found to be within the project area, any effects would be short-term, insignificant and limited to behavioral harassment.

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

Response: This action will not have a significant social or economic impact to commercial fishing or other activities that might be affected by offshore seismic surveys for oil and gas deposits. Since some behavioral harassment of marine mammals is anticipated, the impacts to subsistence needs and culture were fully analyzed in the supporting PEA/SEA. Because the impacts of the AES surveys are within the range of impacts previously analyzed, the harassment will be authorized. Marine mammals are legally hunted in Alaskan waters by coastal Alaska Natives. The species hunted include: bowhead and beluga whales; ringed, spotted, ribbon, and bearded seals; walrus; and polar bears. (Note that walrus and polar bear are under the jurisdiction of USFWS and therefore are not further considered in this determination of NMFS issuance of an IHA.) The importance of each of the various species varies among the communities and is based largely on availability. Bowhead and beluga whale hunting is the key activity in the subsistence economies in and around the Chukchi Sea. 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 bowhead and 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). Thus, there is no reason to expect a conflict between seismic surveys and a subsistence harvest activity. Finally, the project area is not a primary hunting ground for bearded seals so no conflict between the seismic survey and a subsistence harvest activity would arise.

In addition to the mitigation measures that will be required in the IHA, AES has informed NMFS it intends to sign the 2008 CAA with the AEWCA and the affected villages' Whaling Captains Association before the commencement of the seismic activities. A CAA provides additional assurance that the seismic surveys will not have an unmitigable adverse impact on the availability of those species or stocks of marine mammals for taking for subsistence uses. Irrespective of whether AES signs the CAA, NMFS will require, through the IHA that AES abide by certain conditions relating to subsistence uses. These include, but are not limited to: a prohibition on conducting seismic surveys during the fall bowhead whale hunting season in the Chukchi Sea, a process for dispute resolution, and provisions for emergency assistance to whalers at sea. Implementation of the IHA measures ensures that there will not be significant social or economic impacts on the coastal inhabitants of the Chukchi Sea. While the CAA only seeks to resolve conflicts regarding the subsistence use of bowhead whales, NMFS has determined (based on the above stated reasons and NMFS' record) that AES' 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 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 (Commission's) Advisory Committee on Acoustic Impacts on Marine Mammals (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 Draft 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. Comments on the Draft 2006 PEA and NMFS' proposals to issue multiple IHAs in 2006 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 focused mainly on: (1) questions and concerns related to NMFS' compliance with the National Environmental Policy Act (NEPA) and the MMPA; and (2) criticism of the mitigation and monitoring measures proposed by NMFS and MMS. Similar concerns were expressed in response to the release of the proposed AES 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 AES, 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 2006 final IHA *Federal Register* notices, 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 AES 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 April 28, 2008 (73 FR 22922). During the comment period, NMFS received ten sets of comments from the following groups and organizations: the Marine Mammal Commission; the AEWC; the NSB and the NSB Department of Wildlife Management; Oceana and the Ocean Conservancy; the Center for Biological Diversity, Pacific Environment, Sierra Club, Natural Resources Defense Council, and Alaska Wilderness League; the Native Village of Point Hope; California Gray Whale Coalition; Dr. David E. Bain of the University of Washington; Dr. Richard Steiner of the University of Alaska; and a private citizen. Inupiat concerns on the potential impact on their traditional lifestyle have been addressed through both the mitigation and monitoring measures in the IHA and are expected to be addressed in the 2008 CAA before signature. As a result, the industry will provide assurance to the communities on avoidance of significant sociocultural impacts. Little additional information that would augment or



contradict the scientific basis for NMFS' determinations has been provided through 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 of concern to certain members of the public, the activity proposed by AES in the offshore waters of Chukchi Sea in the Arctic Ocean in 2008 is not highly controversial.

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 shallow hazard and site clearance 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 agreed 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, AES will cease operations before the beginning of the bowhead whale western migration through the Chukchi Sea, which usually occurs in early October. 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. In the 2008 SEA, 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. For the Chukchi Sea, such mitigation includes prohibiting the generation of seismic sounds when an aggregation of 12 or more bowhead or gray whales are sighted within a 160 dB isopleth from an acoustic source.

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 Chukchi Sea during the summer (i.e., before October 1) to the bowhead population as a whole and, more specifically, to certain segments of the population. While it is clear that there is inter-annual variability in the use of the Chukchi 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 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 adverse effects on bowhead whales, especially cow/calf pairs. In the 2008 SEA, NMFS again reviewed this information and determined that, because only two other companies would be conducting a seismic survey in the Chukchi Sea with some overlap to AES' activities, impacts to bowhead whales, especially cow/calf pairs, are likely to be reduced appreciably in comparison to the analysis of four concurrent seismic surveys in the PEA. NMFS has determined that it is impracticable for AES to monitor a 120-dB zone during its activities because the safety zone is very large and would need to be monitored by aerial surveys. It is not practicable to use airplanes due to lack of adequate landing facilities, the prevalence of fog and other inclement weather in that area, thereby resulting in safety concerns. However, NMFS will require AES to monitor a 160-dB safety zone by chase vessels during the shallow hazard and site clearance surveys in 2008.

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). The results of these studies suggest that mitigation and monitoring requirements specified in past seismic IHAs prevented marine mammals from being exposed to received sound levels that resulted in serious injury or mortality. In addition, actual take of marine mammals by Level B harassment was generally lower than expected due to the implementation of monitoring and mitigation measures.

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 most either currently use, or will likely use in the future, standard mitigation and monitoring measures to minimize impacts to marine life. Within the Chukchi 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 BP's 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. AES' activities will only occur for approximately 60 days, take of only small numbers of each species by behavioral disturbance would be authorized, and no injury or mortality is expected nor authorized. Effects to marine mammals from AES' activities are expected to be temporary and limited to behavioral disturbance of a small number of animals. While it is possible that animals may experience multiple behavioral disturbance incidents due to the planned conduct of other actions in the larger Chukchi Sea, the potential for multiple, cumulative impacts to marine mammals is considered remote due to the distance between surveys, the short term nature of anticipated behavioral effects, and the separation in time of disturbance from past activities. In addition, since mitigation and monitoring measures are in place or would be required for all actions that require MMPA take authorization, each action's effects would be managed to ensure the least practicable adverse impact to marine mammal species or stocks. Since fish and their habitats would be expected to be impacted only very close to an acoustic source, AES' actions would not be expected to incrementally contribute to cumulatively significant impacts to fish or fish stocks, nor to their availability for harvest or as prey.

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. However, as described in question 5 above, implementation of mitigation measures in the IHA issued to AES ensures that there will not be significant social or economic impacts on the coastal inhabitants of the Chukchi 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. AES is responsible for ensuring that their ships are in compliance with all international and U.S. national ballast water requirements to prevent the spread of a non-indigenous species.

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. To ensure compliance with statutory and regulatory standards, 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. 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 and 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 AES to conduct a shallow hazard and site clearance survey in the Chukchi 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 action itself would result in issuance of an IHA in compliance with all standards required in the MMPA. Note that Section 7 consult for the species under USFWS jurisdiction also was initiated by the MMS, and MMS would be expected to complete that consultation and must comply with any required measures or conditions resulting from either the NMFS or USFWS Biological Opinions and Incidental Take Statements.

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?

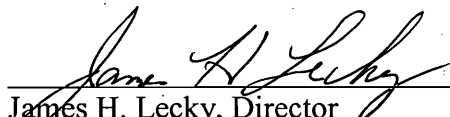
Response: This action will not target any marine species, but may affect certain non-target species, such as cetaceans and pinnipeds in the area, particularly bowhead and gray whales. AES' seismic survey will only use low-intensity seismic sources (40 in<sup>3</sup> array and other types of acoustic equipment) for a short period of time (approximately 60 days). This will create small ensonified areas. Because of the small size of the safety radii of the exclusion zone, biological observers should be able to detect marine mammals and enforce necessary mitigation measures to reduce the impacts to bowhead whales and other marine mammal species. In addition, AES will cease all seismic operations by September 25 before the beginning of the fall bowhead whale migration across the Chukchi Sea. In order to avoid, and if not possible, minimize, adverse effects, NMFS is requiring AES 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 Chukchi Sea that is of interest for conducting this

site clearance survey in 2008, the relatively short time that seismic operations will be in the area (mid-July to late-September), 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.

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## **DETERMINATION**

In view of the information presented in this document and the analysis contained in the supporting PEA, the 2008 SEA prepared for issuance of an IHA to AES to take marine mammals incidental to conducting a shallow hazard and site clearance survey in the Chukchi Sea off Alaska in the summer of 2008, and other related documents it is hereby determined that issuance of this IHA in accordance with selected alternative 6 will not significantly impact the quality of the human environment. 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.

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

JUL 30 2008  
JUL 30 2008

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Date