

**ALASKA WILDERNESS LEAGUE – CENTER FOR BIOLOGICAL DIVERSITY –
DEFENDERS OF WILDLIFE – EARTHJUSTICE – NATURAL RESOURCES
DEFENSE COUNCIL – OCEANA – PACIFIC ENVIRONMENT – SIERRA CLUB**

June 23, 2011

VIA EMAIL

Michael Payne, Chief
Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910
ITA.Guan@noaa.gov

Re: Comments on Proposed Incidental Harassment Authorization for Statoil USA E&P, Inc., 76 Fed. Reg. 30,110 (May 24, 2011)

Dear Mr. Payne:

The undersigned groups submit the following comments on the National Marine Fisheries Service's (NMFS) May 24, 2011, proposed incidental harassment authorization (IHA) issued pursuant to the Marine Mammal Protection Act (MMPA). NMFS has proposed allowing the incidental take of thirteen marine mammal species resulting from Statoil USA E&P Inc.'s (Statoil) exploration activities in the Chukchi Sea scheduled to begin in August 2011. 76 Fed. Reg. 30,110 (May 24, 2011). Statoil intends to use seismic airguns and other equipment over hundreds of square kilometers of open water during the summer and fall while simultaneously drilling up to 29 boreholes at multiple locations. NMFS should deny Statoil's application.

As an initial matter, NMFS has long-recognized that an Arctic-wide analysis is needed to effectively analyze the cumulative, long-term impacts of increased oil and gas activities in the Arctic. Unfortunately, NMFS's programmatic Environmental Impact Statement (EIS) for the Arctic remains unfinished despite years of work, and a draft is not expected until the fall. New exploration not only risks undermining the effort to develop a comprehensive overview with appropriate mitigation, but the National Environmental Policy Act prohibits piecemeal approvals of activities while a programmatic EIS process is ongoing, except under strictly prescribed circumstances. 40 C.F.R. § 1506.1(c).

Without a final EIS, additional oil and gas exploration in the Chukchi Sea is especially problematic given the critical information gaps that still exist today. In its comments on the proposed Lease Sale 193, NMFS stated that without "current and thorough data which describe the habitat use and function of these waters," and without information on the seasonal presence and distribution patterns of marine mammals, the agency would find it challenging to meet its

obligations under the MMPA. NMFS, Comments on MMS Draft EIS for Chukchi Lease Sale 193 and Seismic Surveying Activities in the Chukchi Sea, at 2 (Jan. 30, 2007). NMFS has raised similar concerns about the need for data regarding marine mammal responses to both continuous and impulsive oil and gas noises. *Id.*; see also NMFS, Comments on MMS Draft EIS for the Beaufort Sea and Chukchi Sea Lease Sales 209, 212, 217, and 221 at 3-5 (March 27, 2009) (same). NMFS should heed its earlier warnings and refrain from issuing additional authorizations until more is known.

Should NMFS choose to allow Statoil to proceed through the MMPA authorization process, however, it must first address the points noted below.

I. MMPA STANDARDS

Congress enacted the MMPA in 1972 in response to widespread concern that “certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man’s activities[.]” 16 U.S.C. § 1361(1). Legislative history indicates that the purpose of the MMPA is to manage marine mammals “for their benefit and not for the benefit of commercial exploitation.” H.R. REP. NO. 92-707, at 4154 (1972), *reprinted in* 1972 U.S.C.C.A.N. 4144, 4154. The primary mechanism by which the MMPA protects marine mammals is through the implementation of a “moratorium on the taking” of marine mammals. 16 U.S.C. § 1371(a).

The MMPA provides several narrow exceptions to the moratorium. Relevant here, NMFS may, upon request, authorize take in the form of harassment by an IHA for a period of not more than one year, provided certain conditions are met. NMFS cannot, for example, authorize the take of more than “small numbers” of marine mammals. 16 U.S.C. § 1371(a)(5)(D)(i). The MMPA also stipulates that authorized take can have no more than a “negligible impact” on species and stocks and cannot have “an unmitigatable adverse impact on the availability of such species or stock for taking for subsistence uses” by Alaska Natives. *Id.* § 1371(a)(5)(D)(i)(I) & (II). When granting an authorization, NMFS must prescribe methods and means of affecting the “least practicable impact” on the species or stock and its habitat. *Id.* § 1371(a)(5)(D)(ii)(I).

II. HARASSMENT THRESHOLDS

The MMPA definition of harassment is focused on “potential harassment,” which supports the conclusion that all of the animals in a group or pod are harassed “if there is the *potential* for the act to disrupt the behavioral patterns of the most sensitive individual in the group.” *Natural Res. Def. Council v. Evans*, 279 F. Supp. 2d 1129, 1157 (N.D. Cal. 2003) (emphasis added); see also 16 U.S.C. § 1362(18)(A)(ii) (defining harassment to include any act of pursuit, torment, or annoyance that “has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns”).

NMFS’s proposed IHA for Statoil’s activities calculates harassment based on the exposure of marine mammals to impulse sounds (airgun surveying) at or above 160 dB and non-impulse sounds (drilling) at or above 120 dB. See 76 Fed. Reg. at 30,121. NMFS’s uniform marine mammal harassment threshold for impulsive sounds, however, does not take into account the documented reactions of specific species found in the Arctic to much lower received levels.

For example, as NMFS observes, “belugas appear to be fairly responsive” to seismic energy, 76 Fed. Reg. at 30,126, and studies have documented their reactions to extremely low levels of icebreaker noise as well. *See, e.g.*, 75 Fed. Reg. 25,730, 25,737 (May 7, 2010). Harbor porpoises have also been shown to be exceptionally sensitive to noise, and NMFS has used 120 dB as the appropriate threshold when authorizing marine mammal take for Navy sonar activities. 73 Fed. Reg. 60,754, 60,806 (Oct. 14, 2008) (noting harbor porpoise data suggesting “a very low threshold level of response [to a variety of sound sources] for both captive and wild animals”).

Particularly important here, studies confirm that migrating bowhead whales react to impulse sounds well below 160 dB. In a comprehensive review of existing literature, a 2007 study found that for migrating bowheads “the onset of *significant behavioral disturbance* from multiple pulses occurred at [received levels] around 120 dB re: 1 μ Pa[.]” Southall, et al., *Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations*, 33(4) *Aquat. Mamm.* 446, 452 (2007) (emphasis added). Indeed, NMFS recognizes in its proposal that whales “might show avoidance reactions” before being exposed to sound levels of 160 dB. 76 Fed. Reg. at 30,124.

NMFS avoids the implications of this acknowledgement by maintaining that 160 dB is the threshold at which “overt” disturbance takes place. 76 Fed. Reg. at 30,126. The proposed authorization cites to the “severity scale” in the 2007 study to support its determination that “more severe” reactions have not occurred until sounds are “much higher” than 160 dB. *Id.* at 30,121. This, however, disregards the MMPA’s protective definition of harassment, noted above, that includes even the “potential” disturbance of a marine mammal. In language that reflects the precautionary approach of the statute, the 2007 study in fact determined that the reactions of migrating bowhead whales to sounds as low as 120 dB had a “higher potential” for affecting foraging, reproduction, or survival rates. Southall et al. 2007 at 449; 450 (Table 4); 454 (Table 7). The highest severity scores in the study, relied on by NMFS, were reserved only for those reactions deemed “likely to affect” those rates. *Id.* at 449.¹

Moreover, the existing science does not support strictly distinguishing impulse and non-impulse noise. NMFS recognizes that over long distances (tens of kilometers), impulse sounds can become “stretched” out. 76 Fed. Reg. at 30,114. The expert panel report for this year’s Open Water Meeting discussed the phenomenon before concluding that sounds from airguns “should not be treated as truly impulsive when received at ranges where sound propagation is known to remove the impulsive nature of these signals.” *Expert Panel Review of Monitoring Protocols in Applications for Incidental Harassment Authorizations Related to Oil and Gas Exploration in the Chukchi and Beaufort Seas, 2011: Statoil and ION Geophysical* at 5 (March 9, 2011) (Expert Panel Review); *see also id.* (finding that as distance increases, “the impulsiveness of the signal is no longer its dominant acoustic feature and the signal should no longer be considered or regulated as an impulse”). At 31-39 kilometers, NMFS estimated that the sound

¹ Given that bowheads are likely to deflect from their preferred migration path at 120 dB regardless of the type of noise, the proposed IHA creates the anomalous result that deflections of 30-40 kilometers (airguns) are largely ignored when calculating take while deflections of 5-7.5 kilometers (drilling) are counted as Level B harassment.

from Statoil's airguns could still reach 120 dB, 76 Fed. Reg. at 30,117 (Table 1), a distance at which it may be necessary to use a non-impulse noise threshold.²

A uniform 160-dB harassment threshold is not justified by either the science or the standards imposed by the MMPA. And, without an appropriate threshold, NMFS cannot begin to accurately gauge the extent of marine mammal take from Statoil's operations. At the very least, NMFS should apply noise thresholds lower than 160 dB for determining when harassment from surveying occurs for belugas, harbor porpoises, and migrating bowhead whales and should reassess the potential impacts from the proposed exploration activities on those species.

III. BOWHEAD WHALE MIGRATION AND OVERLAPPING EXPOSURES

To determine the number of exposed marine mammals, NMFS multiplied the expected density of marine mammal populations by the area that NMFS determined would be exposed to the designated sound levels. *See* 76 Fed. Reg. at 30,124. For Statoil's surveying, NMFS added the estimated 160 dB distance (2.25 kilometers) to the perimeter of the two site survey areas, resulting in a total exposed area of 1,037 square kilometers. *Id.* at 30,121. Half of the operations are assumed to take place in the summer and the other half in the fall. *Id.* at 30,124.

NMFS's approach to determining take for Statoil's surveying during the bowhead fall migration is not supportable. In addition to an improper harassment threshold, discussed *supra*, the proposed authorization does not adequately take into account that Statoil's fall surveying will take place within a migratory corridor. *See* 76 Fed. Reg. at 30,123 (noting tagging data that show migrating bowheads passing through the survey area). By relying on density without sufficiently considering the overlap of ensonified areas, it assumes that migratory animals remain relatively stationary from one day to the next, despite Statoil's operations exposing the same areas of the ocean to elevated sound level at very different times, days or even weeks apart.

Statoil's IHA application indicates that it will conduct its survey in two distinct phases: a coarse grid across the designated survey area followed by closely spaced lines at five potential drill sites. *See* LGL Alaska Research Associates, Inc., Request by Statoil for an Incidental Harassment Authorization to Allow the Incidental Take of Marine Mammals During a Shallow Hazards Survey in the Chukchi Sea, Alaska, 2011 at 2, 24 (April 2011) (IHA App.). NMFS's calculations are premised on the notion that a bowhead whale exposed, for example, on day 15 during the coarse survey remains stationary and is the same whale exposed when the vessel travels near the area again on day 23 during the detailed survey, amounting to only a single harassed whale. Such a result does not reflect the reality of whales moving through the surveying area on their way to wintering grounds in the Bering Sea.³

² When discussing the effects of masking, the proposed IHA finds that sound levels would drop below 120 dB 15 kilometers from the source. 76 Fed. Reg. at 30,114. NMFS should address this apparent discrepancy.

³ NMFS's proposed IHA does not reference the two phases of surveying discussed both in Statoil's IHA application and in its ancillary activities notice submitted to the Bureau of Ocean Energy, Management, Regulation and Enforcement (BOEMRE). Statoil, Ancillary Activities Notice for 2011 Shallow Hazards Survey in the Chukchi Sea at 3 (March 31, 2011) (Ancillary Notice), http://alaska.boemre.gov/fo/ancillary/2011_CK/2011_0331_Statoil_notice.pdf.

The same problem arises when contemplating the coarse grid survey in isolation. According to a map included in Statoil's notice to BOEMRE, the coarse survey lines will be spaced 1.2 kilometers apart. Ancillary Notice, Shallow Hazards Survey Line Layout at 19. Even assuming that the disputed 160-dB harassment threshold is appropriate, noise levels will extend 2.25 kilometers from the survey vessel, resulting in sonic overlap from adjacent survey lines. The effect would be significantly more pronounced using a 120-dB threshold of 31-39 kilometers. In the past, NMFS has avoided this problem by calculating the ensonified area based on the amount of linear surveying line, rather than by extending the boundaries of the area to be surveyed. *See* 73 Fed. Reg. 46,774, 46,792 (Aug. 11, 2008) (shallow hazard/site clearance surveying in the Chukchi Sea). The same method applied here demonstrates the importance of properly integrating migratory movements.

Based on Statoil's estimate of 2,500 kilometers of surveying line, a 160-dB harassment threshold of 2.25 kilometers results in an exposed area of 11,250 square kilometers, half of which would occur during the fall migration. *See* IHA App. at 2 (noting total trackline). Even the more conservative 31 kilometer distance for a 120-dB threshold results in a greatly expanded total exposed area of 152,500 square kilometers (76,250 square kilometers in the fall). Some adjustment to these figures may be necessary (e.g., to include vessel turns, in which only the single mitigation gun would be firing), but they clearly show a potentially significant increase in the area exposed. *Cf.* 73 Fed. Reg. 36,044, 36,050 (June 25, 2008) (noting that including overlapping areas can overestimate the number of exposed of "non-migratory" cetaceans and pinnipeds).⁴

Previously, NMFS has maintained that data on the bowhead migration through the Chukchi Sea are insufficient for it to replicate the "alternative" approach routinely used for counting whales in the Beaufort Sea during the fall migration. *See* 74 Fed. Reg. 55,368, 55,387 (Oct. 27, 2009). This, however, misses the point. NMFS's harassment calculation must incorporate the westward movement of bowhead whales. While the particular methodology adopted by NMFS may be a matter of discretion, the need to address the issue in some fashion is not.⁵

IV. OTHER EQUIPMENT

As part of its assessment, NMFS must include the effects from all of Statoil's equipment, not only the noise from the airguns (surveying) and ship thrusters (drilling). This year's expert review panel found that Statoil's other acoustic sources are "relatively powerful and operate in the acoustic band of many if not most marine mammals[.]" Expert Panel Review at 12. They

⁴ A similar problem likely exists for the calculation of the area exposed to drilling noise. To the extent that any of the 29 wells are drilled in a particular location over a period of time, NMFS has to consider that affected whales will be migrating past the area.

⁵ Because NMFS's negligible impact determination relies in part on number of exposed animals, should revisit this conclusion as well. 76 Fed. Reg. at 30,126.

include echosounders, side-scan sonars, and sub-bottom profilers.⁶ Members of the panel “particularly noted the sub-bottom profiler as a concern.” *Id.*; *see id.* at 5, 13 (noting non-airgun sound sources). NMFS has proposed that Statoil conduct field measurements for all of its equipment in order to determine whether additional safety zones are required. 76 Fed. Reg. at 30,112. This, however, cannot cure the failure to accurately determine in advance the number of marine mammals that may be harassed by Statoil’s activities. NMFS should further consider the fact that Statoil’s two exploratory activities (surveying and drilling) may take place in close proximity to one another, each using a variety of noise-producing equipment that could contribute to adverse synergistic effects.

V. LEAST PRACTICABLE IMPACT

As noted, an IHA must prescribe the “means of effecting the least practicable impact” on a species or stock and its habitat. 16 U.S.C. § 1371(a)(5)(D)(ii)(I). As is clear from the language chosen by Congress, the emphasis is on reducing the impact to the lowest level possible. *See Evans*, 279 F. Supp. 2d at 1159 (noting that it is a “stringent” standard); *id.* at 1163-64 (stating that the standard is “central” to complying with other MMPA requirements).

Additional mitigation measures are warranted for Statoil’s operations. NMFS should require Statoil to calibrate its airgun array before surveying in order to minimize the horizontal propagation of the noise signal and should stipulate that Statoil reduce its source levels to the lowest level practicable needed to gather its data. NMFS should also consider date restrictions to limit the extent of the disturbance during the bowhead migration. Statoil estimates that it will need only 23 days to complete its work and intends to finish in late-September or early October. Strict parameters on the operation’s timing would help to avoid unnecessary impacts.

As recommended by this year’s Open Water Meeting expert panel, NMFS should also determine whether there are further monitoring methods available, such as manned or unmanned aerial surveys. Expert Panel Review at 13. Other far-field monitoring, such as the use of scout vessels, passive acoustic platforms, and satellites, should be studied as well. *See id.* Some additional monitoring will be necessary if only to adequately survey the 160 dB safety zone for aggregations of bowhead whales. *See* 76 Fed. Reg. at 30,118. In order to mitigate for some of the difficulties that arise from relying on visual observation, NMFS should consider restricting airgun operations to times in which the safety zones are visible to marine monitors. Statoil should not operate in conditions – such as darkness, fog, or rough seas – in which the observers are unable to ensure that the designated safety zones are free of marine mammals.

Finally, NMFS should consider a safety zone specific to cow-calf pairs. The proposed authorization notes that NMFS’s additional protective measures are intended to address uncertainties regarding impacts on “bowhead cow-calf pairs and aggregations of whales[.]” 76 Fed. Reg. at 30,118. The mitigation, however, directly addresses only the latter. Previously, NMFS has recognized that collections of four or more cow-calf pairs should be protected out to

⁶ NMFS should clarify precisely what equipment will be used. A notice issued by BOEMRE lists a variety of sound-producing devices to be used by Statoil during its borehole drilling. Notice of Preparation of an Environmental Assessment for 2011 Ancillary Activities Marine Surveys in the Chukchi Sea Outer Continental Shelf, attached as Exh. 1.

the 120 dB threshold, and we encourage NMFS to do so here as well. *See* 71 Fed. Reg. 43,112, 43,130 (July 31, 2006). This measure should be accomplished in combination with efforts to improve Statoil's far-field monitoring.

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We appreciate this opportunity to comment and look forward to your response. We can provide further information or answer any questions upon request.

Respectfully submitted,

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EXHIBIT 1

**Notice of Preparation of an Environmental Assessment for 2011 Ancillary Activities
Marine Surveys in the Chukchi Sea Outer Continental Shelf**

The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) Alaska Region is preparing an Environmental Assessment (EA) for proposed ancillary activities by Statoil USA E&P Inc. (Statoil) on the Chukchi Sea outer continental shelf (OCS) during the 2011 open-water season. Statoil's proposed ancillary activities include seismic surveying for site clearance and shallow hazards, and shallow coring for geotechnical evaluation data and information for future Exploration Plan (EP) or Development and Production Plan (DPP) (30 CFR 250.207). The ancillary activities would be conducted from August through November 2011.

Activity	Description	Duration	Vessel(s)
Shallow Hazards & Site Clearance Survey	Side scan sonar Multibeam echo sounder 4 x 10 cu. in. airgun cluster 1 x 10 cu. in. airgun Shallow sub-bottom profiler	60 days	<i>M/V Duke</i> or similarly equipped vessel
Geotechnical Soil Investigation	Autonomous Underwater Vehicle (AUV) Dual frequency side scan sonar Multibeam echo sounder Dual frequency sub-bottom profiler	14 days	<i>M/V Fugro Synergy</i> or similarly equipped vessel

BOEMRE has 30 days to review Statoil's proposed ancillary activities (30 CFR 250.207(a) and 30 CFR 250.208).

This Notice of Preparation, as well as Statoil's Notice of Intent for Ancillary Activities for 2011 in the Chukchi Sea, and Statoil's Plan of Operations are posted on the BOEMRE website with other additional information at <http://www.alaska.boemre.gov>. The documents are also available for review at 3801 Centerpoint Drive, Suite 500, Anchorage, Alaska. Copies are available by calling (907) 334-5200 (8:30am – 4:30 pm Alaska Daylight Time).

In addition, the following National Environmental Policy Act (NEPA) documents address issues and potential effects of seismic surveys and ancillary activities. BOEMRE will use the information in these documents in the preparation of the Environmental Assessment (EA).

- Final Environmental Impact Statement (EIS) for Chukchi Sea Lease Sale 193 (OCS EIS/ES MMS 2007-026), May 2007.
- Draft EIS for Beaufort Sea and Chukchi Sea Planning Areas Oil and Gas Lease Sales 209, 212, 217, and 221 (OCS EIS/EA MMS 2008-0055), November 2008.
- EA for Statoil's 2010 3D/2D seismic survey in the Chukchi Sea Planning Area (OCS EIS/EA BOEMRE 2010-020), June 2010.

These documents are available on the BOEMRE website at http://www.alaska.boemre.gov/ref/eis_ea.htm.

The issues and resources identified by the technical analysts for consideration in preparation of the EA include the effects from seismic survey sound, vessel presence, and bottom disturbing activities on bowhead whale migration; marine fish and essential fish habitat; marine wildlife

including marine mammals, birds, lower trophic organisms, and threatened and endangered species; subsistence activities; and archaeological resources.

This notice provides an opportunity for the public to provide input that may inform the decision-making process, including issues or information regarding environmental impacts that should be considered in the preparation of the EA, prior to a decision being made by the Responsible Official(s). BOEMRE will accept comments through Thursday, June 16, 2011.

Comments may be submitted in either of the following two ways:

1. Mail or Delivery: Enclose comments in an envelope labeled “Comments on the Statoil Proposed Ancillary Activities, Chukchi Sea OCS, 2011” and send to:

Regional Supervisor, Leasing and Environment
BOEMRE Alaska OCS Region
3801 Centerpoint Dr., Ste 500
Anchorage, AK 99503-5820

2. Federal eRulemaking Portal: Access this Notice of Preparation at Regulations.gov and search docket number BOEM-2011-0052. Click on the orange button labeled “Submit a Comment.”

BOEMRE cautions that, before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you may ask BOEMRE (prominently at the beginning of your submission) to withhold your personal identifying information from public view, BOEMRE cannot guarantee that it will be able to do so. BOEMRE will not consider anonymous comments.

Information on the Statoil Application for a Letter of Authorization for the incidental take of polar bears and Pacific walrus from the U.S. Fish and Wildlife Service is available at <http://alaska.fws.gov/fisheries/mmm/itr.htm>. Similar information on the Statoil Application for an Incidental Harassment Authorization from the National Marine Fisheries Service is available at <http://www.nmfs.noaa.gov/pr/permits/incidental.htm>