

DEPARTMENT OF COMMERCE**National Oceanic and Atmospheric Administration**

RIN 0648-XA665

New England 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 New England Fishery Management Council (Council) is scheduling and revising a public meeting of its Joint Skate/Whiting Committee and Whiting Advisory Panel on September 14, 2011 to consider actions affecting New England fisheries in the exclusive economic zone (EEZ). Recommendations from this group will be brought to the full Council for formal consideration and action, if appropriate.

DATES: This meeting will be held on Wednesday, September 14, 2011 at 9 a.m.

ADDRESSES: The meeting will be held at the Hilton Providence, 21 Atwells Avenue, Providence, RI 02903; telephone: (401) 831-3900; fax: (407) 751-0007.

Council address: New England Fishery Management Council, 50 Water Street, Mill 2, Newburyport, MA 01950.

FOR FURTHER INFORMATION CONTACT: Paul J. Howard, Executive Director, New England Fishery Management Council; telephone: (978) 465-0492.

SUPPLEMENTARY INFORMATION: The original meeting notice published on August 26, 2011, (76 FR 53417). The meetings were to be held on September 14 and 15, however, the meeting for September 15th is cancelled.

Wednesday, September 14, 2011

The Oversight Committee will review a Draft Final Skate Specifications Package for the 2012-13 fishing years and develop final recommendations for the September 2011 Council meeting. Beginning at 11 a.m., the Oversight Committee will meet jointly with the Whiting Advisory Panel to finalize and recommend potential management alternatives for Multispecies FMP Amendment 19 for the small mesh fishery (red hake, silver hake, offshore hake). These alternatives will include Annual Catch Limit (ACL) measures (allocations, buffers for management uncertainty, landings limits), Accountability Measures (AM), and possibly other measures to regulate the fishery and prevent catches from

exceeding the ACL. Committee recommendations to include alternatives in Draft Amendment 19 will be made at the September 26-29 Council meeting.

If necessary, the Whiting Advisory Panel may meet separately during the meeting. The Skate/Whiting Oversight Committee will also review a final draft skate specifications package and make recommendations at the Council meeting. The Oversight Committee may discuss other business regarding whiting and skate management.

Although non-emergency issues not contained in this agenda may come before this group for discussion, those issues may not be the subject of formal action during this meeting. Action will be restricted to those issues specifically 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 Act, provided the public has been notified of the Council's intent to take final action to address the emergency.

Special Accommodations

This meeting is physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to Paul J. Howard, Executive Director, at 978-465-0492, at least 5 days prior to the meeting date.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: August 29, 2011.

Tracey L. Thompson,

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

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DEPARTMENT OF COMMERCE**National Oceanic and Atmospheric Administration**

RIN 0648-XA568

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to a Marine Geophysical Survey in the Arctic Ocean, September-October 2011

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

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA) regulations, notification is hereby given that NMFS has issued an

Incidental Harassment Authorization (IHA) to the University of Alaska Geophysics Institute (UAGI) to take marine mammals, by harassment, incidental to conducting a marine geophysical seismic survey in the Arctic Ocean during September-October 2011.

DATES: Effective September 5, 2011, through October 23, 2011.

ADDRESSES: A copy of the IHA and application may be obtained 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, telephoning the contact listed below (see **FOR FURTHER INFORMATION CONTACT**), or visiting the Internet at: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm>.

The National Science Foundation (NSF), which is providing funding to UAGI to conduct the survey, prepared an "Environmental Assessment of a Marine Geophysical Survey by the *R/V Marcus G. Langseth* in the Arctic Ocean, September-October 2011," prepared by LGL Ltd., Environmental Research Associates (LGL), on behalf of UAGI and NSF, which is also available at the same internet address. NMFS prepared its own Finding of No Significant Impact (FONSI), which is available at the same internet address. Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Candace Nachman, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:**Background**

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

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 U.S. can apply for an authorization to incidentally take small numbers of marine mammals by 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.

Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as:

any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [“Level A harassment”]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [“Level B harassment”].

Summary of Request

NMFS received an application on March 4, 2011, from UAGI for the taking, by harassment, of marine mammals incidental to conducting a marine geophysical seismic survey in the Arctic Ocean. NMFS reviewed UAGI’s application and identified a number of issues requiring further clarification. After addressing comments from NMFS, UAGI modified its application and submitted a revised application on May 10, 2011. The May 10, 2011, application was the one made available for public comment (see **ADDRESSES**) and considered by NMFS for this IHA.

UAGI proposes to conduct a 2D seismic survey in the Arctic Ocean, Chukchi Sea, in both international waters and within the U.S. Exclusive Economic Zone (EEZ) in water depths ranging from 30–3,800 m (98–12,467 ft). UAGI plans to conduct the seismic survey from September 5 through October 9, 2011, which includes vessel transit time from Dutch Harbor.

UAGI plans to use one source vessel, the R/V *Marcus G. Langseth* (*Langseth*) and a seismic airgun array to collect seismic reflection data across the transition from the Chukchi Shelf to the

Chukchi Borderland to define the apparent change in structure between two large continental blocks. In addition to the operation of the seismic airgun array, UAGI intends to operate a multibeam echosounder (MBES) and a sub-bottom profiler (SBP) continuously throughout the survey. A 75-kilohertz (kHz) acoustic Doppler current profiler (ADCP) may also be used.

Acoustic stimuli (i.e., increased underwater sound) generated during the operation of the seismic airgun array may have the potential to cause a short-term behavioral disturbance for marine mammals in the survey area. This is the principal means of marine mammal taking associated with these activities, and UAGI requested and NMFS authorized the take of 11 species of marine mammals by Level B harassment in this IHA. These species are: Bowhead whale; gray whale; humpback whale; minke whale; fin whale; beluga whale; killer whale; bearded seal; spotted seal; ringed seal; and ribbon seal. Take is not expected to result from the use of the MBES or SBP; nor is take expected to result from collision with the vessel because it is a single vessel moving at a relatively slow speed during seismic acquisition within the survey, for a relatively short period of time (approximately 35 days). It is likely that any marine mammal would be able to avoid the vessel.

Description of the Specified Activity

UAGI’s survey is proposed to occur in the area 72.5–77° N. and 160–175° W. in international waters and within the U.S. EEZ (see Figure 1 in UAGI’s application). The project is scheduled to occur from September 5–October 9, 2011. Some minor deviation from these dates is possible, depending on logistics and weather. Therefore, the period of validity of the IHA is from September 5–October 23, 2011. The vessel will not be able to remain in the area once ice begins to form, as the *Langseth* is not an icebreaker. The *Langseth* would depart from Dutch Harbor on September 5, 2011, and sail northeast to arrive at approximately 72.5° N., 162° W., where the seismic survey will begin, more than 200 km (124 mi) from Barrow. The entire cruise would last for approximately 35 days, and it is estimated that the total seismic survey time will be approximately 25 days, depending on ice conditions. Seismic survey work is scheduled to terminate near the starting point at approximately 72.4° N., 164° W. on October 6; the vessel would then sail south to Dutch Harbor for arrival on October 9. There could be extra days of seismic shooting,

if the collected data are of substandard quality.

The survey will include collection of seismic reflection data across the transition from the Chukchi Shelf to the Chukchi Borderland to define the apparent change in structure between two large continental blocks. This study will test existing tectonic models and develop new constraints on the development of the Amerasian Basin and will substantially advance our understanding of the Mesozoic history of this basin. In addition, these data will enable the formulation of new tectonic models for the history of this region, which will improve our understanding of the surrounding continents.

The survey will involve one source vessel, the *Langseth*, which is operated by Lamont-Doherty Earth Observatory (L-DEO), a part of Columbia University, under a cooperative agreement with NSF. The *Langseth* will deploy an array of 10 airguns (1,830 in³) as an energy source at a tow depth of 6 m (19.7 ft). The receiving system will consist of a 2-km (1.2-mi) long hydrophone streamer. As the airgun array is towed along the survey lines, the hydrophone streamer will receive the returning acoustic signals and transfer the data to the on-board processing system. In addition, at least 72 sonobuoys will be deployed in order to record seismic refraction data. The *Langseth* will be avoiding the ice edge, and an ice expert will be available to provide daily guidance and to predict ice movements.

The program will consist of a total of approximately 5,502 km (3,419 mi) of survey lines, not including transits to and from the survey area when airguns will not be in use (see Figure 1 in UAGI’s application). Water depths within the study area range from approximately 30–3,800 m (98–12,467). Just over half of the survey effort (55%) will occur in water 100–1,000 m (328–3,281 ft) deep, 32% will take place in water >1,000 m (3,281 ft) deep, and 13% will occur in water depths <100 m (328 ft). There will be additional seismic operations in the survey area associated with turns, airgun testing, and repeat coverage of any areas where initial data quality is sub-standard. In addition to the operations of the airgun array, a Kongsberg EM 122 MBES and a Knudsen 320B SBP will also be operated from the *Langseth* continuously throughout the cruise. A 75-kHz ADCP may also be used.

All planned geophysical data acquisition activities will be conducted by L-DEO with on-board assistance by the scientists who have proposed the study. The Principal Investigator (PI) is Dr. Bernard Coakley of UAGI. The

vessel will be self-contained, and the crew will live aboard the vessel for the entire cruise.

Table 1 in this document and Table 1 in UAGI's application show the

distances at which three rms sound levels are expected to be received from the 10-airgun array and a single airgun.

For the 10-airgun array, distances were modeled at seven sites; the distances in

Table 1 are the averages from the sites in each depth range.

TABLE 1—MAXIMUM PREDICTED DISTANCES TO WHICH SOUND LEVELS ≥190, 180, AND 160 dB RE 1 μPA (RMS) COULD BE RECEIVED IN VARIOUS WATER-DEPTH CATEGORIES DURING THE PROPOSED SURVEY IN THE ARCTIC OCEAN

[The distances for the 10-airgun array are the averages of modeled 95% percentile distances at modeling sites in each depth range]

Source and volume	Tow depth (m)	Water depth	Predicted RMS Radii (m)		
			190 dB	180 dB	160 dB
Single Bolt airgun 40 in ³	6	Deep (>1000 m)	12	40	385
		Intermediate (100–1000 m)	18	60	578
		Shallow (<100)	150	296	1050
1 string 10 airguns 1830 in ³	6	Deep (>1000 m)	130	425	14,070
		Intermediate (200–1000 m)	130	1400	13,980
		Shallow (<200)	190	1870	14,730

* The tow depth has minimal effect on the maximum near-field output and the shape of the frequency spectrum for the single 40 in³ airgun; thus, the predicted safety radii are essentially the same at any tow depth.

NMFS expects that acoustic stimuli resulting from operation of the single airgun or the 10 airgun array has the potential to harass marine mammals, incidental to the conduct of the proposed seismic survey. NMFS expects these disturbances to be temporary and result, at worst, in a temporary modification in behavior and/or low-level physiological effects (Level B harassment) of small numbers of certain species of marine mammals. NMFS does not expect that the movement of the *Langseth*, during the conduct of the seismic survey, has the potential to harass marine mammals because of the relatively slow operation speed of the vessel (4–5 kts [7.4 to 9.3 km/hr]) during seismic data acquisition.

Additional details on the purpose of the survey program and details of the vessel, acoustic equipment to be deployed and predicted sound radii are contained in NMFS' Notice of Proposed IHA (76 FR 41463, July 14, 2011). The activities to be conducted have not changed between the proposed notice and this final issuance notice. The reader should refer to the proposed notice and documents referenced earlier in this notice for further details (see ADDRESSES).

Comments and Responses

A Notice of Proposed IHA published in the **Federal Register** on July 14, 2011 (76 FR 41463) for public comment. During the 30-day public comment period, NMFS received two comment letters from the following: The Marine Mammal Commission (MMC) and the North Slope Borough (NSB). All of the public comment letters are available on the Internet at: <http://www.nmfs.noaa.gov/pr/permits/>

incidental.htm. Following are the public comments and NMFS' responses.

Comment 1: The NSB recommends modifying the timing of the survey tracklines so that all of the proposed survey area closest to the Chukchi Sea coast is surveyed in mid-September and the farthest points or areas are sampled at the end of the survey period in October. This approach will help to mitigate possible impacts to the availability of marine mammals, most notably bowhead whales, to subsistence communities by moving the airgun array as far away from the communities as possible just before and during hunts.

Response: Both UAGI and L-DEO considered this request and reviewed the constraints of operating the *Langseth* in the survey region during the proposed time frame. The *Langseth* is not an ice strengthened vessel, and, therefore, it must avoid working in areas with ice. In addition, for safety reasons, the vessel must prevent towed seismic equipment from becoming entangled with ice. The safety of both the vessel and its crew is foremost when planning surveys, especially in the proposed challenging operational area. In the past few years, the freshly formed sea ice crowds in from the west, thus the *Langseth* will need to begin the survey during the low ice period in the far northwestern quadrant and work in a southeastern direction to avoid ice possibly being in the survey area. Further various ice-dependent mammals like walrus, polar bears and several species of seal will be avoided by avoiding encroaching ice flows.

The closest survey lines in the lower southeastern portion of the survey area are approximately 250 km (155 mi) from the Chukchi Sea coast. Subsistence whaling typically occurs nearshore. In

the Chukchi Sea region, the fall hunt is generally conducted in an area that extends 16 km (10 mi) west of Barrow to 48 km (30 mi) north of Barrow. This information is confirmed by the Alaska Eskimo Whaling Commission (AEWC) in a recent letter to NMFS on a separate action, which states that “[s]ubsistence hunters have a limited hunting range and prefer to take whales close to shore so as to avoid hauling a harvested whale a long distance over which the whale could spoil. During the fall, however, subsistence hunters in the Chukchi Sea will pursue bowhead whales as far as 50 miles (80 km) from the coast in small, fiberglass boats.” Even if whaling crews venture out 80 km (50 mi), the *Langseth* would still be a minimum of 170 km (105.6 mi) from the hunting grounds at its closest point. Additionally, a local Barrow resident with knowledge about the marine mammals and fish of the area is expected to be included as an observer aboard the *Langseth*. This person will be able to act as a liaison with hunters if they are encountered at sea. In its 2011 Conflict Avoidance Agreement, the AEWC noted that geophysical activity should not occur within 48 km (30 mi) of the Chukchi Sea coast during the fall hunting season and any vessel operating within 96.5 km (60 mi) of the Chukchi Sea coast should participate in the Communication Centers. Neither of these triggers will be met during the UAGI survey; however, UAGI and L-DEO have agreed to communicate with Chukchi Sea hunters via the radio onboard the vessel. Based on this considerable distance from the traditional whale hunting grounds and the fact that the vessel will not come into any of the Chukchi Sea villages during the hunting season for resupply

or crew changes, NMFS has determined that there will not be an unmitigable adverse impact on the availability of marine mammals for subsistence uses, even if the southeastern portion of the project area is surveyed in late September/early October. NMFS must also weigh the practicability of applicant implementation when requiring mitigation measures. Because changing the survey design could potentially make it impossible to survey the area or compromise the vessel or its crew, NMFS has determined that it is not feasible to change the survey design.

Comment 2: The MMC recommends that NMFS require UAGI to re-estimate the proposed exclusion and buffer zones for the mitigation airgun using operational and site-specific environmental parameters and the modeled developed by Marine Acoustics, Inc. (MAI). If NMFS does not follow this recommendation, then the MMC recommends that NMFS provide a detailed justification for basing the exclusion and buffer zones for the proposed survey in the Chukchi Sea and Arctic Ocean on modeling that relies on measurements from the Gulf of Mexico and that is inconsistent with the modeling approach used for the 10-airgun array.

Response: NMFS is satisfied that the data supplied are sufficient for NMFS to conduct its analysis and make any determinations and therefore no further effort is needed by the applicant. While exposures of marine mammals to acoustic stimuli are difficult to estimate, NMFS is confident that the levels of take provided by L-DEO in their IHA application and EA, and authorized herein are estimated based upon the best available scientific information and estimation methodology.

Although L-DEO has modeled a variety of source configurations typically used on the *Langseth*, for this survey, the PI requested a small energy source and unique source configuration to conduct the proposed research (i.e., 10-airgun array with a discharge volume of 1,830 in³). L-DEO did not have a model result for this source/configuration available for use or the capability within L-DEO at the time to prepare one. As a result, MAI was contracted by L-DEO to model the unique source and configuration for this survey. For that reason, a model capable of accounting for site-specific environmental parameters was used to estimate the various sound isopleths for the 10-gun array.

The proposed mitigation gun is considered a low-energy source, a single bolt 40 in³ airgun. While the model for the mitigation gun does not account for

site-specific environmental conditions in the Arctic, given the small source, it was viewed as unnecessary to run an additional model incorporating environmental context for this survey. Model results for the mitigation gun do not appear inconsistent with results produced by MAI for the larger array. Additionally, sound source verification (SSV) tests have been conducted for several small airgun sources in the Beaufort and Chukchi Seas in recent years. Although tests have not been conducted on a single bolt 40 in³ airgun, SSV tests were conducted in 2008 on a 4 x 10 in³ airgun array (total discharge volume of 40 in³) and in 2009 on two 2 x 10 in³ airgun array (total discharge volume of 40 in³). These tests were conducted in shallow to intermediate water depths (as defined by the ranges provided in the UAGI IHA application). The 2008 test results indicate that sounds attenuated to 160-dB (rms) 1,400 m (4,593 ft) from the source, to 180-dB (rms) 160 m (525 ft) from the source, and to 190-dB (rms) 50 m (164 ft) from the source. The 2009 test results indicate that sounds attenuated to 160-dB (rms) 546 m (1,791 ft) from the source, to 180-dB (rms) 83 m (272 ft) from the source, and to 190-dB (rms) 33 m (108 ft) from the source. The results of these two tests are fairly consistent with the modeling for the single bolt gun to be used in this survey (see Table 1 earlier in this document). L-DEO intends to investigate new acoustic modeling programs in the future which incorporate environmental context. NMFS has considered the models and model results and has concluded that the proposed exclusions zones for the single mitigation gun are appropriate for the survey.

The IHA issued to UAGI, under section 101(a)(5)(D) of the MMPA provides monitoring and mitigation requirements to protect marine mammals from injury, serious injury, or mortality. UAGI is required to comply with the IHA's requirements. These analyses are supported by extensive scientific research and data. NMFS is confident in the peer-reviewed results of the L-DEO seismic calibration studies which, although viewed as conservative, were used to determine the sound radii for the mitigation airgun for this cruise and which factor into exposure estimates. NMFS has determined that these reviews are the best scientific data available for review of the IHA application and to support the necessary analyses and determinations under the MMPA, Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*) and NEPA.

Comment 3: The NSB states that NMFS should require applicants to

assess impacts of surveys to bowhead whales to the 120 dB level, especially in this case because the survey will overlap in time with migrating bowheads and the hunts in Barrow and Wainwright.

Response: As noted by the NSB in its letter, UAGI did consider the impacts to bowhead whales from sound levels lower than 160 dB in its application. Additionally, NMFS also noted reactions of bowhead whales to sounds below 160 dB in its Notice of Proposed IHA (76 FR 41463, July 14, 2011). The best information available to date for reactions by bowhead whales to noise, such as seismic, 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 μ Pa rms, depending upon propagation. Corresponding levels at 30 km (18.6 mi) were about 107–126 dB re 1 μ 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 sound pressure level (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, while NMFS considers impacts to bowhead whales from sound levels below 160 dB, 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.

As stated in the past, NMFS does not believe that minor course corrections during a migration rise to a level of being a significant behavioral response. To show the contextual nature of this minor behavioral modification, recent monitoring studies of Canadian seismic operations indicate that when, not migrating, but involved in feeding,

bowhead whales do not move away from a noise source at an SPL of 160 dB. Therefore, while bowheads may avoid an area of 20 km (12.4 mi) around a noise source, when that determination requires a post-survey computer analysis to find that bowheads have made a 1 or 2 degree course change, NMFS believes that does not rise to a level of a “take.” NMFS therefore continues to estimate “takings” under the MMPA from impulse noises, such as seismic, as being at a distance of 160 dB (re 1 μ Pa).

Although it is possible that marine mammals could react to any sound levels detectable above the ambient noise level within the animals’ respective frequency response range, this does not mean that such animals would react in a biologically significant way. According to experts on marine mammal behavior, the degree of reaction which constitutes a “take,” i.e., a reaction deemed to be biologically significant that could potentially disrupt the migration, breathing, nursing, breeding, feeding, or sheltering, etc., of a marine mammal is complex and context specific, and it depends on several variables in addition to the received level of the sound by the animals. These additional variables include, but are not limited to, other source characteristics (such as frequency range, duty cycle, continuous vs. impulse vs. intermittent sounds, duration, moving vs. stationary sources, etc.); specific species, populations, and/or stocks; prior experience of the animals (naïve vs. previously exposed); habituation or sensitization of the sound by the animals; and behavior context (whether the animal perceives the sound as predatory or simply annoyance), etc. (Southall *et al.*, 2007). Therefore, unless and until an improved approach is developed and peer-reviewed, NMFS will continue to use the 160-dB threshold for determining the level of take of marine mammals by Level B harassment for impulse noise (such as from airguns). While NMFS does not consider exposures to sounds below 160-dB (rms) as likely to result in take of marine mammals by Level B harassment, NMFS acknowledges that some behaviors that might result from exposures at these lower levels do have the potential to impact a subsistence hunt.

MAI did not model the 120-dB isopleths for the 10-airgun array for the 120-dB radius. Using back-of-the-envelope calculations, which do not take into consideration the site-specific environmental parameters as was done for calculating the 160-, 180-, and 190-dB radii, the 120-dB radius is

anticipated to extend approximately 115 km (71.5 mi) in deep water (>1,000 m [3,281 ft]), 177 km (110 mi) in intermediate water (100–1,000 m [328–3,281 ft]), and 204 km (126.8 mi) in shallow water (<100 m [328 ft]). The planned survey tracklines lie between 250 and 800 km (155 and 497 mi) offshore of the Chukchi Sea coast. Therefore, when surveying in the project area closest to Barrow and Wainwright, the sound will attenuate to 120-dB approximately 50 km (31 mi) from the coast. Typical bowhead hunting grounds in Barrow are to the east of Point Barrow, therefore making this distance even greater. Although Wainwright has not landed a fall bowhead whale in many years, the village did land a whale on October 7, 2010. If Wainwright conducts its hunt around this same time in 2011, it will be just after the conclusion of the UAGI survey. UAGI intends to cease seismic operations (barring weather or operational delays) on October 5, 2011. The vessel will then spend approximately 4 days transiting to Dutch Harbor. The *Langseth* will remain approximately 80 km (50 mi) or more offshore while transiting through the Chukchi Sea, and no airguns will be operating at this time. Based on the information provided here and later in this document, it is not anticipated that the UAGI survey will have an unmitigable adverse impact on the bowhead whale hunts at Barrow or Wainwright.

Comment 4: The NSB recommends that NMFS request the applicant to revise the proposal (and take request, if needed) and evaluate the potential impacts from the MBES, SBP, and ADCP.

Response: The applicant provided an evaluation of the potential impacts to marine mammals from the use of these equipment sources in the IHA application and the associated Environmental Assessment (EA). Additionally, NMFS evaluated the potential use of these devices and the potential impact that the sources may have on marine mammals in the Notice of Proposed IHA (76 FR 41463, July 14, 2011).

NMFS has determined that it is not necessary to calculate take, beyond what has already been calculated, from the use of these higher-frequency sound sources. The acoustic footprints of these sources are anticipated to fall within that of the airgun array. The likelihood of a marine mammal swimming within the narrow beams of these sources is small. If the animal were to swim within the area under the vessel where it could potentially be exposed to these sounds,

it would likely only be subjected to a single pulse because of the narrow beams. Therefore, no additional take has been calculated for these sources.

Comment 5: The Commission recommends that if NMFS is planning to allow the applicant to resume full power after 8 minutes (min) under certain circumstances, specify in the authorization in all conditions under which an 8 min period could be followed by a full-power resumption of the airguns.

Response: NMFS has specified in the IHA all conditions when UAGI may resume full power after 8 min. During periods of active seismic operations, there are occasions when the airguns need to be temporarily shut-down (for example due to equipment failure, maintenance, or shut-down) or a power-down is necessary (for example when a marine mammal is seen to either enter or about to enter the exclusion zone [EZ]). In these instances, should the airguns be inactive or powered-down for more than 8 min, then L-DEO would follow the ramp-up procedures identified in the “Mitigation” section found later in this document where airguns will be re-started beginning with the smallest airgun in the array and increase in steps not to exceed 6 dB per 5 min over a total duration of approximately 30 min. NMFS and NSF believe that the 8 min period in question is an appropriate minimum amount of time to pass after which a ramp-up process should be followed. In these instances, should it be possible for the airguns to be re-activated without exceeding the 8 min period (for example equipment is fixed or a marine mammal is visually observed to have left the EZ for the full source level), then the airguns would be reactivated to the full operating source level identified for the survey (in this case, 1,830 in³) without need for initiating ramp-up procedures. In the event a marine mammal enters the EZ and a power-down is initiated, and the marine mammal is not visually observed to have left the EZ, then UAGI and L-DEO must wait 15 min (for species with shorter dive durations—small odontocetes and pinnipeds) or 30 min (for species with longer dive durations—mysticetes) after the last sighting before ramp-up procedures can be initiated, or as otherwise directed by requirements in an IHA. However, ramp-up will not occur as long as a marine mammal is detected within the EZ, which provides more time for animals to leave the EZ, and accounts for the position, swim speed, and heading of marine mammals within the EZ.

Comment 6: The Commission recommends that NMFS condition the authorization to require UAGI to monitor, document, and report observations during all ramp-up procedures.

Response: The IHA requires that observers on the *Langseth* make observations for 30 min prior to ramp-up, during all ramp-ups, and during all daytime seismic operations and record the following information when a marine mammal is sighted:

(i) Species, group size, age/size/sex categories (if determinable), behavior when first sighted and after initial sighting, heading (if consistent), bearing and distance from seismic vessel, sighting cue, apparent reaction of the airguns or vessel (e.g., none, avoidance, approach, paralleling, etc., and including responses to ramp-up), and behavioral pace; and

(ii) Time, location, heading, speed, activity of the vessel (including number of airguns operating and whether in state of ramp-up or power-down), Beaufort wind force and sea state, visibility, and sun glare.

Comment 7: The Commission recommends that NMFS work with NSF to analyze these monitoring data to help determine the effectiveness of ramp-up procedures as a mitigation measure for geophysical surveys after the data are compiled and quality control measures have been completed.

Response: One of the primary purposes of monitoring is to result in "increased knowledge of the species" and the effectiveness of monitoring and mitigation measures; the effectiveness of ramp-up as a mitigation measure and marine mammal reaction to ramp-up would be useful information in this regard. NMFS has asked NSF and L-DEO to gather all data that could potentially provide information regarding the effectiveness of ramp-ups as a mitigation measure. However, considering the low numbers of marine mammal sightings and low numbers of ramp-ups, it is unlikely that the information will result in any statistically robust conclusions for this particular seismic survey. Over the long term, these requirements may provide information regarding the effectiveness of ramp-up as a mitigation measure, provided animals are detected during ramp-up.

Comment 8: The Commission recommends that NMFS, prior to granting the requested authorization, provide additional justification for its preliminary determination that the proposed monitoring program will be sufficient to detect, with a high level of confidence, all marine mammals within

or entering the identified EZs and buffer zones, including:

(1) Identifying those species that it believes can be detected with a high degree of confidence using visual monitoring only,

(2) Describing detection probability as a function of distance from the vessel,

(3) Describing changes in detection probability under various sea state and weather conditions and light levels, and

(4) Explaining how close to the vessel marine mammals must be for Protected Species Observers (PSOs) to achieve high nighttime detection rates.

Response: NMFS determined that the planned monitoring program will be sufficient to detect (using visual monitoring and passive acoustic monitoring [PAM]), with reasonable certainty, marine mammals within or entering identified EZs. This monitoring, along with the required mitigation measures, will result in the least practicable impact on the affected species or stocks, will result in a negligible impact on the affected species or stocks of marine mammals, and will not have an unmitigable adverse impact on the availability of marine mammals for taking for subsistence uses. Also, NMFS expects some animals to avoid areas around the airgun array ensounded at the level of the EZ.

NMFS acknowledges that the detection probability for certain species of marine mammals varies depending on animal's size and behavior, as well as sea state, weather conditions, and light levels. The detectability of marine mammals likely decreases in low light (i.e., darkness), higher Beaufort sea states and wind conditions, and poor weather (e.g., fog and/or rain). However, at present, NMFS views the combination of visual monitoring and PAM as the most effective monitoring and mitigation techniques available for detecting marine mammals within or entering the EZ. The final monitoring and mitigation measures are the most effective feasible measures, and NMFS is not aware of any additional measures which could meaningfully increase the likelihood of detecting marine mammals in and around the EZ. Further, public comment has not revealed any additional monitoring or mitigation measures that could be feasibly implemented to increase the effectiveness of detection.

NSF, UAGI, and L-DEO are receptive to incorporating proven technologies and techniques to enhance the current monitoring and mitigation program. Until proven technological advances are made, nighttime mitigation measures during operations include combinations of the use of visual PSOs for ramp-ups,

PAM, night vision devices (NVDs), and continuous shooting of a mitigation airgun. L-DEO has conducted two tests regarding the effectiveness of NVDs and nighttime sightings. Results of those tests indicated that NVDs are effective to at least 150–200 m (492–656 ft) from the vessel, and observing with the naked eye at night (i.e., darkness) is effective to about 30 m (98 ft) from the vessel. Should the airgun array be powered-down, the operation of a single airgun would continue to serve as a sound source deterrent to marine mammals. In the event of a complete shut-down of the airgun array at night for mitigation or repairs, L-DEO suspends the data collection until one-half hour after nautical twilight-dawn (when PSOs are able to clear the EZ). L-DEO will not activate the airguns until the entire EZ is visible for at least 30 min.

In cooperation with NMFS, L-DEO will be conducting efficacy experiments of NVDs during a future *Langseth* cruise. In addition, in response to a recommendation from NMFS, L-DEO is evaluating the use of handheld forward-looking thermal imaging cameras to supplement nighttime monitoring and mitigation practices. During other low power seismic and seafloor mapping surveys, L-DEO successfully used these devices while conducting nighttime seismic operations.

Comment 9: The NSB states that if PAM is intended to be used to help monitor the EZs, they recommend that NMFS require a different acoustic monitoring tool because the applicant did not provide details about the efficacy of their proposed approach for PAM and previous efforts to use PAM in the Chukchi Sea have had limited success. NMFS could require the deployment of sonobuoys as a means to detect marine mammals within or about to enter the EZs. The NSB fully supports the continued testing and development of PAM as a monitoring tool.

Response: NMFS has determined that the PAM system proposed to be used during the UAGI survey is sufficient. The use of sonobuoys to detect marine mammals is unlikely to provide additional detection or monitoring benefits over the PAM system aboard the *Langseth*. Single sonobuoys cannot be used to localize animals within the EZ, and NMFS is unaware of an effective method for deploying and using multiple sonobuoys together while on the move or the software to integrate the data in a timely fashion, whereas the PAM system is capable of determining rough approximates of animal locations, thus making the detections more meaningful in the augmentation of mitigation. Second,

vocalizing low-frequency baleen whales are unlikely to be detected through sonobuoys because these sounds are below the human auditory threshold, whereas the PAM system is set up to display sound spectrograms that would allow the detection of marine mammal vocalizations outside of the human auditory range. Additionally, the location of sonobuoys after they are deployed are unknown, but they are designed to operate in line of sight distance from the vessel which would only provide limited detection improvement to visual detections during the day, and little improvement in the detection range compared to the current PAM system. The use of sonobuoys to detect marine mammals in the Arctic has also been done in the past during a similar survey, but no detections were made, and it is unlikely that sonobuoys would provide any improvement to detections beyond the visual and passive acoustic monitoring plan described in the IHA application.

Comment 10: The Commission recommends that NMFS require the applicant to:

(1) Report on the number of marine mammals that were detected acoustically and for which a power-down or shut-down of the airguns was initiated;

(2) Specify if such animals also were detected visually; and

(3) Compare the results from the two monitoring methods (visual versus acoustic) to help identify their respective strengths and weaknesses.

Response: The IHA requires that acoustic PSOs on the *Langseth* do and record the following when a marine mammal is detected by the PAM:

(i) Notify the on-duty visual PSO(s) immediately of a vocalizing marine mammal so a power-down or shut-down can be initiated, if required;

(ii) Enter the information regarding the vocalization into a database. The data to be entered include an acoustic encounter identification number, whether it was linked with a visual sighting, date, time when first and last heard and whenever any additional information was recorded, position, and water depth when first detected, bearing if determinable, species or species group (e.g., unidentified dolphin, sperm whale), types and nature of sounds heard (e.g., clicks, continuous, sporadic, whistles, creaks, burst pulses, strength of signal, etc.), and any other notable information.

L-DEO reports on the number of acoustic detections made by the PAM system within the post-cruise monitoring reports as required by the IHA. The report also includes a

description of any acoustic detections that were concurrent with visual sightings, which allows for a comparison of acoustic and visual detection methods for each cruise.

The post-cruise monitoring reports also include the following information: the total operational effort in daylight (hrs), the total operational effort at night (hrs), the total number of hours of visual observations conducted, the total number of sightings, and the total number of hours of acoustic detections conducted.

LGL, a contractor for L-DEO, has processed sighting and density data, and their publications can be viewed online at: http://www.lgl.com/index.php?option=com_content&view=article&id=69&Itemid=162&lang=en. Post-cruise monitoring reports are currently available on the NMFS' MMPA Incidental Take Program website and on the NSF Web site (<http://www.nsf.gov/geo/oce/envcomp/index.jsp>) should there be interest in further analysis of this data by the public.

Comment 11: The NSB recommends that NMFS require that all seismic surveys, regardless of their location or timing in the Beaufort and Chukchi Seas, undergo the independent peer review process.

Response: NMFS' implementing regulations at 50 CFR 216.108(d) state that an independent peer review of a monitoring plan is required if the activity may affect the availability of a species or stock of marine mammals for taking for subsistence purposes. The independent peer review of monitoring plans for incidental take authorization applications is not required for activities that occur outside of Arctic waters or in Arctic waters if it is determined that the activity will not affect the availability of a species or stock of marine mammals for taking for subsistence purposes. UAGI provided NMFS with a draft IHA application in early March, 2011, which included information on the timing and location of its proposed seismic lines. For reasons stated in the Notice of Proposed IHA (76 FR 41463, July 14, 2011) and later in this document, NMFS determined it was not necessary to have UAGI's monitoring plan peer reviewed. The survey will occur in an area that is between 250 and 800 km (155 and 497 mi) northwest of Barrow and Wainwright. Sound levels in the closest portion of the survey area will attenuate to 120 dB at approximately 50 km (31 mi) from the coast. The bowhead whales will be traveling from the east in a westward direction, and will reach Barrow prior to entering the sound field of the survey. The survey will occur after the conclusion of the spring and

summer beluga hunts in the Chukchi Sea. If any beluga hunting continues into early September, it will be when the vessel is transiting to the site, approximately 80 km (50 mi) offshore. Seal hunting occurs closer to shore and typically does not occur beyond 40 km (25 mi) from the coast. Additionally, a Barrow resident will be aboard the *Langseth* in order to communicate with hunters.

Since NMFS preliminarily determined (based on the information contained in the draft IHA application) that UAGI's activity would not affect the availability of a species or stock of marine mammals for taking for subsistence purposes, NMFS determined that their activity did not trigger the requirement for independent peer review of the monitoring plan. The trigger for needing an independent peer review of the monitoring plan is slightly different than the "no unmitigable adverse impact" determination that NMFS must make prior to the issuance of an IHA. Anyone is able to make recommendations on a proposed monitoring plan during the 30-day public comment period that is afforded during the proposed IHA process. NMFS will continue to make determinations on which activities require an independent peer review of the monitoring plans on a case-by-case basis in accordance with the implementing regulations.

Comment 12: The NSB states that NMFS should require each IHA applicant to contribute funding or support to gather additional scientific information about the long-term impacts of anthropogenic sounds on bowhead and beluga whales. This could occur through satellite tracking, more extensive aerial or acoustic surveys, or physiological studies related to stress or impacts to hearing.

Response: NMFS' implementing regulations at 50 CFR 216.104(a)(14) indicate that NMFS encourages additional research and that applicants should coordinate with others conducting research on marine mammals in the same area. However, NMFS is unable to require that an applicant provide funding to those already conducting research on marine mammals.

The research scientist involved with this survey plans to use seismic equipment to investigate the tectonic structure in the Amerasian basin. While the study of long term impacts to marine mammals that deflect away from anthropogenic sound is outside of the proposed scope of this project, UAGI does support a variety of scientists and research at its institution, including

marine mammal research. Data collected by PSOs on the *Langseth* during the survey will be made publicly available for further analysis by interested parties. This research project received funding from NSF. NSF has provided support and funding for workshops, conferences, and meetings related to the issue of anthropogenic sound in the marine environment and research proposals to enhance monitoring and mitigation measures for marine species, with a particular focus on marine mammals. NSF is receptive to receiving science proposals for funding consideration, including those to investigate anthropogenic sound in the marine environment and potential long-term effects. Proposals received would be reviewed and considered for funding through the standard NSF merit review process.

Comment 13: The NSB states that NMFS should request UAGI to revise their IHA application and take estimates to account for the migration of marine mammals through the proposed survey area.

Response: NMFS does not agree that the take estimates need to be revised for bowhead and beluga whales to account for migration. First, evidence has shown that the bowhead whale fall migratory route through the Chukchi Sea is more spread out than in the Beaufort Sea, where whales tend to have a more confined migratory corridor due to ice conditions. In a recent satellite tagging study, Quakenbush *et al.* (2010) concluded from GPS data that bowhead whales do not spend much time in the northern Chukchi Sea or the Arctic Ocean north of the Chukchi Sea, near UAGI's 2011 seismic survey. Quakenbush *et al.* (2010) note that most of the whales moved west through the Chukchi Sea between 71° and 74° N. UAGI's study area occurs between 72.5–77° N. Based on that data, only part of the survey area occurs in the migratory corridor. Kernel densities from the study showed that areas with the highest probability of bowhead use from September to December were near Point Barrow and the northeast Chukotka coast; the area along the east coast of Wrangel Island also had a moderate probability of use (Quakenbush *et al.*, 2010). In addition, movements and behavior of tagged bowhead whales in this study indicated that the greatest potential for disturbance from industrial activities is near Point Barrow in September and October and in the lease area in September. These locations are a considerable distance from UAGI's survey area.

UAGI used data collected during recent aerial surveys in the Chukchi Sea

to determine likely densities of cetaceans in the fall. These data are considered the best available. Therefore, NMFS has determined that the authorized levels of take are appropriate. Reasoning for this determination was provided in the Notice of Proposed IHA (76 FR 41463, July 14, 2011). Additionally, UAGI included an additional 25 percent of survey tracklines into the calculations to account for lines associated with turns, airgun testing, and repeat coverage of any areas where initial data quality is sub-standard. Because UAGI multiplied the expected species density times the anticipated area to be ensonified to that level during airgun operations in each depth stratum, excluding overlap, this 25 percent contingency is included in the take calculations. Based on the reasoning provided here, NMFS has determined that it is unnecessary to recalculate the take estimates for bowhead and beluga whales or any other marine mammals that may occur in the seismic survey project area.

Comment 14: The Commission recommends that NMFS consult with the funding agency (i.e., NSF) and individual applicants (e.g., UAGI, L-DEO and U.S. Geological Survey) to develop, validate, and implement a monitoring program that provides a scientifically sound, reasonably accurate assessment of the types of marine mammal taking and number of marine mammals taken.

Response: Studies have reported on the abundance and distribution of marine mammals inhabiting the Arctic Ocean in the Chukchi Sea, which overlaps with the seismic survey area, and UAGI has incorporated this data into their analyses used to predict marine mammal take in their application. NMFS believes that UAGI's current approach for estimating abundance in the survey area (prior to the survey) is the best available approach.

There will be significant amounts of transit time during the cruise, and PSOs will be on watch prior to and after the seismic portions of the survey, in addition to during the survey. The collection of this visual observational data by PSOs may contribute to baseline data on marine mammals (presence/absence) and provide some generalized support for estimated take numbers, but it is unlikely that the information gathered from this single cruise would result in any statistically robust conclusions for any particular species because of the small number of animals typically observed.

NMFS acknowledges the MMC's recommendations and is open to further

coordination with the MMC, NSF (the vessel owner), and L-DEO (the ship operator on behalf of NSF), to develop, validate, and implement a monitoring program that will provide or contribute towards a more accurate assessment of the types of marine mammal taking and the number of marine mammals taken. However, the cruise's primary focus is marine geophysical research, and the survey may be operationally limited due to considerations such as location, time, fuel, services, and other resources.

Description of Marine Mammals in the Area of the Specified Activity

The Chukchi Sea supports a diverse assemblage of marine mammals, including: bowhead, gray, beluga, killer, minke, humpback, and fin whales; harbor porpoise; ringed, ribbon, spotted, and bearded seals; narwhals; polar bears; and walruses. The bowhead, humpback, and fin whales are listed as endangered, and the polar bear is listed as threatened under the U.S. ESA. All of these species are also considered depleted under the MMPA. On December 10, 2010, NMFS published a notification of proposed threatened status for subspecies of the ringed seal (75 FR 77476) and a notification of proposed threatened and not warranted status for subspecies and distinct population segments of the bearded seal (75 FR 77496) in the **Federal Register**. Neither species is considered depleted under the MMPA.

The bowhead and beluga whales and the ringed and bearded seals are the marine mammal species most likely to be encountered during this survey, with the ringed seal being the most likely marine mammal species to occur throughout the survey area. Although humpback and minke whales are uncommon in the Arctic Ocean, sightings of both species have occurred in the Chukchi Sea in recent years (Brueggeman, 2009; Haley *et al.*, 2010; Clarke *et al.*, 2011).

There are scattered records of narwhal in Alaskan waters, where the species is considered extralimital (Reeves *et al.*, 2002). Harbor porpoises occur mainly in shelf areas where they can dive to depths of at least 220 m (722 ft) and stay submerged for more than 5 min (Harwood and Wilson, 2001). This species prefers shallower waters, making it unlikely that harbor porpoises would be encountered during the proposed seismic survey. Because of the rarity of these two species in the survey area, they are not considered further in this document. The polar bear and walrus are managed by the U.S. Fish and Wildlife Service (USFWS) and are

not considered further in this IHA notice.

Refer to Sections III and IV of UAGI's application for detailed information regarding the abundance and distribution, seasonal distribution, population status, and life history and behavior of these species and their occurrence in the project area. When reviewing the application, NMFS determined that the species descriptions provided by UAGI correctly characterized the abundance and distribution, seasonal distribution, population status, and life history and behavior of each species. Additional information can also be found in the NMFS Stock Assessment Reports (SAR). The 2010 Alaska Marine Mammal SAR is available on the Internet at: <http://www.nmfs.noaa.gov/pr/pdfs/sars/ak2010.pdf>.

The application also presents how UAGI calculated the estimated densities for the marine mammals in the survey area (see **ADDRESSES**). NMFS reviewed these data and determined them to be the best available scientific information for the purposes of the IHA.

Brief Background on Marine Mammal Hearing

When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. Based on available behavioral data, audiograms have been derived using auditory evoked potentials, anatomical modeling, and other data, Southall *et al.* (2007) designate "functional hearing groups" for marine mammals and estimate the lower and upper frequencies of functional hearing of the groups. The functional groups and the associated frequencies are indicated below (though animals are less sensitive to sounds at the outer edge of their functional range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range):

- Low frequency cetaceans (13 species of mysticetes): functional hearing is estimated to occur between approximately 7 Hz and 22 kHz (however, a study by Au *et al.* (2006) of humpback whale songs indicate that the range may extend to at least 24 kHz);

- Mid-frequency cetaceans (32 species of dolphins, six species of larger toothed whales, and 19 species of beaked and bottlenose whales): functional hearing is estimated to occur between approximately 150 Hz and 160 kHz;

- High frequency cetaceans (eight species of true porpoises, six species of river dolphins, Kogia, the franciscana, and four species of cephalorhynchids): functional hearing is estimated to occur between approximately 200 Hz and 180 kHz; and

- Pinnipeds in Water: functional hearing is estimated to occur between approximately 75 Hz and 75 kHz, with the greatest sensitivity between approximately 700 Hz and 20 kHz.

As mentioned previously in this document, 11 marine mammal species (seven cetacean and four pinniped species) are likely to occur in the survey area. Of the seven cetacean species likely to occur in UAGI's survey area, five are classified as low frequency cetaceans (i.e., bowhead, gray, humpback, minke, and fin whales) and two are classified as mid-frequency cetaceans (i.e., beluga and killer whales) (Southall *et al.*, 2007).

Potential Effects of the Specified Activity on Marine Mammals

Acoustic stimuli generated by the operation of the airguns, which introduce sound into the marine environment, may have the potential to cause Level B harassment of marine mammals in the survey area. The effects of sounds from airgun operations might include one or more of the following: tolerance, masking of natural sounds, behavioral disturbance, temporary or permanent hearing impairment, or non-auditory physical or physiological effects (Richardson *et al.*, 1995; Gordon *et al.*, 2004; Nowacek *et al.*, 2007; Southall *et al.*, 2007). Takes by serious injury or mortality are not anticipated to occur as a result of the proposed activities and none are authorized in the IHA.

Permanent hearing impairment, in the unlikely event that it occurred, would constitute injury, but temporary threshold shift (TTS) is not an injury (Southall *et al.*, 2007). Although the possibility cannot be entirely excluded, it is unlikely that the project would result in any cases of temporary or permanent hearing impairment or any significant non-auditory physical or physiological effects. Based on available data and studies, some behavioral disturbance is expected, but NMFS expects the disturbance to be localized and short-term.

In the "Potential Effects of Specified Activities on Marine Mammals" section of the Notice of Proposed IHA, NMFS included a qualitative discussion of the different ways that the seismic survey activities may potentially affect marine mammals. The discussion included potential effects from the airguns, as

well as the other instrumentation that may be deployed during the survey (i.e., MBES, SBP, and ADCP). Marine mammals may experience masking and behavioral disturbance. The information contained in the "Potential Effects of Specified Activities on Marine Mammals" section from the proposed IHA has not changed. Please refer to the Notice of Proposed IHA for the full discussion (76 FR 41463, July 14, 2011). Additional information can also be found in UAGI's application and the NSF EA (see **ADDRESSES**). The inclusion of mitigation and monitoring measures described later in this document (see the "Mitigation" and "Monitoring and Reporting" sections) are anticipated to reduce impacts even further.

Anticipated Effects on Habitat

The seismic survey is not anticipated to have any permanent impact on habitats used by the marine mammals in the survey area, including the food sources they use (i.e., fish and invertebrates). Additionally, no physical damage to any habitat is anticipated as a result of conducting the seismic survey. While it is anticipated that the specified activity may result in marine mammals avoiding certain areas due to temporary ensonification, this impact to habitat is temporary and reversible and was considered as behavioral modification. The main impact associated with the activity will be temporarily elevated noise levels and the associated direct effects on marine mammals.

The Notice of Proposed IHA contained a full discussion of the potential impacts to marine mammal habitat and prey species in the project area. No changes have been made to that discussion. Please refer to the Notice of Proposed IHA for the full discussion of potential impacts to marine mammal habitat (76 FR 41463, July 14, 2011). NMFS has determined that UAGI's marine seismic survey is not expected to have any habitat-related effects that could cause significant or long-term consequences for individual marine mammals or on the food sources that they utilize.

Mitigation

In order to issue an incidental take authorization (ITA) under section 101(a)(5)(D) of the MMPA, NMFS must, where applicable, set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of

such species or stock for taking for subsistence uses (where relevant).

UAGI and L-DEO have based the mitigation measures described herein, to be implemented for the proposed seismic survey, on the following:

(1) Protocols used during previous L-DEO seismic research cruises as approved by NMFS; and

(2) Recommended best practices in Richardson *et al.* (1995), Pierson *et al.* (1998), and Weir and Dolman (2007).

To reduce the potential for disturbance from acoustic stimuli associated with the proposed activities, UAGI and/or its designees will implement the following mitigation measures for marine mammals:

- (1) Exclusion zones;
- (2) Power-down procedures;
- (3) Shut-down procedures; and
- (4) Ramp-up procedures.

Planning Phase

Prior to submitting a final MMPA ITA request to NMFS, NSF works with the scientists that propose studies to determine when to conduct the research study. Dr. Coakley worked with L-DEO and NSF to identify potential time periods to carry out the survey, taking into consideration key factors such as environmental conditions (i.e., ice conditions, the seasonal presence of marine mammals and sea birds), weather conditions, and equipment. The project's timeframe avoids the eastward (spring) bowhead migration but overlaps with that of the westward fall migration and the subsistence bowhead hunt along the north shore of Alaska near Barrow. To avoid disturbance, the seismic survey has been scheduled to depart from Dutch Harbor in early September and remain at least 200 km (124 mi) from Barrow during transit to and from the survey area, which is approximately 250–800 km (155–497 mi) northwest of Barrow. Also, to reduce potential effects, the size of the energy source was reduced from the *Langseth's* 36-airgun, 6600-in³ array to a 10-airgun, 1830-in³ array.

Exclusion Zones

Received sound levels for the 10-airgun array have been predicted by Marine Acoustics Inc. in relation to distance and direction from the airguns, and received sound levels for a single 40-in³ mitigation airgun have been predicted by L-DEO. Table 1 shows the distances at which three rms sound levels are expected to be received from the 10-airgun array and a single airgun at shallow, intermediate, and deep water depths. The 180- and 190-dB levels are shut-down criteria applicable to cetaceans and pinnipeds,

respectively, as specified by NMFS (2000); these levels were used to establish the EZs. For the 10-airgun array, the 180-dB radius for each of the three water depth categories is as follows: 425 m (0.26 mi) in deep water; 1,400 m (0.87 mi) in intermediate water; and 1,870 m (1.16 mi) in shallow water. For the 10-airgun array, the 190-dB radius for each of the three water depth categories is as follows: 130 m (426.5 ft) in deep water; 130 m (426.5 ft) in intermediate water; and 190 m (623.4 ft) in shallow water. If the protected species visual observer (PSVO) detects marine mammal(s) within or about to enter the appropriate EZ, the airguns will be powered down (or shut down if necessary) immediately.

Power-Down Procedures

A power-down involves decreasing the number of airguns in use such that the radius of the 180 dB (or 190 dB) zone is decreased to the extent that marine mammals are no longer in or about to enter the EZ. A power-down of the airgun array can also occur when the vessel is moving from one seismic line to another. During a power-down for mitigation, UAGI and L-DEO will operate one airgun. The continued operation of one airgun is intended to alert marine mammals to the presence of the seismic vessel in the area. In contrast, a shut-down occurs when the *Langseth* suspends all airgun activity.

If the PSVO detects a marine mammal outside the EZ, but it is likely to enter the EZ, the airguns will be powered-down before the animal is within the applicable EZ (dependent upon species). Likewise, if a marine mammal is already within the EZ when first detected, UAGI and L-DEO will power-down the airguns immediately. During a power-down of the airgun array, UAGI will also operate the 40 in³ airgun. If a marine mammal is detected within or near the smaller EZ around that single airgun (Table 1), UAGI and L-DEO will shut-down the airgun (see next section).

Following a power-down, airgun activity will not resume until the marine mammal has cleared the EZ. UAGI and L-DEO will consider the animal to have cleared the EZ if:

- A PSVO has visually observed the animal leave the EZ, or
- A PSVO has not sighted the animal within the EZ for 15 min for species with shorter dive durations (i.e., small odontocetes or pinnipeds), or 30 min for species with longer dive durations (i.e., mysticetes; no large odontocetes, such as sperm whales, or beaked whales occur in the survey area).

The airgun array will be ramped up gradually after the marine mammal has

cleared the EZ (see *Ramp-up Procedures*).

Shut-Down Procedures

UAGI and L-DEO will shut down the operating airgun(s) if a marine mammal is seen within or approaching the EZ for the single airgun. A shut-down shall be implemented:

(1) If an animal enters the EZ of the single airgun after a power-down has been initiated; or

(2) If an animal is initially seen within the EZ of the single airgun when more than one airgun (typically the full airgun array) is operating.

UAGI and L-DEO shall not resume airgun activity until the marine mammal has cleared the EZ or until the PSVO is confident that the animal has left the vicinity of the vessel. Criteria for judging that the animal has cleared the EZ will be as described in the preceding section regarding a power-down.

Ramp-Up Procedures

UAGI and L-DEO shall follow a ramp-up procedure when the airgun array begins operating after a specified period without airgun operations or when a power-down has exceeded that period. For the present cruise, this period would be approximately 8 min. L-DEO has used similar periods (approximately 8 to 10 min) during previous L-DEO surveys.

Ramp-up will begin with the smallest airgun in the array (40 in³). Airguns will be added in a sequence such that the source level of the array will increase in steps not exceeding 6 dB per 5 min period over a total duration of approximately 15–20 min. During ramp-up, the PSVOs will monitor the EZ, and if marine mammals are sighted, UAGI and L-DEO will implement a power-down or shut-down as though the full airgun array were operational.

If the complete EZ has not been visible for at least 30 min prior to the start of operations in either daylight or nighttime, ramp-up shall not commence unless at least one airgun (40 in³ or similar) has been operating during the interruption of seismic survey operations. Given these provisions, it is likely that the airgun array will not be ramped-up from a complete shut-down at night or in thick fog, because the outer part of the safety zone for that array will not be visible during those conditions. 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 be alerted to the approaching seismic vessel by the sounds from the single airgun and could move away. UAGI and

L-DEO shall not initiate a ramp-up of the airguns if a marine mammal is sighted within or near the applicable EZs during the day or night.

Speed and Course Alterations

UAGI and L-DEO are required to alter the speed or course of the vessel during seismic operations if a marine mammal, based on its position and relative motion, appears likely to enter the relevant EZ. If speed or course alteration is not safe or practicable, or if after alteration the marine mammal still appears likely to enter the EZ, further mitigation measures, such as a power-down or shut-down (as described in the previous sections), shall be taken.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation.

Based on our evaluation of the applicant's measures and a range of other measures, NMFS has determined that the required mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance. Measures to ensure availability of such species or stock for taking for certain subsistence uses is discussed later in this document (see "Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses" section).

Monitoring and Reporting

In order to issue an ITA for an activity, section 101(a)(5)(A) of the MMPA states that NMFS must, where applicable, set forth "requirements pertaining to the monitoring and reporting of such taking". The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for ITAs must include the suggested means of accomplishing the necessary

monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the action area.

UAGI will sponsor marine mammal monitoring during the project, in order to implement the mitigation measures that require real-time monitoring and to satisfy the monitoring requirements of the IHA. UAGI's Monitoring Plan is described next. The monitoring work described here has been planned as a self-contained project independent of any other related monitoring projects that may be occurring simultaneously in the same regions. UAGI is prepared to discuss coordination of its monitoring program with any related work that might be done by other groups insofar as this is practical and desirable.

Vessel-Based Visual Monitoring

PSVOs will be based aboard the seismic source vessel and will watch for marine mammals near the vessel during daytime airgun operations and during any ramp-ups at night. PSVOs will also watch for marine mammals near the seismic vessel for at least 30 minutes prior to the start of airgun operations after an extended shut-down (as described in the "Mitigation" section earlier in this document). PSVOs will conduct observations during daytime periods when the seismic system is not operating for comparison of sighting rates and behavior with and without airgun operations and between acquisition periods. Based on PSVO observations, the airguns will be powered-down or shut-down when marine mammals are observed within or about to enter a designated EZ.

During seismic operations in the Arctic Ocean, at least five PSOs will be based aboard the *Langseth*. L-DEO will appoint the PSOs with NMFS' concurrence. Observations will take place during ongoing daytime operations and nighttime ramp-ups of the airguns. During the majority of seismic operations, two PSVOs will be on duty from the observation tower to monitor marine mammals near the seismic vessel. Use of two simultaneous PSVOs will increase the effectiveness of detecting animals near the source vessel. However, during meal times and bathroom breaks, it is sometimes difficult to have two PSVOs on effort, but at least one PSVO will be on duty. PSVO(s) will be on duty in shifts of duration no longer than 4 hr.

Two PSVOs will also be on visual watch during all nighttime ramp-ups of the seismic airguns. A third PSO will monitor the passive acoustic monitoring

(PAM) equipment 24 hours a day to detect vocalizing marine mammals present in the action area. In summary, a typical daytime cruise would have scheduled two PSVOs on duty from the observation tower, and a third PSO on PAM. Other crew will also be instructed to assist in detecting marine mammals and implementing mitigation requirements (if practical). Before the start of the seismic survey, the crew will be given additional instruction on how to do so.

The *Langseth* is a suitable platform for marine mammal observations. When stationed on the observation platform, the eye level will be approximately 21.5 m (70.5 ft) above sea level, and the PSVO will have a good view around the entire vessel. During daytime, the PSVOs will scan the area around the vessel systematically with reticle binoculars (e.g., 7 x 50 Fujinon), Big-eye binoculars (25 x 150), and with the naked eye. During darkness, night vision devices (NVDs) will be available (ITT F500 Series Generation 3 binocular-image intensifier or equivalent), when required. Laser range-finding binoculars (Leica LRF 1200 laser rangefinder or equivalent) will be available to assist with distance estimation. Those are useful in training observers to estimate distances visually but are generally not useful in measuring distances to animals directly; that is done primarily with the reticles in the binoculars.

When marine mammals are detected within or about to enter the designated EZ, the airguns will immediately be powered-down or shut-down if necessary. The PSO(s) will continue to maintain watch to determine when the animal(s) are outside the EZ by visual confirmation. Airgun operations will not resume until the animal is confirmed to have left the EZ, or if not observed after 15 min for species with shorter dive durations (small odontocetes and pinnipeds) or 30 min for species with longer dive durations (mysticetes).

Passive Acoustic Monitoring (PAM)

PAM will complement the visual monitoring program, when practicable. Visual monitoring typically is not effective during periods of poor visibility or at night, and even with good visibility, is unable to detect marine mammals when they are below the surface or beyond visual range.

Besides the three PSVOs, an additional Protected Species Acoustic Observer (PSAO) with primary responsibility for PAM will also be aboard the vessel. UAGI and L-DEO can use acoustic monitoring in addition to

visual observations to improve detection, identification, and localization of marine mammals. The acoustic monitoring will serve to alert visual observers (if on duty) when vocalizing marine mammals are detected. It is only useful when marine mammals call, but it can be effective either by day or by night and does not depend on good visibility. It will be monitored in real time so that the PSVOs can be advised when animals are detected acoustically. When bearings (primary and mirror-image) to calling animal(s) are determined, the bearings will be relayed to the visual observer to help him/her sight the calling animal(s).

The PAM system consists of hardware (i.e., hydrophones) and software. The "wet end" of the system consists of a towed hydrophone array that is connected to the vessel by a tow cable. The array will be deployed from a winch located on the back deck. A deck cable will connect from the winch to the main computer laboratory where the acoustic station and signal conditioning and processing system will be located. The digitized signal and PAM system is monitored by PSAOs at a station in the main laboratory. The hydrophone array is typically towed at depths of less than 20 m (66 ft).

Ideally, the PSAO will monitor the towed hydrophones 24 hr per day at the seismic survey area during airgun operations and during most periods when the *Langseth* is underway while the airguns are not operating. However, PAM may not be possible if damage occurs to both the primary and back-up hydrophone arrays during operations. The primary PAM streamer on the *Langseth* is a digital hydrophone streamer. Should the digital streamer fail, back-up systems should include an analog spare streamer and a hull-mounted hydrophone. Every effort would be made to have a working PAM system during the cruise. In the unlikely event that all three of these systems were to fail, UAGI would continue science acquisition with the visual-based observer program. The PAM system is a supplementary enhancement to the visual monitoring program. If weather conditions were to prevent the use of PAM, then conditions would also likely prevent the use of the airgun array.

One PSAO will monitor the acoustic detection system at any one time, by listening to the signals from two channels via headphones and/or speakers and watching the real-time spectrographic display for frequency ranges produced by marine mammals. PSAOs monitoring the acoustical data will be on shift for 1–6 hours at a time.

Besides the PSVO, an additional PSAO with primary responsibility for PAM will also be aboard the source vessel. All PSVOs are expected to rotate through the PAM position, although the most experienced with acoustics will be on PAM duty more frequently.

When a vocalization is detected while visual observations are in progress, the PSAO will contact the PSVO immediately, to alert him/her to the presence of marine mammals (if they have not already been seen), and to allow a power-down or shut-down to be initiated, if required. The information regarding the call will be entered into a database. Data entry will include an acoustic encounter identification number, whether it was linked with a visual sighting, date, time when first and last heard and whenever any additional information was recorded, position and water depth when first detected, bearing if determinable, species or species group (e.g., unidentified dolphin, sperm whale), types and nature of sounds heard (e.g., clicks, continuous, sporadic, whistles, creaks, burst pulses, strength of signal, etc.), and any other notable information. The acoustic detection can also be recorded for further analysis.

PSVO Data and Documentation

PSVOs will record data to estimate the numbers of marine mammals exposed to various received sound levels and to document apparent disturbance reactions or lack thereof. Data will be used to estimate numbers of animals potentially "taken" by harassment (as defined in the MMPA). They will also provide information needed to order a power-down or shut-down of the airguns when a marine mammal is within or near the EZ. Observations will also be made during daytime periods when the *Langseth* is underway without seismic operations.

When a sighting is made, the following information about the sighting will be recorded:

1. Species, group size, age/size/sex categories (if determinable), behavior when first sighted and after initial sighting, heading (if consistent), bearing and distance from seismic vessel, sighting cue, apparent reaction to the airguns or vessel (e.g., none, avoidance, approach, paralleling, etc.), and behavioral pace.

2. Time, location, heading, speed, activity of the vessel, sea state, visibility, and sun glare.

The data listed under (2) will also be recorded at the start and end of each observation watch and during a watch whenever there is a change in one or more of the variables.

All observations and power-downs or shut-downs will be recorded in a standardized format. Data will be entered into an electronic database. The accuracy of the data entry will be verified by computerized data validity 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, and other programs for further processing and archiving.

Results from the vessel-based observations will provide:

1. The basis for real-time mitigation (airgun power-down or shut-down).
2. Information needed to estimate the number of marine mammals potentially taken by harassment, which must be reported to NMFS.
3. Data on the occurrence, distribution, and activities of marine mammals in the area where the seismic study is conducted.
4. Information to compare the distance and distribution of marine mammals relative to the source vessel at times with and without seismic activity.
5. Data on the behavior and movement patterns of marine mammals seen at times with and without seismic activity.

UAGI will submit a report to NMFS and NSF within 90 days after the end of the cruise. The report will describe the operations that were conducted and sightings of marine mammals near the operations. The report will provide full documentation of methods, results, and interpretation pertaining to all monitoring. The 90-day report will summarize the dates and locations of seismic operations and all marine mammal sightings (dates, times, locations, activities, associated seismic survey activities). The report will also include estimates of the number and nature of exposures that could result in "takes" of marine mammals by harassment or in other ways.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), UAGI and L-DEO will immediately cease the specified activities and immediately report the incident to the Chief of the Permits, Conservation and Education Division, Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinators. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hours preceding the incident;

- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities will not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with UAGI to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. UAGI may not resume their activities until notified by NMFS via letter, email, or telephone.

In the event that UAGI discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), UAGI will immediately report the incident to the Chief of the Permits, Conservation and Education Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or by email to the Alaska Regional Stranding Coordinators. The report must include the same information identified in the paragraph above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with UAGI to determine whether modifications in the activities are appropriate.

In the event that UAGI discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in the IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), UAGI will report the incident to the Chief of the Permits, Conservation, and Education Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or by email to the Alaska Regional Stranding Coordinators, within 24 hours of the discovery. UAGI will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and

the Marine Mammal Stranding Network. Activities may continue while NMFS reviews the circumstances of the incident.

Estimated Take by Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: "any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment]." Only take by Level B harassment is anticipated and authorized as a result of the marine seismic survey in the Arctic Ocean. Acoustic stimuli (i.e., increased underwater sound) generated during the operation of the seismic airgun array may have the potential to cause marine mammals in the survey area to be exposed to sounds at or greater than 160 dB or cause temporary, short-term changes in behavior. NMFS also assumes that marine mammals exposed to levels exceeding 160 dB re 1 μ Pa (rms) may experience Level B harassment. The use of the ADCP is not anticipated to result in the take of low-frequency cetaceans or pinnipeds, as the frequency for this device is outside of or at the extreme upper end of the hearing ranges of these species. There is no evidence that the planned activities could result in injury, serious injury, or mortality within the specified geographic area. The required mitigation and monitoring measures will minimize any potential risk for injury, serious injury, or mortality.

The Notice of Proposed IHA (76 FR 41463, July 14, 2011) described UAGI's methods to estimate take by incidental harassment and presented the applicant's estimates of the numbers of marine mammals that could be affected during the seismic program. The estimates are based on a consideration of the number of marine mammals that could be disturbed appreciably by operations with the 10-airgun array to be used during approximately 5,500 km (3,417.5 mi) of survey lines in the Arctic Ocean. A summary of that information is provided here. However, the reader should refer to the Notice of Proposed IHA (76 FR 41463, July 14, 2011) for the full discussion.

The anticipated radii of influence of the MBES, SBP, and ADCP are less than those for the airgun array. UAGI

assumes that, during simultaneous operations of the airgun array and the other sources (which will be the case the majority of the time), any marine mammals close enough to be affected by the MBES, SBP, and ADCP would already be affected by the airguns. However, whether or not the airguns are operating simultaneously with the other sources, marine mammals are expected to exhibit no more than short-term and inconsequential responses to the MBES, SBP, and ADCP given their characteristics (e.g., narrow, downward-directed beam) and other considerations described previously. Therefore, UAGI provides no additional allowance for animals that could be affected by sound sources other than airguns.

UAGI calculated densities using data from the Chukchi Sea for the fall in depth strata 35–50 m (115–164 ft), 51–200 m (167–656 ft), and greater than 200 m (656 ft), mean group sizes from the Beaufort Whale Aerial Survey Project (BWASP) database, and values for trackline detection probability bias and availability bias, $f(0)$ and $g(0)$, from Harwood *et al.* (1996) for belugas, Thomas *et al.* (2002) for bowhead whales, and Forney and Barlow (1998) for gray whales. Based on the lack of any beluga whale sightings and very low densities of bowheads (0.0003–0.0044/km²) and gray whales (0.0026–0.0042/km²) during non-seismic periods of industry vessel operations in the Chukchi Sea in September–October 2006–2008 (Haley *et al.*, 2010), and the lack of beluga, bowhead, or gray whale sightings during arctic cruises by the Healy in August–September 2005 or July–August 2006 (Haley 2006; Haley and Ireland 2006), the calculated densities are possibly overestimates. Accordingly, they were reduced by an order of magnitude. Densities were calculated for depths greater than 200 m (656 ft) and less than 200 m (656 ft); in the latter case, the densities were effort-weighted averages of the 35–50 m (115–164 ft) and 51–200 m (167–656 ft) densities.

There is evidence of the occasional occurrence of humpback, minke, fin, and killer whales in the northern Chukchi Sea, but because they occur so infrequently in the Chukchi Sea, little to no data are available for the calculation of densities. Minimal densities were therefore assigned to these species to allow for chance encounters.

Four species of pinnipeds under NMFS jurisdiction could be encountered in the seismic survey area: ringed seal, bearded seal, ribbon seal, and spotted seal. Bengtson *et al.* (2005) reported ringed and bearded seal densities in nearshore fast ice and pack

ice and offshore pack ice based on aerial surveys in May–June 1999 and May 2000; ringed seal but not bearded seal densities were corrected for haulout behavior. UAGI used densities from the offshore stratum (12P). Bearded seal densities were used for water depths less than 200 m (656 ft) and were assumed to be zero in water depths greater than 200 m (656 ft) because they are predominantly benthic feeders. The fall densities of ringed seals in the open water of the offshore survey area have been estimated as 1/10 of the spring pack ice densities because ringed seals are strongly associated with sea ice and begin to reoccupy nearshore fast ice areas as it forms in the fall. The resulting densities (.081/km² in 1999 and .023/km² in 2000) are similar to ringed seal density estimates (0.016/km²

to 0.069/km²) from industry vessel operations during summer 2006–2008 (Haley *et al.*, 2010).

Little information is available on spotted seal or ribbon seal densities in offshore areas of the Chukchi Sea. Spotted seal density in the summer was estimated by multiplying the ringed seal density by 0.02. This calculation was based on the ratio of the estimated Chukchi populations of the two species: 8% of the Alaskan population of spotted seals is present in the Chukchi Sea during the summer and fall (Rugh *et al.*, 1997); the Alaskan population of spotted seals is 59,214 (Allen and Angliss, 2010); and the population of ringed seals in the Alaskan Chukchi Sea is greater than 208,000 (Bengtson *et al.*, 2005). The ribbon seal density used is based on two ribbon seal sightings

reported during industry vessel operations in the Chukchi Sea in 2006–2008 (Haley *et al.*, 2010).

Table 2 in this document (and Table 3 in UAGI's application) provides the estimated densities of marine mammals expected to occur in the survey area. As noted previously, there is some uncertainty about the representativeness of the data and assumptions used in the calculations. It is not known how closely the densities that were used reflect the actual densities that will be encountered; however, the approach used here is believed to be the best available at this time.

The estimated numbers of individuals potentially exposed are presented below based on the 160-dB re 1 μPArms criterion for all marine mammals.

TABLE 2—EXPECTED DENSITIES OF MARINE MAMMALS IN THE OFFSHORE SURVEY AREA OF THE ARCTIC OCEAN NORTH OF THE CHUKCHI SEA IN SEPTEMBER–OCTOBER 2011. CETACEAN DENSITIES ARE CORRECTED FOR *f*(0) AND *g*(0) BIASES. SPECIES LISTED AS ENDANGERED ARE IN ITALICS.

Species	Density (#/1000 km ²) in depths <200 m	Density (#/1000 km ²) in depths >200 m
Mysticetes		
<i>Bowhead Whale</i>	1.87	0
<i>Gray Whale</i>	1.48	0
<i>Fin Whale</i>	0.01	0.01
<i>Humpback Whale</i>	0.01	0.01
<i>Minke Whale</i>	0.01	0.01
Odontocetes		
<i>Beluga</i>	1.65	6.78
<i>Killer whale</i>	0.01	0.01
Pinnipeds		
<i>Bearded Seal</i>	14.18	0
<i>Spotted Seal</i>	0.98	0.98
<i>Ringed Seal</i>	48.92	48.92
<i>Ribbon Seal</i>	0.27	0.27

UAGI's estimates of exposures to various sound levels assume that the survey will be fully completed; in fact, the ensonified areas calculated using the planned number of line-kilometers have been increased by 25% to accommodate turns, lines that may need to be repeated, equipment testing, etc. As is typical during offshore ship surveys, inclement weather and equipment malfunctions are likely to cause delays and may limit the number of useful line-kilometers of seismic operations that can be undertaken. The *Langseth* is not ice-strengthened and will completely avoid ice, so it is very likely that the survey will not be completed because ice likely will be present. Furthermore, any marine mammal sightings within or near the designated EZ will result in the shut-down of seismic operations as a mitigation measure. Thus, the following estimates of the numbers of marine mammals potentially exposed to 160-dB

(rms) sounds are precautionary, and probably overestimate the actual numbers of marine mammals that might be involved. These estimates assume that there will be no ice, weather, equipment, or mitigation delays, which is highly unlikely.

UAGI estimated the number of different individuals that may be exposed to airgun sounds with received levels greater than or equal to 160 dB re 1 μPa (rms) on one or more occasions by considering the total marine area that would be within the 160 dB radius around the operating airgun array on at least one occasion and the expected density of marine mammals. The number of possible exposures (including repeated exposures of the same individuals) can be estimated by considering the total marine area that would be within the 160 dB radius around the operating airguns, including areas of overlap. In the survey, the

seismic lines are widely spaced in the survey area, so few individual marine mammals would be exposed more than once during the survey. The area including overlap is only 1.3 times the area excluding overlap. Moreover, it is unlikely that a particular animal would stay in the area during the entire survey. The number of different individuals potentially exposed to received levels greater than or equal to 160 re 1 μPa (rms) was calculated by multiplying:

- (1) The expected species density, times
- (2) The anticipated area to be ensonified to that level during airgun operations in each depth stratum, excluding overlap.

Table 4 in UAGI's application shows the estimates of the number of different individual marine mammals that potentially could be exposed to sounds greater than or equal to 160 dB re 1 μPa (rms) during the proposed seismic

survey if no animals moved away from the survey vessel. Table 3 in this document presents the abundance of the different species or stocks, authorized

take, and the percentage of the regional population or stock. The take estimates presented in this section of the document do not take into consideration

the mitigation and monitoring measures that are required by the IHA.

TABLE 3—POPULATION ABUNDANCE ESTIMATES, TOTAL PROPOSED TAKE, AND THE PERCENTAGE OF THE POPULATION OR STOCK THAT MAY BE EXPOSED TO SOUNDS >160 DB RE 1 μ PA (RMS) DURING THE PROPOSED SEISMIC SURVEY IN THE ARCTIC OCEAN, SEPTEMBER–OCTOBER 2011

Species	Abundance ¹	Authorized take	Percentage of population or stock
Bowhead Whale	² 14,731	89	0.6
Gray Whale	19,126	71	0.4
Humpback Whale	³ 20,800	2	0.01
Minke Whale	810	2	0.2
Fin Whale	5,700	2	0.04
Beluga Whale	⁴ 42,968	794	1.8
Killer Whale	⁵ 768	2	0.3
Bearded Seal	250,000–300,000	677	0.2–0.3
Spotted Seal	59,214	150	0.3
Ringed Seal	249,000	7,492	3
Ribbon Seal	49,000	42	0.09

¹ Unless stated otherwise, abundance estimates are from Allen and Angliss (2011).

² Based on estimate of 10,545 individuals in 2001 with a 3.4% annual growth rate (George *et al.*, 2004 and revised by Zeh and Punt, 2005).

³ North Pacific Ocean (Barlow *et al.*, 2009).

⁴ Based on estimates for the eastern Chukchi Sea and Beaufort Sea stocks (Allen and Angliss, 2011).

⁵ Based on estimates for the Northern resident and transient stocks (Allen and Angliss, 2011).

Encouraging and Coordinating Research

UAGI and NSF will coordinate the planned marine mammal monitoring program associated with the seismic survey in the Arctic Ocean with other parties that may have an interest in the area and/or be conducting marine mammal studies in the same region during the seismic survey. No other marine mammal studies are expected to occur in the study area at the proposed time. However, other industry-funded seismic surveys may be occurring in the northeast Chukchi and/or western Beaufort Sea closer to shore, and those projects are likely to involve marine mammal monitoring. UAGI and NSF have coordinated, and will continue to coordinate, with other applicable Federal, State, and Borough agencies, and will comply with their requirements.

Negligible Impact and Small Numbers Analysis and Determination

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.” In making a negligible impact determination, NMFS considers a variety of factors, including but not limited to: (1) The number of anticipated mortalities; (2) the number and nature of anticipated injuries; (3) the number, nature, intensity, and

duration of Level B harassment; and (4) the context in which the takes occur.

For reasons stated previously in this document, no injuries or mortalities are anticipated to occur as a result of UAGI’s seismic survey, and none are authorized by NMFS. Additionally, for reasons presented earlier in this document, temporary hearing impairment (and especially permanent hearing impairment) is not anticipated to occur during the specified activity. Impacts to marine mammals are anticipated to be in the form of Level B behavioral harassment only, due to the brief duration and sporadic nature of the survey. Certain species may have a behavioral reaction (e.g., increased swim speed, avoidance of the area, etc.) to the sound emitted during the marine seismic survey. Table 3 in this document outlines the number of Level B harassment takes that are anticipated as a result of the activities. No mortality or injury is expected to occur, and due to the nature, degree, and context of behavioral harassment anticipated, the activity is not expected to impact rates of recruitment or survival. The survey would not occur in any areas designated as critical habitat for ESA-listed species. Additionally, the seismic survey will not adversely impact marine mammal habitat.

While some of the species could potentially occur in the survey area year-round, some species only occur at certain times of the year. In the fall, bowhead whales begin their westward migration through the Beaufort Sea in

late August/early September. The whales usually reach Barrow around mid-September. It is likely that most bowhead whales will not enter the survey area until about the second half of the survey time period. Additionally, humpback and fin whales have only started to be sighted in the Chukchi Sea in the last 5–6 years. As the extent of Arctic sea ice begins to change, these species may be expanding their normal range further north. However, this is still considered the extreme northern edge of the range of these species, so it is unlikely that they will be present throughout the entire survey time period.

Of the 11 marine mammal species likely to occur in the survey area, three are listed as endangered under the ESA: bowhead, humpback, and fin whale. All of these species are also considered depleted under the MMPA. The affected bowhead whale stock has been increasing at a rate of 3.4% per year since 2001. On December 10, 2010, NMFS published a notification of proposed threatened status for subspecies of the ringed seal (75 FR 77476) and a notification of proposed threatened and not warranted status for subspecies and distinct population segments of the bearded seal (75 FR 77496) in the **Federal Register**. Neither species is considered depleted under the MMPA. The listing for these species is not anticipated to be completed prior to the end of this seismic survey. Certain stocks of beluga whale and spotted seal are listed or proposed for

listing under the ESA. However, those stocks do not occur in the project area.

As was noted in the Notice of Proposed IHA (76 FR 41463, July 14, 2011), many cetacean species, especially mysticetes, may display avoidance reactions and not enter into areas close to the active airgun array. However, alternate areas are available to these species. The location of the survey is not a known feeding ground for these species. It is not used for breeding or nursing. Although ice seals breed and nurse in the Chukchi Sea, the survey occurs outside of the time for ice seal breeding or nursing in the Chukchi Sea.

The population estimates for the species that may potentially be taken as a result of UAGI's seismic survey were presented earlier in this document. For reasons described earlier in this document, the maximum calculated number of individual marine mammals for each species that could potentially be taken by harassment is small relative to the overall population sizes (3% for ringed seals, 1.8% for beluga whales, and less than 1% of each of the other 9 marine mammal populations or stocks).

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the required mitigation and monitoring measures, NMFS finds that the seismic survey will result in the incidental take of small numbers of marine mammals and that the total taking from UAGI's activities will have a negligible impact on the affected species or stocks.

Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses

Relevant Subsistence Uses

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. Additionally, the animals taken for subsistence provide a significant portion of the food that will last the community throughout the year. The main species that are hunted include bowhead and beluga whales, ringed, spotted, and bearded seals, walrus, and polar bears. (As mentioned previously in this document, both the walrus and the polar bear are under the USFWS' jurisdiction.) The

importance of each of these species varies among the communities and is largely based on availability.

Barrow and Wainwright, which is in the Chukchi Sea, are the two villages that are closest to the survey area, which will be initiated more than 200 km (124 mi) offshore. Marine mammals are also hunted in the Beaufort Sea villages of Kaktovik and Nuiqsut (mostly from Cross Island). Other villages in the Chukchi Sea that hunt for marine mammals include Point Lay, Point Hope, Kivalina, and Kotzebue. The villages of Kivalina and Kotzebue are many hundreds of miles south of the project area.

(1) Bowhead Whale

Bowhead whale hunting is the key activity in the subsistence economies of Barrow and two smaller communities to the east, Nuiqsut and Kaktovik. Bowhead whales are also hunted by communities along the Chukchi Sea. The community of Barrow hunts bowhead whales in both the spring and fall during the whales' seasonal migrations along the coast. The communities of Nuiqsut and Kaktovik participate only in the fall bowhead harvest. The spring hunt at Barrow occurs after leads open because of the deterioration of pack ice; the spring hunt typically occurs from early April until the first week of June. The fall migration of bowhead whales that summer in the eastern Beaufort Sea typically begins in late August or September. The location of the fall subsistence hunt depends on ice conditions and (in some years) industrial activities that influence the bowheads' movements as they move west (Brower, 1996). In the fall, subsistence hunters use aluminum or fiberglass boats with outboards. Hunters prefer to take bowheads close to shore to avoid a long tow during which the meat can spoil, but Braund and Moorehead (1995) report that crews may (rarely) pursue whales as far as 80 km (50 mi) offshore. The autumn hunt at Barrow usually begins in mid-September, and mainly occurs in the waters east and northeast of Point Barrow. The whales have usually left the Beaufort Sea by late October (Treacy, 2002a,b). Along the Chukchi Sea coast, bowhead whales have recently primarily been hunted during the spring, between March and June. However, with changing ice patterns, there is a possibility that Chukchi Sea villages could begin participating in fall bowhead whale hunts. Table 4 in this document (Table 5 in UAGI's application) presents harvest data for

the years 1993–2008 for bowhead whale hunts in five North Slope communities.

The survey will not have any impacts on the spring bowhead whale hunt by communities along the Chukchi Sea and Barrow, as those hunts are completed many months prior to the beginning of this survey. The villages of Kaktovik and Nuiqsut are several hundred miles to the east of the survey location. Therefore, no impacts are anticipated on the fall hunts at Kaktovik or Nuiqsut (Cross Island). The closest tracklines to Barrow are more than 200 km (124 mi) and in most cases between 250 and 800 km (155–497 mi) to the northwest of Barrow. The whales will reach Barrow before they enter into the survey area and even before entering into the area where sound attenuates to 120 dB for the 10-airgun array.

(2) Beluga Whale

Beluga whales are available to subsistence hunters at Barrow in the spring when pack-ice conditions deteriorate and leads open up. Belugas may remain in the area through June and sometimes into July and August in ice-free waters. Hunters usually wait until after the spring bowhead whale hunt is finished before turning their attention to hunting belugas. Few, if any, belugas are taken by Kaktovik and Nuiqsut hunters and only during the fall whale harvest. Along the Chukchi Sea, belugas are hunted during the spring and in the summer (between July and August) by residents of Wainwright and Point Hope. Near Point Lay, belugas are taken in June and July. During 2002–2006, Alaska Native subsistence hunters took a mean annual number of 25.4 beluga whales from the Beaufort Sea stock and 59 from the eastern Chukchi Sea stock. The average annual harvest of beluga whales taken by Barrow for 1962–1982 was five (MMS, 1996). The Alaska Beluga Whale Committee recorded that 23 beluga whales had been harvested by Barrow hunters from 1987 to 2002, ranging from 0 in 1987, 1988, and 1995 to the high of 8 in 1997 (Fuller and George, 1999; Alaska Beluga Whale Committee, 2002 cited in USDI/BLM, 2005).

UAGI's seismic survey is not anticipated to impact beluga hunts conducted by villages of the North Slope. The timing of the survey is after the spring and summer beluga harvests in the Chukchi Sea. Although hunting of beluga from Point Hope may extend into September, off Point Hope, the vessel will remain approximately 80 km (50 mi) from the coast, in transit northward to the study area.

Table 4. Number of bowhead whales landed, by year, at Point Hope, Wainwright, Barrow, Cross Island (Nuiqsut), and Kaktovik, 1993-2008. Barrow numbers include the total number of whales landed for the year followed by the numbers landed during the fall hunt in parenthesis.

Year	Point Hope	Wainwright	Barrow	Cross Island	Kaktovik
1993	2	5	23 (7)	3	3
1994	5	4	16 (1)	0	3
1995	1	5	19 (11)	4	4
1996	3	3	24 (19)	2	1
1997	4	3	30 (21)	3	4
1998	3	3	25 (16)	4	3
1999	2	5	24 (6)	3	3
2000	3	5	18 (13)	4	3
2001	4	6	27 (7)	3	4
2002	0	1	22 (17)	4	3
2003	4	5	16 (6)	4	3
2004	3	4	21 (14)	3	3
2005	7	4	29 (13)	1	3
2006	0	2	22 (19)	4	3
2007	3	4	20 (7)	3	3
2008	2	2	21(12)	4	3

Sources: USDI/BLM and references therein; Burns et al. (1993); Koski et al. (2005); Suydam et al. 2004, 2005, 2006, 2007, 2008, 2009.

(3) Ice Seals

Ringed seals are hunted by villagers along the Beaufort Sea coast mainly from October through June. Hunting for these smaller mammals is concentrated during winter because bowhead whales, bearded seals, and caribou are available through other seasons. Winter leads in the area off Point Barrow and along the barrier islands of Elson Lagoon to the east are used for hunting ringed seals. The average annual ringed seal harvest by the community of Barrow from the 1960s through much of the 1980s has been estimated as 394. Along the Chukchi Sea coast, ringed seals are mainly taken between May and September near Wainwright and throughout the year by Point Lay and Point Hope hunters. As the seismic survey will occur far offshore, the survey will not affect ringed seals in the nearshore areas where they are hunted. It is unlikely that accessibility to ringed seals during the subsistence hunt could be impaired during the *Langseth's* transit to and from the study area when the airguns are not operating. Although some hunting in the Chukchi Sea does occur as far as 32 km (20 mi) from shore, the area affected during transit would be in close proximity to the ship, which will be transiting approximately 80 km (50 mi) offshore.

The spotted seal subsistence hunt on the Beaufort Sea coast peaks in July and August, at least in 1987–1990, but

involves few animals. Spotted seals typically migrate south by October to overwinter in the Bering Sea. Admiralty Bay, less than 60 km (37 mi) to the east of Barrow (and more than 260 km [162 mi] from the survey area), is a location where spotted seals are harvested. Spotted seals are also occasionally hunted in the area off Point Barrow and along the barrier islands of Elson Lagoon to the east (USDI/BLM, 2005). The average annual spotted seal harvest by the community of Barrow from 1987–1990 was one (Braund *et al.*, 1993). Along the Chukchi Sea coast, seals are mainly taken between May and September near Wainwright and throughout the year by Point Lay and Point Hope hunters.

The seismic survey will take place at least 200 km offshore from the preferred nearshore harvest area of these seals. It is unlikely that accessibility to spotted seals during the subsistence hunt could be impaired during the *Langseth's* transit to and from the study area when the airguns are not operating. Although some hunting in the Chukchi Sea does occur as far as 40 km (25 mi) from shore, the area affected during transit would be in close proximity to the ship.

Bearded seals, although not favored for their meat, are important to subsistence activities in Barrow because of their skins. Six to nine bearded seal hides are used by whalers to cover each of the skin-covered boats traditionally

used for spring whaling. Because of their valuable hides and large size, bearded seals are specifically sought. Bearded seals are harvested during the summer months in the Beaufort Sea (USDI/BLM, 2005). The summer hunt typically occurs near Thetis Island in July through August (prior to initiation of UAGP's survey). The animals inhabit the environment around the ice floes in the drifting ice pack, so hunting usually occurs from boats in the drift ice. Braund *et al.* (1993) estimated that 174 bearded seals were harvested annually at Barrow from 1987 to 1990. The majority of bearded seal harvest sites from 1987 to 1990 was within approximately 24 km (15 mi) of Point Barrow (Braund *et al.*, 1993), well inshore of the survey. Along the Chukchi Sea coast, bearded seals are mainly taken between May and September near Wainwright, during the spring and summer by Point Hope hunters, and throughout the year by Point Lay hunters. These hunts occur closer into shore than the survey area or the proposed transit route.

Potential Impacts to Subsistence Uses

NMFS has defined "unmitigable adverse impact" in 50 CFR 216.103 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.

Noise emitted during the seismic survey from the acoustic sources has the potential to impact marine mammals hunted by Native Alaskans. In the case of cetaceans, the most common reaction to anthropogenic sounds is avoidance of the ensonified area. In the case of bowhead whales, this often means that the animals divert from their normal migratory path by several kilometers. However, because the survey occurs so far from any of the traditional hunting grounds and to the west of the fall bowhead hunting areas (meaning the whales would reach the hunting grounds before entering the survey area), it is not anticipated that there will be impacts to subsistence uses.

Plan of Cooperation (POC)

Regulations at 50 CFR 216.104(a)(12) require MMPA authorization 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. UAGI has worked with the people of the NSB to identify and avoid areas of potential conflict. The project's principal investigator (PI) contacted Dr. Glenn Sheehan of the Barrow Arctic Science Consortium and NSB biologist, Dr. Robert Suydam, on January 7, 2010, to inform them of the proposed study and the elements intended to minimize potential subsistence conflict. The PI presented the proposed UAGI survey at a meeting of the AEWG in Barrow on February 11, 2010. He explained the survey plans to the local residents, including NSB Department of Wildlife Management biologists, consulted with stakeholders about their concerns, and discussed the aspects of the survey designed to mitigate impacts. No major concerns were expressed. The PI also attended the 2011 AEWG meeting on February 17–18; representatives from all NSB communities attended. The only concern expressed was that AEWG would like a good communication link with the *Langseth* during the survey. As requested by AEWG, communication lines between the NSB and the *Langseth* during the survey will be kept open in order to minimize potential conflicts. The study was also presented to government agencies, affected stakeholders, and the general public at the annual Arctic Open-water Meeting

in Anchorage, Alaska, on March 7–8, 2011.

As part of its MMPA IHA application, UAGI submitted a POC to NMFS. As noted in the POC, a Barrow resident knowledgeable about the mammals and fish of the area is expected to be included as a PSO aboard the *Langseth*. Although the primary duty of this individual will be as a member of the PSO team responsible for implementing the monitoring and mitigation requirements, this person will also be able to act as a liaison with hunters if they are encountered at sea. However, the activity has been timed so as to avoid overlap with the main harvests of marine mammals (especially bowhead whales). Meetings with whaling captains, other community representatives, the AEWG, NSB, and any other parties to the POC have been and will continue to be held, as necessary, to negotiate the terms of the POC and to coordinate the planned seismic survey operations with subsistence activity.

Unmitigable Adverse Impact Analysis and Determination

NMFS has determined that UAGI's marine seismic survey in the Arctic Ocean will not have an unmitigable adverse impact on the availability of marine mammal species or stocks for taking for subsistence uses. This determination is supported by the fact that UAGI and NSF have worked closely with the AEWG and NSB to ensure that the activities are not co-located with annual subsistence activities. Additionally, the seismic survey will occur more than 200 km (124 mi) offshore of the North Slope and to the west of the communities that conduct fall bowhead whale subsistence hunts. This means that the whales will reach the communities prior to entering into the survey area. The Chukchi Sea beluga hunts are typically completed prior to the time the *Langseth* would be transiting through the Chukchi Sea to the survey site. Should late summer or early fall hunts of certain species be occurring at the time of transit of the vessel, the hunts occur closer into shore than the proposed transit route of the *Langseth*.

Based on the measures described in UAGI's POC, the required mitigation and monitoring measures (described earlier in this document), and the project design itself, NMFS has determined that there will not be an unmitigable adverse impact on subsistence uses from UAGI's marine seismic survey.

Endangered Species Act (ESA)

Three of the marine mammal species that could occur in the seismic survey area are listed under the ESA: Bowhead whale; humpback whale; and fin whale. Under section 7 of the ESA, NSF initiated formal consultation with the NMFS, Office of Protected Resources, Endangered Species Division, on this proposed seismic survey. NMFS' Office of Protected Resources, Permits, Conservation and Education Division, also initiated formal consultation under section 7 of the ESA with NMFS' Office of Protected Resources, Endangered Species Division, to obtain a Biological Opinion evaluating the effects of issuing the IHA on ESA-listed marine mammals and, if appropriate, authorizing incidental take. In August 2011, NMFS issued a Biological Opinion and concluded that the action and issuance of the IHA are not likely to jeopardize the continued existence of fin, bowhead, and humpback whales. NSF, UAGI, and L-DEO must comply with the Relevant Terms and Conditions of the Incidental Take Statement (ITS) corresponding to NMFS' Biological Opinion issued to NSF and NMFS' Office of Protected Resources. L-DEO must also comply with the mitigation and monitoring requirements included in the IHA in order to be exempt under the ITS in the Biological Opinion from the prohibition on take of listed endangered marine mammal species otherwise prohibited by section 9 of the ESA. Although the ringed seal and bearded seal have been proposed for listing under the ESA, this activity is not likely to jeopardize the continued existence of these species, and neither of the listings will be finalized prior to conclusion of the proposed seismic survey. Therefore, consultation pursuant to section 7 of the ESA is not needed for these species.

National Environmental Policy Act (NEPA)

With its complete application, UAGI and NSF provided NMFS an EA analyzing the direct, indirect, and cumulative environmental impacts of the proposed specified activities on marine mammals including those listed as threatened or endangered under the ESA. The EA, prepared by LGL on behalf of NSF, is entitled "Environmental Assessment of a Marine Geophysical Survey by the R/V Marcus G. Langseth in the Arctic Ocean, September–October 2011." NMFS conducted an independent review and evaluation of the document for sufficiency and compliance with the Council on Environmental Quality regulations and NOAA Administrative

Order 216–6 5.09(d) and determined that issuance of the IHA is not likely to result in significant impacts on the human environment. Consequently, NMFS has adopted NSF's EA and prepared a FONSI for the issuance of the IHA. An Environmental Impact Statement is not required and will not be prepared for the action.

Authorization

As a result of these determinations, NMFS has issued an IHA to UAGI for the take of marine mammals, by Level B harassment, incidental to conducting a marine seismic survey in the Arctic Ocean, September–October 2011, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: August 26, 2011.

James H. Lecky,

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

[FR Doc. 2011–22434 Filed 8–31–11; 8:45 am]

BILLING CODE 3510–22–P

CONSUMER PRODUCT SAFETY COMMISSION

Sunshine Act Meeting Notice

TIME AND DATE: Wednesday, September 7, 2011, 10–11 a.m.

PLACE: Room 420, Bethesda Towers, 4330 East West Highway, Bethesda, Maryland.

STATUS: Commission Meeting—Open to the public.

MATTERS TO BE CONSIDERED:

Briefing Matter: Proposed Safety Standard for Play Yards.

A live webcast of the Meeting can be viewed at <http://www.cpsc.gov/webcast>.

For a recorded message containing the latest agenda information, call (301) 504–7948.

CONTACT PERSON FOR MORE INFORMATION:

Todd A. Stevenson, Office of the Secretary, U.S. Consumer Product Safety Commission, 4330 East West Highway, Bethesda, MD 20814, (301) 504–7923.

Dated: August 30, 2011.

Todd A. Stevenson,

Secretary.

[FR Doc. 2011–22546 Filed 8–30–11; 4:15 pm]

BILLING CODE 6355–01–P

CONSUMER PRODUCT SAFETY COMMISSION

Sunshine Act Meeting Notice

TIME AND DATE: Wednesday, September 7, 2011; 2–4 p.m.

PLACE: Hearing Room 420, Bethesda Towers, 4330 East West Highway, Bethesda, Maryland.

STATUS: Closed to the Public.

MATTER TO BE CONSIDERED:

Compliance Status Report

The Commission staff will brief the Commission on the status of compliance matters.

For a recorded message containing the latest agenda information, call (301) 504–7948.

CONTACT PERSON FOR MORE INFORMATION:

Todd A. Stevenson, Office of the Secretary, U.S. Consumer Product Safety Commission, 4330 East West Highway, Bethesda, MD 20814, (301) 504–7923.

Dated: August 30, 2011.

Todd A. Stevenson,

Secretary.

[FR Doc. 2011–22547 Filed 8–30–11; 4:15 pm]

BILLING CODE 6355–01–P

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Notice of Intent To Prepare a Joint Supplemental Environmental Impact Statement and Environmental Impact Report for the Folsom Dam Modification Project, Approach Channel.

AGENCY: Department of the Army, U.S. Army Corps of Engineers; DoD.

ACTION: Notice of intent.

SUMMARY: The action being taken is the preparation of a joint supplemental environmental impact statement/ environmental impact report (EIS/EIR) for the Folsom Dam Modification, Approach Channel Project. The EIS/EIR will be prepared in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The U.S. Army Corps of Engineers (USACE) will serve as lead agency for compliance with NEPA, and the State of California Central Valley Flood Protection Board (CVFPB) will serve as lead agency for compliance with CEQA. The Folsom Dam Modification Project, Approach Channel will evaluate alternatives, including a locally preferred plan, for providing dam safety and flood damage reduction at Folsom Dam located downstream from the confluence of the North and South Forks of the American River near the city of Folsom, California.

DATES: Written comments regarding the scope of the environmental analysis

should be received by November 4, 2011.

ADDRESSES: Written comments concerning this study and requests to be included on the Folsom Dam Modification Project, Approach Channel mailing list should be submitted to Ms. Nancy Sandburg, U.S. Army Corps of Engineers, Sacramento District, *Attn:* Planning Division (CESPK–PD–RA), 1325 J Street, Sacramento, California 95814.

FOR FURTHER INFORMATION CONTACT: Ms. Nancy Sandburg via telephone at (916) 557–7134, e-mail: Nancy.H.Sandburg@usace.army.mil or regular mail at (see **ADDRESSES**).

SUPPLEMENTARY INFORMATION:

1. *Proposed Action.* USACE is preparing an EIS/EIR to analyze the environmental impacts associated with a range of alternatives for providing dam safety and flood damage reduction associated with Phase 4 of the action for the Folsom Dam Modification Project, Approach Channel. This project addresses design alternatives for an Approach Channel that is tiered from the 2007 Folsom Dam Safety and Flood Damage Reduction—Joint Federal Project EIS/EIR NEPA analyses to complete construction of a control structure and spillway at Folsom Dam on the American River system.

2. *Alternatives.* The EIS/EIR will address construction alternatives that are intended to improve dam safety and provide flood risk management within the project area. Alternatives analyzed during the investigation may include, but are not limited to, a combination of one or more of the following design measures to complete the new control structure and spillway: installation of a temporary cofferdam or cutoff walls, construction of a spur dike, blasting to remove bedrock material, dredging, terrestrial deposition of dredge material, and temporary modification of existing terrestrial sites for haul routes and staging areas.

3. *Scoping Process.*

a. A public scoping meeting will be held to present an overview of the Folsom Dam Modification Project, Approach Channel and the EIS/EIR process, and to afford all interested parties with an opportunity to provide comments regarding the scope of analysis and potential alternatives. The public scoping meeting will be held in at the Folsom Community Center at 52 Natoma Street in Folsom, CA on October 20, 2011. Presentation will begin at 6 p.m.

b. Potentially significant issues to be analyzed in depth in the EIS/EIR include project specific and cumulative