Document 007

COMMENTS
of the
ALASKA ESKIMO WHALING COMMISSION
on the
DRAFT ENVIRONMENTAL IMPACT STATEMENT
for
OIL AND GAS LEASE SALE 193, CHUKCHI SEA PLANNING AREA

December 24, 2006

"The Chukchi OCS is viewed as one of the most petroleum-rich offshore provinces in the country, with geologic plays extending offshore from some of the largest oil and gas fields on Alaska's North Slope. The MMS's current petroleum assessment indicates that [sic] mean recoverable oil resource of 12 billion barrels (Bbbl) with a 5% chance of 29 Bbbl. Most government and industry analysts agree that this province could hold large oil fields comparable to any frontier area in the world. Thus, it is reasonable to assume that exploration of this area could lead to oil discoveries and offshore development." [1]

"Potential significant impacts to subsistence resources and harvests and consequent significant impacts to sociocultural systems would indicate significant cumulative environmental justice impacts – disproportionate, high, adverse environmental and health effects on low-income, minority populations in the region." [2]

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1 DEIS, p. II-28.

2 DEIS, p. V-87.

INTRODUCTION

Summary

To anyone observing the actions of MMS and oil and gas majors, all indicators point to extensive, near-term industrial development of the Chukchi Sea and portions of the Chukchi coast. It is equally obvious that without careful environmental analysis and frank discussion of environmental and social impacts, the potentially devastating effects of this development will go unchecked.

Therefore, it is disturbing for the public and decision-makers to be presented with an environmental review that is a study in how to avoid addressing the consequences of a proposed action. Biased assumptions and conclusions, slanted discussion, ignored data, incomplete review, repetition of dated or discredited references, and internal contradictions and inconsistencies predominate throughout this document. Because the issues raised by this DEIS are so extensive, the AEWC can highlight only a few of the more serious ones here. Those noted in these Comments, most of which are discussed in greater detail below, include:

- MMS ignores analytical and substantive requirements of the National Environmental Policy Act, the Marine Mammal Protection Act, the Endangered Species Act, and regulations of the Council on Environmental Quality.

- MMS bases its claimed analysis on irrational assumptions that are at odds with assumptions postulated for this lease sale in the EIS for the Five-Year Program 2002-2007, and with the economic analysis underlying that Program analysis. No explanation for these discrepancies is offered, but the baseless nature of the assumptions renders this DEIS useless for purposes of informing the public and decision-makers of the true potential environmental consequences of the proposed action.

- MMS continues to approve, through its "significance thresholds", human impacts that include starvation and destruction of communities.

- MMS lifts large portions of the cumulative effects discussion, including conclusions, verbatim from the a document that was prepared for the 2006 – single season – Chukchi Sea seismic program.[3] This despite the fact that the current environmental review is supposed to be of impacts – direct, indirect, and cumulative – expected from a leasing program opening the Chukchi Sea to oil and gas exploration and production, with attendant industrial development, over an anticipated life of at least 35 years.

[3] Programmatic Environmental Assessment of Arctic Ocean Outer Continental Shelf Seismic Surveys – 2006 (USDOI, MMS, 2006a).

- Recent research results, including some by MMS, highly relevant to this environmental review, are ignored.

Introductory Comments

The AEWC notes that Congress amended the Outer Continental Shelf Lands Act (OCSLA) in 1978 to clarify that in its role as a leasing agency, MMS also is expected to act as a steward of outer continental shelf (OCS) habitat and the coastal environment.[4]

With the publication of the June 2006 Programmatic Environmental Assessment (PEA) for seismic operations in the Chukchi Sea during the 2006 open water season, it began to appear that the Alaska office of MMS finally was attempting to take responsibility for its dual obligations.[5] Yet, inexplicably, after publication of the PEA MMS appears to have fully relinquished its Congressionally mandated role of environmental steward and to have retreated to the position of facilitator of oil and gas industry plans for the OCS – irrespective of adverse effects to wildlife, habitat, or human communities.

Hence the public and decision-makers are presented with documents such as the current DEIS, which serves as strong evidence of the fact that MMS should not be entrusted with the authority for preparing its own environmental reviews, due to its demonstrated inability to provide an objective perspective on and a reasoned analysis of the impacts of its proposed actions.

The AEWC hereby incorporates by reference: (1) Its comments on the Draft EIS for the Five-Year Leasing Program 2007-2012, dated November 20, 2006; (2) The attached comments of the North Slope Borough Department of Wildlife Management; and (3) The attached December 18, 2006 comments of the Mayor of the North Slope Borough on the National Marine Fisheries Service's Notice of Intent to Prepare a Programmatic Environmental Impact Statement for arctic seismic operations (Mayor's Comments).

Because an issue is not discussed in these comments does not mean that it has not been noted, only that limited time and resources prohibit a full analysis of all the many weaknesses in this work. The AEWC reserves the right to raise additional issues at a future time.

COMMENTS

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4 OCSLA §18, 43 USC 1344.

5 Id.

I The Review and Recommendations of this DEIS Are Inconsistent with Federal Law.

A. MMS Has Not Provided a Thorough, Objective, and Good Faith Analysis of Environmental Consequences as Required by Congress in the National Environmental Policy Act (NEPA).

Courts called upon to review agency environmental impact statements have developed a body of law in this area that conditions approval of environmental reviews on, among other standards, the agency's "objective good faith" in the preparation of the review and whether the resulting statement would "permit a decision-maker to fully consider and balance the environmental factors."[6] Similarly, courts expect executive agencies to base their environmental reviews on the most recent, independently supportable data, irrespective of its consistency with the agency's preferred outcome.[7]

007-001

In this DEIS, MMS sets forth an incomplete review of the environmental consequences of its proposed action, with arguments, cited studies, and even the very language of the text slanted in favor of its preferred Alternative !. As examples, an assumed large oil spill with an assigned probability of 33-55% is repeatedly referred to as "unlikely"; the "cumulative effects analysis" contains neither analysis nor substantive reference to cumulative effects; the term "insignificant" is used to describe impacts likely to deprive communities of critical food resources for a period of years.

Rather than repeat them here, the AEWC requests that the reader turn to the attached North Slope Borough Department of Wildlife Management comments for a partial listing of statements within the DEIS that are unsupported by data, are missing references, or are based on references to outdated studies.

B. The Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) place protection of marine mammals, all endangered species, and subsistence uses ahead of other uses.

007-008

The MMPA prohibits the taking of all marine mammals and the ESA adds a further prohibition on the taking of endangered marine mammals. 16 U.S.C. 1371(a); 1538(a)(1)(B), (C). The one form of taking for which Congress has provided a

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6 Sierra Club v. Morton, C.A.5 (Fla) 1975, 510 F.2d 813.

7 Strahan v. Lennon, D.Mass. 1997, 967 F.Supp. 581, affirmed 187 F.3d 623; Committee for Nuclear Responsibility, Inc. v. Seaborg, C.A.D.C. 1971, 463 F.2d 783, 149 U.S.App.D.C. 380; See also, Mid-Shiawassee County Concerned Citizens v. Train, D.C.Mich. 1976, 408 F.Supp. 650, affirmed 559 F.2d 1220.

categorical exclusion from these statutory prohibitions is taking for subsistence use by Alaska Natives. Id., 1371(b), 1539(e). Other, limited exceptions to these blanket prohibitions exist for certain defined non-subsistence activities, subject to clear specification and careful oversight.

In recognition of the paramount importance of subsistence uses to Alaska Natives, Congress further has provided for a complete prohibition on interference with the availability of marine mammal subsistence resources for taking for subsistence uses by any otherwise federally permitted or authorized activity. Id., 1371(a)(5)(A), (D). By its terms, this prohibition on interference requires that any permitted or authorized activity having the potential adversely to affect the availability of subsistence resources must be modified and implemented so as to ensure that resources remain available for subsistence taking.

007-008

In this regard, it should be noted that Congress places the burden of compliance with this prohibition on the permitted or authorized activity, not on subsistence hunters, and tasks the Secretary with responsibility for ensuring that the terms of the prohibition are met. Thus, Congressional intent behind the statutory standard is not met if hunters must place themselves at extra risk to locate and take subsistence resources due to the presence of industrial activities in proximity to their hunting areas.

In light of the above and the more detailed discussion of statutory and case law in the Mayor's Comments, the starting point for review of potential impacts from Arctic offshore seismic activity is two-fold. First, adverse effects to subsistence uses are prohibited; and second, the protection of endangered marine species and other endangered wildlife potentially affected by the action is given priority in conflicts with seismic and other industrial operations.

The recommendations proffered by MMS in this DEIS are out of line with these federal priorities.

C. Important and appropriate alternatives are not offered.

As noted in the Mayor's Comments, an environmental impact statement under NEPA must include "a detailed statement by the responsible official on * * * (iii) alternatives to the proposed action." 42 U.S.C. 4332(2)(C). This statement must "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss their reasons for having been eliminated." 40 C.F.R. 1502.14(a). The alternatives analysis "is the heart of the environmental impact statement." 40 C.F.R. 1502.14.

007-009

In the PEA, MMS emphasized, and acknowledges here, the very significant lack of data on use of the Chukchi Sea by marine species and water fowl. "Little site-specific data are available on habitat and use patterns, routes, and timing of specific species using

the arctic environment." DEIS, p. ES-iii. However, it is known that the Chukchi contains important feeding habitat for bowhead whales,

> the Bering and Chukchi Seas are the predominant feeding areas for [bowhead whale] adults and subadults. Some of the feeding in the western Alaskan Beaufort Sea (e.g., west of Harrison Bay) is on prey advected from the Chukchi Sea.

DIES, p. III-48, citing Lee et al. (2005).

Carbon isotope comparisons done on bowhead whale tissue indicates that "most of the annual food requirements of adults and subadults are met from" the Bering and Chukchi Seas. DIES, p. III-50, citing Lee and Schell, (2002).

007-009

It also is known that bowhead calving occurs during the spring migration through the Chukchi Sea, that the fall bowhead migration includes lactating females and nursing calves, and that at least some bowhead whales migrate, in the fall, directly through the proposed leasing area. Similarly, the Chukchi is important feeding habitat to endangered water fowl. References available from NSB DWM.

However, as noted by MMS, "little recent site-specific data are available on habitat and use patterns, routes, and timing of specific species using the arctic environment." DEIS, p. ES-iii.

Thus it is impossible for MMS or anyone else honestly to evaluate the environmental impacts of the proposed action. Nonetheless, throughout the DEIS, MMS attempts to argue that potential impacts will be alleviated by MMS's stable of mitigation measures. However, these measures are untested in the Chukchi Sea and their effectiveness cannot be assessed because wildlife use of the Chukchi is not well understood. Furthermore, as noted elsewhere in these comments, industry compliance with and agency enforcement of mitigation measures are not assured.

The fact is that the large scale development contemplated in the proposed action should not be allowed to go forward here without a more complete body of research. Given these critical data gaps, and in keeping with NEPA, this DEIS must be revised to include a set of alternatives based on delayed or phased development, timed so as to allow the necessary biological and habitat research to go forward. <u>The AEWC recommends a delay of at least two years in the leasing proposal to allow necessary research to be done and then a phased approach to leasing in keeping with the results of that research and remaining data gaps.</u>

II. This DEIS Does Not Support MMS Assertions That Environmental Impacts from the Proposed Action Are Inconsequential.

In describing the Proposed Action, MMS states that the Chukchi OCS "is viewed as one of the most petroleum-rich offshore provinces in the country . . . MMS's current petroleum assessment indicates that mean recoverable oil resource of 12 billion barrels (Bbbl) with a 5% chance of 29 Bbbl. . . .most government and industry analysts agree that this province could hold large oil fields comparable to any frontier area in the world. Thus, it is reasonable to assume that exploration of this area could lead to oil discoveries and offshore development." (Emphasis supplied.) The "Chukchi Sea Sale 193 area includes 6,156 whole or partial blocks covering approximately 34 million acres in the Chukchi Sea.[8]

Throughout the DEIS, MMS maintains that industry interest in the Chukchi Sea is expected to be low and that development, therefore, is unlikely – less than 10 percent according to MMS. This argument might appear plausible given that, in the past 15 years industrial activity in the Chukchi Sea has been below its 1980's peak.

However, the public receives this DEIS at the end of a year in which two international oil majors brought extraordinary political pressure to bear on the U.S. Department of the Interior, forcing the agency to open the Chukchi Sea to extensive geophysical exploration without preparation of an Environmental Impact Statement. These two companies were joined by an independent geophysical operator in 2006, and all indications are that a number of operators, in addition to these three, plan to run seismic operations in the Chukchi during the 2007 open water season, ahead of Lease Sale 193. Furthermore, at least one of the company's has let it be known that it already is developing plans to bring a Chukchi Sea pipeline ashore at Wainwright.

007-002

To accommodate industry demands for access to the Chukchi Sea in 2006, MMS prepared a Programmatic Environmental Assessment (see footnote 3). The PEA, and especially its draft, offered an unusually thorough, well reasoned, and scientifically supported analysis, in which MMS identified numerous and extensive gaps in data on the use of the Chukchi Sea by wildlife, including endangered whales and birds. Given this lack of data, both MMS and NMFS imposed strict monitoring and mitigation measures on the geophysical operations permitted for 2006. However, one company sought legal protection from its obligation to meet these requirements, and it is not known whether or not a second company in fact complied with them.

Based on this past behavior and the projections for permitting activity in 2007, it appears that industry interest in the Chukchi Sea at this time meets or exceeds historic levels. This interest is driven by the price of oil, which is up almost 50% from its average level in 2000, hitting record high levels during the past year and retreating only slightly. Moreover, the Organization of Petroleum Exporting Countries (OPEC) has

[8] DEIS, p. II-28.

moved to reduce supply to ensure that prices remain up, and the rapid expansion of Asian economies leaves little room for downward pressure on prices.

As of this writing, Bloomberg financial news reports that crude oil for February delivery is at $62.41 a barrel on the New York Mercantile Exchange, with prices up 7.1 percent from a year ago. Oil hit a three- month high of $64.15 a barrel on Dec. 20. In Bloomberg's weekly survey of analysts for the week of December 18, 2006, 69% of analysts surveyed predicted that oil prices would rise or remain constant over the next year. Some expect to see prices at or above $70 per barrel within the year. Bloomberg.com, December 23, 2006. The U.S. Department of Energy predicts oil prices for 2007 at $65.17 a barrel. eia.doe.gov, December 12, 2006.

At publication of the DEIS, in October 2006, oil markets were only three months out from their record of $78.40 a barrel reached on July 14, 2006. Additionally, in the DEIS, MMS notes that prices were at $50 per barrel when the Executive Summary was written. DEIS, p. ES-ii. We know, of course, that prices rebounded after the November 2006 elections.

007-003

Despite the fact that all indicators point to intense industry interest in developing the Chukchi Sea's extensive petroleum reserves, as noted above, MMS attempts to downplay potential environmental consequences of development in the Chukchi by, among other unsupported assertions, stating that "there is probably a [less than] 10% chance" that development will take place there. As the preceding discussion demonstrates, this prediction is without support in fact.

Although, if MMS actually believes that the probability of Chukchi Sea development is so low, the public should be asking why tax dollars are being spent in preparation for the proposed lease sale; or in the alternative why action is not being delayed pending the results of research on wildlife use of the Chukchi.

III. As Presented, this DEIS Is Inconsistent, on Key Points, with the Economic and Environmental Analyses Provided for this Very Leasing Action in the Five-Year Leasing Program 2002-2007; No Explanation for this Inconsistency Is Given.

In the economic analysis for the Five-Year EIS, economically recoverable reserves in the Chukchi Sea were estimated to be 6.06 Bbbl, at $30 per barrel.[9] As cited in the DEIS, MMS's current petroleum assessment indicates mean recoverable oil

[9] King, W.E., Economic Analysis for the OCS 5-Year Program 2002-2007: Theory and Methodology, OCS Report, MMS 2001-08, September 28, 2001, Table 1. Total Unleased Economically Recoverable Resources–July 2002.

resources of 12 Bbbl, with a 5% chance of 29 Bbbl.[10] In the Five-Year EIS, MMS further assumes that over 35 years this lease sale will yield 2-8 production platforms, 6-26 exploration and delineation wells, 106-320 development and production wells, 330 miles of onshore pipeline, and 100-260 miles of offshore pipeline. These assumptions are based on an oil price of $18-$30 per barrel and an expectation of slow growth. See Five-Year DEIS, Table 4-6b.

Not only has the price of oil doubled from the high-end assumptions of the Five-Year analysis, recent pressure from the oil industry and others to open the Chukchi Sea to exploration ahead of a full environmental analysis would appear to be at odds with the former slow-growth assumptions.

Therefore, the public and decision-makers reasonably would expect MMS, in the current review, to account for these changes and to adjust assumptions accordingly. Alternatively, and perhaps more appropriately given the volatile nature of commodities markets, MMS should be expected to provide an environmental analysis based on high oil price and low oil price assumptions. Yet, in this DEIS, MMS does neither. Rather, it inexplicably slashes the Five-Year DEIS assumptions, postulating that only a single project will be developed in the Chukchi Sea, rather than the 2-8 platforms and hundreds of exploration, delineation, development, and production wells predicted for this lease sale in the Five-Year EIS, at half the current price of oil.

Moreover, MMS here assumes that only 1 Bbbl of oil will be produced as a result of this lease sale rather than a number more in keeping with the 6.06 Bbbl of economically recoverable resources identified in its July 2002 economic analysis, or even the more modest high-end assumption of 2.42 Bbbl used in the Five-Year EIS. Again, all of these values are based on a price of oil at half the current market value.

Despite the irrationality of these assumptions, MMS proceeds to base its entire environmental review on them, rendering this DEIS useless for purposes of informing the public and decision-makers of the true potential environmental consequences of this proposed lease sale.

IV. The Examination of Oil Spill Risk in the DEIS Bears Little or No Relation to the Statistical Analysis Provided for the Five-year EIS and Does Not Bear a Clear Relationship to the Oil Spill Analysis Contained in Appendix A of the DEIS.

007-004

The oil spill analysis set forth in the Five-Year EIS predicts, for the Chukchi Sea, one platform spill of 1,500 bbl and two pipeline spills of 4,600 bbl each, for a total of 10,700 bbl over 35 years due to large spills. A spill of 500 bbl or greater is predicted

[10] DEIS, p. II-28

with a probability of "up to 98%."[11]

In the current DEIS, while acknowledging the predicted volumes per spill type, MMS simply "assumes", without explanation, a single large oil spill of 1,000 barrels or more.[12] The agency then goes on to assign a probability of 33-51% for the occurrence of this single assumed spill, declaring that this probability renders the single assumed spill "unlikely."

An explanation is needed as to how an event carrying a 33-51% probability is deemed "unlikely." More importantly, however, an explanation is called for as to how MMS arrived at this 33-51% probability (confidence interval not given) in the first place. In the DEIS, the reader is referred to Appendix A and Table IV.A-4.[13] These references, however, point to a mean spill number of 0.32-0.77 and a total spill probability of 27-54% at the 95% confidence interval.

007-004

Yet, despite the arbitrary nature of this spill assumption and its assignment of a 33-51% probability as proof that a large oil spill is unlikely, MMS goes on, throughout the DEIS to assert the virtually complete lack of damage to the environment or to coastal communities from what it repeatedly terms this "unlikely large oil spill." In fact, MMS asserts at one point that "while a large oil spill could cause some adverse effects and a number of potentially significant effects, we do not expect these effects to occur, because it is unlikely that a large oil spill would occur."[14]

This is an arbitrary conclusion based on arbitrary assumptions, misleading to both the public and decision-makers.

It is worth noting, further, that while MMS asserts no essential difference in effects between its Alternative I and Alternative III (Corridor I), oil spill probabilities for the Corridor I alternative are assessed at 0.20-0.49 mean number of spills, with an 18-30% chance of occurrence at the 95% confidence level. This is compared with the mean spill number of 0.32-0.77 and the total spill probability of 27-54% at the 95% confidence level calculated for Alternative I of the DEIS.[15] From the perspective of the AEWC and its members dependent on Chukchi subsistence resources to feed their families, this is a significant difference.

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11 Five-Year DEIS, Table 4.1.e.

12 Lease Sale 193 DEIS, p. IV-3.

13 Id. at p. IV-24.

14 Id. at p. ES-v.

15 See DEIS, Table IV.A-4.

V. Alternative III (Corridor I) Is the Only Rational Alternative Offered by MMS in this DEIS.

Any industrial activity, including seismic operations, that could affect the migration of marine resources, directly or indirectly, through the spring lead system and the Chukchi Polyna cannot be permitted or authorized.[16]

The State of Alaska has instituted limitations on oil and gas activity in the spring lead system, at least around Barrow, and environmental conditions have served as a serious hindrance to any such activity in federal waters during spring breakup. However, with the expansion of oil and gas exploration and leasing in federal waters, and changing ice conditions, federal agencies must recognize the importance of the Chukchi Polynya and the current that runs through it, as well as the Chukchi and Beaufort Sea lead system, to both marine resources and subsistence hunters. **007-005**

As AEWC whaling captains have testified numerous times over the years, the slightest anthropogenic noise made in the vicinity of spring migrating bowhead whales can cause significant changes in migratory behavior. Observations of whaling captains, as well as observations made by scientists during the spring bowhead whale census, provide evidence that a disturbance occurring during the migration can affect whales far upstream of the disturbance. This may result from communication by the whales initially disturbed, that is picked up and sent back along the migratory chain. It is not known at this time whether this same behavior is followed by other migratory marine species.

It is known, however, that in the Chukchi Sea the current running through the Chukchi Polynya is the major spring migratory corridor for all of the important spring marine subsistence species, including bowhead and beluga whales, polar bears, walruses, and seals, as well as important waterfowl. This is why Chukchi coastal subsistence hunters are adamant that industrial activity not be allowed in or near this current, given the potential for interference with this crucial period during the annual subsistence hunting cycle. Legal support for the hunters' position is found in the MMPA's prohibition on adverse impacts to the availability of subsistence resources.

[16] MMPA § 101(a)(5)(A)(i), (D)(i)(II).

Because the Polynya and spring lead system are dynamic, specific boundaries cannot be placed on them. Rather, they must be protected using temporal restrictions, as the State of Alaska has done. In terms of the siting of permanent facilities, MMS, in its Draft EIS for Lease Sale 193 has proposed a 60-mile buffer, based on testimony given in Chukchi coastal villages, the only rational alternative offered in this DEIS. Moreover, because geophysical and other high energy noise can travel great distances and because the period of marine resource migration through the Polynya and lead system is so critical to the communities that depend on those resources, federal standards for the protection of subsistence uses dictate that geophysical activity be prohibited all together during the spring, unless it can be proven that the sound will not travel into and affect the Polynya and lead system.

007-005

VI. The Cumulative Effects Section of the DEIS Includes a Substantial Amount of Text, Including Conclusions, Taken Verbatim from a Significantly More Limited Review and Report; the Section Contains No Analysis of Cumulative Effects, Only a Review of Various Sources of Impacts, with Each Source Reviewed Separately; Important Data Collected by MMS Is Ignored.

A. A substantial amount of text, including conclusions, is taken from a separate, significantly more limited, report.

Large portions of the cumulative effects section of the DEIS, including conclusions, are lifted verbatim from the PEA, a document that was prepared for the 2006 – single season – Chukchi Sea seismic program. The purpose of the current environmental review is to analyze and report on impacts expected from a leasing program opening the Chukchi Sea to oil and gas exploration and production, with attendant industrial development, over an anticipated life of 30 - 40 years. Thus, the conclusions of a review focused on a single action during a single season, while important to consider, are inappropriate for use as conclusions in the current work.

007-006

B. The cumulative effects section contains no analysis of cumulative effects

The scope of the cumulative effects analysis is spelled out in the Council on Environmental Quality's (CEQ) definition of cumulative impacts:

> "Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.[17]

[17] 40 CFR 1508.7

Using this definition, under NEPA, MMS must account for all direct and indirect impacts of leasing operations **in combination with** other actions (including their direct and indirect effects) affecting the Arctic Ocean and its resources and habitat.[18] In this regard, it must be noted that the focus of the cumulative effects analysis is different from that of the typical NEPA analysis for direct and indirect impacts. The typical analysis is focused on the specific activity and the resources affected by that activity. A cumulative effects analysis, however, is focused on the affected environment and resources, and identifies all other projects or activities that may also affect those resources – past, present, or reasonably foreseeable.[19]

Thus, vessel activity in support of onshore oil and gas development, industrial activity in the Canadian Beaufort and Russian waters, arctic research vessels, and commercial shipping operations all must be included in the analysis, in addition to other arctic OCS oil and gas activities. If the climate of the Arctic continues to warm, commercial fisheries operations also may become a factor.

007-006

The starting point for any cumulative effects analysis of industrial operations in the Alaskan Arctic Ocean is the National Research Council's 2003 cumulative effects analysis.[20]

In the DEIS, however, MMS limits its analysis to U.S. interests only, ignoring development activities in the western Canadian Beaufort – where research indicates abandonment of industrialized areas by bowhead whales – and possible offshore activities in Russian waters. MMS also ignores impacts of the Red Dog Mine and the proposed port expansion in that area.
Even more troubling, however, is the fact that the cumulative effects section of the DEIS contains no analysis of potential cumulative effects. In fact, in its conclusion of the bowhead section, MMS states that "looking at each action separately indicates that there should not be a strong adverse effect on this population." (Emphasis supplied.) The purpose of the cumulative effects analysis is not to look at actions separately, but in combination. Again, as stated by CEQ, "the incremental impact of the action when

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[18] 40 CFR 1502.16, 1508.8 (Emphasis supplied).

[19] See Consideration Of Cumulative Impacts In EPA Review of NEPA Documents, U.S. Environmental Protection Agency, Office of Federal Activities (2252A), EPA 315-R-99-002/May 1999. "The cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities affecting that resource no matter what entity (federal, non-federal, or private) is taking the actions."

[20] Ibid.

added to other past, present, and reasonably foreseeable future" actions is the focus of the review. Thus, a cumulative effects analysis must account for all direct and indirect impacts of leasing operations ***in combination with*** other actions (including their direct and indirect effects) affecting the Arctic Ocean and its resources and habitat.[21]

MMS has failed to provide a defensible cumulative effects analysis for this DEIS.

C. MMS ignores its own highly relevant data.

In its discussion of impacts to bowhead whales, MMS states that "there is no indication that human activities (other than historic commercial whaling) have caused long term displacement of bowheads."[22] This assertion may be contrary to data collected by MMS.

For close to 30 years, MMS has conducted aerial overflights and counts of fall migrating bowhead whales in the Beaufort Sea. Data from these overflights, recently analyzed by MMS, show an apparent abandonment of a large area near Prudhoe Bay by bowhead whales. Acoustic studies at the nearby Northstar sight indicate that the whales continue to migrate through the area, but these whales are rarely seen during MMS's aerial surveys. The whales also cannot be found by subsistence hunters for taking for subsistence use, despite the fact that, prior to development, the area was used for that purpose.[23]

007-007

Studies of ringed seals indicate that a similar abandonment of the area may be occurring with these marine mammals.

Subsistence hunters believe that the change in bowhead whale behavior in this area is due to vibrations from Prudhoe Bay and other nearby operations extending into the seabed. If this is the case, similar long term impacts should be expected around offshore production operations.

MMS's aerial survey findings must be investigated to determine whether in fact vibrations that could be creating low frequency sound waves are occurring, or whether the phenomenon is due to some other cause. Whatever cause is identified, this is a critical situation demanding the development of mitigation measures before further industrialization takes place in the arctic OCS. It is possible that engineering techniques might be used to dampen vibrations if that is found to be the cause.

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21 40 CFR 1502.16, 1508.8 (Emphasis supplied).

22 DEIS, p. V-35.

23 Thomas Napageak, Maggie Ahmaogak, pers.com.

The one certainty for MMS is that the data were collected by MMS, thus, ignoring the data is not an option.

CONCLUSION

Despite the opposition of our community to offshore oil and gas development in the ocean that we use to feed our families, it is abundantly clear that the federal government intends to proceed with industrial development in our waters. What is most disturbing to us is that the federal government appears intent on ignoring the potentially devastating consequences of its actions to our communities.

MMS Responses to Alaska Eskimo Whaling Commission Comments

AEWC 007-001

We believe the EIS fully meets NEPA requirements. The MMS acknowledges that certain value judgments are used for the analyses, and that some qualitative language can be unclear if not explained in detail. One example of this is found in reference to oil-spill probabilities. As a result of AEWC's comments, the MMS has reworded and better defined the use of the oil-spill-probability numbers. The AEWC specifically refers to terms such as "unlikely" used by MMS when describing oil-spill probabilities. These terms have been removed and replaced with the actual percentages associated with oil-spill probabilities. See also the response to comment **Anchorage 005-004**.

AEWC 007-002

Although the Chukchi petroleum province could hold large quantities of oil and gas, exploration efforts to date have not discovered commercially sized oil pools. Additional exploration is needed, and this is the focus of recent industry activities in this area (seismic surveys). From a global perspective, there are many attractive (high petroleum potential) areas that have not been developed due to the lack of exploration effort, technical challenges, distance to market, and regulatory restrictions. It is not guaranteed that oil or gas will ever come from many of these frontier provinces. In mature petroleum provinces such as the Gulf of Mexico or the North Sea, commercial success rates could be higher than 50% during the later stages of exploration. Success rates are defined by the number of discoveries per number of exploration wells drilled. However, in untested frontier areas where the many formidable challenges have not been overcome, success rates typically are much lower. We cannot precisely define a future success rate but, based on previous experience, 10% is a reasonable estimate at this early stage of exploration. So why have a lease sale? Several companies are willing to spend considerable amounts of money, facing high investment risk and low possible success rates, because of the high potential returns if their exploration effort is successful. One mandated obligation of MMS under the OCS Lands Act is to facilitate the timely exploration and development of offshore areas (such as the Chukchi Sea) to meet the future energy needs of the Nation. It is not our role to make business decisions on where or when to explore for new oil and gas resources, but rather to maintain a regulatory regime in which industry can make such decisions in an environmentally safe way.

AEWC 007-003

Investments by the oil industry are influenced partly by commodity prices. However, oil and gas prices are volatile. In mid-2006, oil prices approached $80 per barrel and apparently were headed much higher. In late 2006 and early 2007, oil prices dropped to near $50 per barrel and could go lower. This represents a significant change in only a few months. Industry is aware of price cycles and plans its activities according to the timeframe of the activity. For example, leasing might be more influenced by current prices, but development projects that could last decades are based on decades-long price averages. The average price for North Slope crude oil over the last decade is less than $30 per barrel, and this dampens the enthusiasm for expensive operations (the cost of a single exploration well could be $50 million or more).

We do not believe that an "intense industry interest" is eminent and driven by continually rising oil prices. In fact, the leasing and exploration efforts both onshore and offshore in northern Alaska are not correlated to price levels. During low oil prices in the late 1980's, exploration activities were far higher than seen in the last decade when prices were much higher. Industry has drilled only three exploration wells in the Beaufort in the last 10 years, during which time oil prices have tripled. We acknowledge that industry interest in leasing, not necessarily exploration, has increased in the last few years. However, only a few companies are involved. This is not an industrywide trend. We have no insight into the corporate decisions of different companies who chose to become active in Alaska at this time.

Leasing is just the first step in the process leading to production, and there is no guarantee that development will occur in this area. However, there are no serious environmental threats associated with the leasing

process itself. The Federal Government receives far more money in the form of bonus bids for leases and tract rentals than it spends preparing NEPA documents, and lease sales clear the way for possible future exploration and development activities. It is the statutory responsibility of MMS to conduct lease sales to expedite the timely exploration and development of Federal offshore lands.

AEWC 007-004

The 2002-2007 5-Year Program final EIS oil-spill estimates used Anderson and LaBelle (2000) as the spill rate basis for the estimates. Since that time the MMS, Alaska OCS Region has moved to a fault-tree method. Both Anderson and LaBelle (2000) and the Bercha fault tree methods have been reviewed by the North Slope Science Advisory Committee (NSBSAC). Based on the recommendations of the NSBSAC the MMS, Alaska OCS Region has continued to use the fault-tree method and have endeavored to make improvements based on the recommendations of the NSBSAC. This is the principal cause of the discrepancy between the 2002-2007 5-Year Program final EIS oil-spill estimates and the Sale 193 draft EIS oil-spill estimates.

The text in Section IV.A 4 has been revised to clarify that 0.33-0.51 is the estimated range of the mean number of spills for Alternative I, III, or IV over the lifetime of production and is not the percent chance of one or more large spills occurring.

The estimated 0.32-0.77 spills are the estimated number of spills using a spill rate of 0.32-0.77 spills per billion barrels at the 95% confidence interval for Alternative I. The estimated chance of one or more spills using the spill rate at the 95% confidence interval is 27-54% at the 95% confidence interval for Alternative I. The detailed results for each of the Alternatives are discussed in Appendix A.1, Section D.1.d.

See also response to comment **NSB 006-084**

AEWC 007-005

The MMS acknowledges that the 60-mile buffer would afford the greatest protection to subsistence resources, and this is why the Corridor I Deferral is analyzed in the EIS. Permitted seismic activity cannot begin until July 1, and MMS does not expect that this start-up date will change substantially.

AEWC 007-006

Comment 007-006a indicates that much of the analysis was taken verbatim from a more limited document, the recently-completed PEA for seismic surveys in 2006. That document analyzed the effect of several surveys conducted over a single year. Furthermore, PEA information represents the most recent and best available information on the effects of seismic surveys on resources in the Chukchi OCS and Beaufort Sea OCS Planning Areas.

The scenario in Table IV.A-2a indicates reasonably foreseeable seismic-survey activity peaking in 2008 and declining until ceasing in 2016. Many of these surveys will be high-resolution site-clearance surveys conducted as ancillary activities resulting from the Proposed Action (lease sale), which cover a much smaller area than high-energy geological and geophysical (G&G) surveys. Effects of the site-clearance surveys are analyzed as part of the Proposed Action in Section IV. The balance is high-energy G&G surveys. Many of these also are examined in Section IV, leaving very few to be analyzed as part of the cumulative effects in Section V. As such, incorporation of the information from the PEA is appropriate as it represents a number of surveys conducted over a short period of time.

Comment **AEWC 007-006b** asserts that we have not examined cumulative impacts from several sources. We disagree with this characterization. Oil and gas development is the largest reasonably foreseeable activity to occur in the area, and this activity dominates discussion of cumulative effects. We have thoroughly documented past, present, and reasonably foreseeable oil and gas activities in Tables V-1 through V-7, to examine the totality of potential oil and gas development on the resources of the area.

Furthermore, we have conducted reviews of various actions in the Canadian and Russian Arctic oceans to determine which activities are reasonably foreseeable. Individual resource sections of the cumulative analysis address the oil and gas projects and other activities that occur in the same location and time when they could contribute to cumulative effects. For example, the effects of Red Dog Mine and port expansion is discussed in the cumulative effects Section V.C.12, Subsistence-Harvest Resources. Similarly, activities analyzed for effects to bowhead whales include historic commercial whaling, subsistence hunting, activities related to offshore oil and gas developments, commercial-fishing and marine-vessel traffic, climate change, research activities, and pollution and contaminants. Activities considered for polar bears include human harvest in Canada and Russia, oil and fuel spills from oil and gas operations in Canada and other locations, climate change, and increased shipping.

AEWC 007-007

The commenter has indicated a sincere concern and tied together a number of qualitative observations that support that concern. The MMS recognizes that there are weaknesses in the BWASP data as well as in other specific information and data elements that would be needed to conduct a rigorous investigation of your concern. To address such weaknesses, MMS continues to conduct studies to gather new data. We also are encouraged that whales continue to migrate through the area in question, in spite of the aerial observers being unsuccessful in finding them during the narrow timeframe in which they have been conducting surveys. We are now aware of your concern and will keep it in mind when proposing new study efforts.

AEWC 007-008

The MMS believes that the Conflict Avoidance Agreement protocols together with its analytical approach, its inplace mitigation, and its bottom-line conclusions concerning effects for subsistence resources, sociocultural systems, and environmental justice are valid.

See also responses to comments **NSB 006-025** and **NAEC 001-010**.

AEWC 007-009

The EIS does examine a reasonable range of alternatives derived from those alternatives identified during the public ongoing scoping process. These alternatives are described in the scoping report, which can be found at http://www.mms.gov/alaska/cproject/Chukchi193/Scoping%20ReportLS193.pdf, and are listed in the EIS, including the reasons that they were considered but not analyzed, in Section II.B.2, Alternatives Considered but Not Analyzed. In general we analyzed these areas but did not carry them forward because: (1) some of the areas were already deferred in the 5-Year Program, such as the coastal waters used by beluga; (2) some of the alternatives did not identify specific areas or identified areas outside of the Sale 193 program areas; and, (3) many of the deferrals identified during scoping were based on protecting a single resource, such as walrus, bowhead whale, or critical habitat for Steller's eiders. These areas were mapped and incorporated into Alternative III and Alternative IV. Combining these alternatives resulted in a more comprehensive ecosystem-level approach to the analysis and recognized the interconnectedness of the resources of the Chukchi Sea.

We disagree with the claim that it is impossible for MMS to honestly evaluate the consequences of the Proposed Action and the effectiveness of mitigation. As part of the preparation of the EIS, MMS analysts undertake extensive data gathering. For example, prior to the start of EIS preparation, MMS held the Chukchi Sea Science Update meeting during which recognized experts made a number of presentations to MMS staff on the biological, physical, and social resources of the Chukchi Sea area. Where there is a paucity of information, we inform the reader of that fact and the relevance of the information to evaluating potential effects of the Proposed Action and alternatives. Lack of complete information does not mean that analysis is not done. Recognizing the limits on analysis imposed by the absent information, analysts summarize existing credible and relevant information and evaluate effects based on theoretical approaches or research methods generally accepted in the scientific community.

The MMS Environmental Studies Program continues to undertake studies that provide information on the Chukchi Sea, Beaufort Sea, and Arctic Ocean. Please see the Alaska OCS Region website for further details, http://www.mms.gov/alaska/ess/essp/sp.htm.

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WALES
WHITE MOUNTAIN

December 15, 2006

Document 008

John Goll, Regional Director
Alaska OCS Region
Mineral Management Services
3801 Centerpoint Drive, Suite 500
Anchorage, AK 99503-5820

Dear John:

The Eskimo Walrus Commission (EWC) at Kawerak, Inc. in Nome was formed in 1978. It is represented by 19 walrus hunting coastal communities in Alaska and is a recognized statewide entity working on resource co-management issues, specifically the Pacific walrus, on behalf of Alaskan coastal Yup'ik, St. Lawrence Island Yupik, and Inupiaq communities who rely on it as an essential cultural, natural, and subsistence resource. The EWC works cooperatively with the U.S. Fish and Wildlife Service (FWS) to encourage subsistence hunters' participation in conserving and managing walrus in the coastal communities.

In June 2006, the EWC passed Resolution 06-01 objecting to the proposed seismic testing and offshore drilling in the Beaufort and Chukchi Seas. The EWC continues to express concerns regarding potential detrimental long-term impacts of development in waters critical to Pacific walrus and coastal subsistence walrus hunting communities. We therefore provide the following comments with respect to Chukchi Sea Planning Area, Oil and Gas Lease Sale 193 and Seismic Surveying Activities in the Chukchi Sea, Draft Environmental Impact Statement. Firstly, and most importantly:

a. The EWC only supports Alternative II (no lease sale) and Seismic Survey Mitigation Alternative 1 (no seismic-survey permits) as the other proposed alternatives may result in significant impacts to walrus and subsistence hunting communities. We encourage the MMS to cancel the proposed lease sale and not to support seismic exploration in this region.

b. The EWC endorses the comments of our co-management partner the U.S. Fish and Wildlife Service, with respect to their concerns about disturbance and impacts to the Pacific walrus population.

c. The EWC believes that there has been inadequate official consultation with organizations such as ours in the production of this EIS.

Although the EWC's position is not to support oil and gas exploration, development, or seismic activities in the Chukchi Sea lease sale area, we are also concerned with the preparation and content of the EIS. We feel that the preparation did not involve significant consultation with communities that stand to be impacted from activities related to this EIS, and the content of the EIS is neither sufficient, nor precautionary in its approach when considering development activities. These activities could lead to profound impacts to communities both in and outside of

the lease area, as well as the resources on which they rely for cultural and economic sustenance. In this respect, we have identified the following additional key concerns:

1. Walrus and many of the other fauna of the lease region are migratory in nature. The EIS fails to incorporate potential impacts to communities other than those in the lease area. The EIS should have considered potential impacts to all communities reliant on walrus and particularly Diomede, Shishmaref, Gambell, and Savoonga where walrus represent a significant proportion of the community's subsistence harvest. Similar patterns of impact are likely for other marine mammals such as seals and whale. Any impacts to walrus and other marine mammals will be felt by coastal communities both in *and* outside the lease area. **008-001**

2. Walrus and many of the other fauna of the lease region are regarded as a shared resource with Chukotka. Walrus and polar bears in particular have brought together communities, researchers, and agencies in efforts to share in activities designed to sustain these species and their role in the health and cultural wellbeing of the region's communities. Based on the shared responsibility to protect walrus that we are committed with our co-management partner, the U.S. Fish and Wildlife Service, we feel that the EIS is remiss in its lack of consideration of Chukotkan needs and concerns. This is particularly important because: **008-002**

    a. There has been a profound increase in the need for subsistence in Chukotka communities since the collapse of the Soviet regime, and

    b. The lack of consideration in this EIS for bilateral partnerships that are being formed between Chukotka and Alaska through bonds of culture, heritage, and concerns for shared resources is not conducive to helping these necessary bonds of trust continue to grow.

3. Walrus and many of the other fauna of the lease region are regarded as particularly vulnerable to climate change. In particular, pagolithic marine mammals such as walrus may be particularly susceptible to impacts from loss of ice. One likely scenario if sea ice continues to retreat past the continental shelf north of Alaska is that walrus will spend more time on land. In this respect, the beaches between Point Hope and Barrow may become much more important for walrus than at present. The increased use of this region by walrus in recent years is alluded to in the EIS and from our hunters. However, the EIS does not fully consider this scenario, despite the clear indications that walrus are already being impacted as a consequence of the extreme retreats of summer sea-ice extent. **008-003**

4. The EIS should better consider the multiple potential cumulative impacts of climate change and oil and gas activities in a region where climate is clearly having such a dramatic impact. Furthermore, the Cumulative Effects analysis (Section V) does not specifically cover impacts to walrus in a manner that fully contemplates changing habitat use. This is a major omission, especially given the significance of walrus to our local communities and requirements of the Marine Mammal Protection Act. **008-004**

5. The documentation of the Traditional Ecological Knowledge (TEK) on walrus is limited, incomplete or non-existent in communities located in the Chukchi and Beaufort Seas. This baseline TEK information has been overlooked and not included in the draft EIS studies. However, TEK is critical and necessary as it is an invaluable record of **008-005**

communities' views, practices, and perspectives on their knowledge of walrus and its environment.

6. The EWC does not believe that the Mitigation Plans are adequate. Fundamentally, without knowing the health of the walrus population, as is currently the case, Alaskan Natives and the communities they reside in could lose an essential economic and cultural resource, including the ability to continue successful hunts due to development impacts. The MMS proposes to mitigate this through several avenues. We offer the following as critiques of these measures: **008-006**

    a. The site-specific monitoring review period of 30 days is too brief and the pressure to comment is financially and logistically burdensome to an organization, such as EWC, which has limited staff.

    b. The draft EIS is too dependent on industry data gathering. More independent monitoring should be required to determine the full impact of development activities.

7. The EIS frequently indicates that there is little information on the impacts of noise and disturbance to walrus. However, MMS then suggests altitude restrictions and vessel limits to terrestrial walrus haulouts that are not precautionary, particularly based on their lack of data. For example, we believe the 1000 feet flight restriction is inconsistently low considering other restrictions for walrus in Alaska: **008-007**

    a. The U.S. Federal Aviation Administration (FAA) offers guidelines for "*Fixed wing aircraft to remain at altitudes greater than 2,000 feet above ground level (AGL) within ½ mile of Cape Seniavin. Helicopters remain at altitudes greater than 5,000 feet AGL within one nautical mile of the Cape.*"

    b. The Alaska Department of Fish and Game (ADF&G) in its 2005 suggestions for aircraft operations around the Walrus Islands State Game Sanctuary offers: "*Since low-flying aircraft can cause major disturbances to walrus haulouts...ADF&G requested all pilots to avoid flights below 5,000 ft Above Ground Level (AGL) within three miles of the island.*"

8. The Executive Summary (ES-iv) indicates that there is an "unlikely event" of a large oil spill (greater than or equal to 1,000 bbl). However, the chance of it happening is reported to be within the range of 33-51%. The EWC does not regard a 51% chance as particularly "unlikely." **008-008**

9. The Executive Summary (ES-iv) reports that if tidal and subtidal sediments were contaminated from a spill, that populations of lower-trophic level organisms could be "depressed for about a year, and small amounts of oil would persist in the habitat for a decade." Experience in Prince William Sound suggests otherwise, and in the colder Chukchi environment, impacts may persist substantially longer than the sub-Arctic Prince William Sound. Oil from the 1989 Exxon Valdez accident still persists in intertidal and shallow sub-tidal sediments 17 years later and several species are still unrecovered. Walrus rely on benthic fauna and several areas in the Chukchi are known to be particularly productive. Potential impacts to these critical food resources for walrus are clearly not well understood or considered adequately in this document. **008-009**

10. The Executive Summary (ES-v) indicates that the "sociocultural systems of Alaskan Native villages should not be affected in the unlikely event of a large spill." Recognizing the profound importance of subsistence to many coastal communities, and the potential impacts that could realistically impact walrus, we do not support MMS's statement and believe that it grossly underestimates how critical subsistence resources such as walrus are to communities in the Bering, Chukchi, and Beaufort seas. **008-010**

11. The EIS is generally lacking in its consideration of the inability for anyone to respond effectively to an oil spill in this region, and particularly if ice is present. With the regions extensive currents, the potential for spilled oil to be transported over large areas, including over international boundaries is a very realistic scenario. **008-011**

Thank you for considering our comments and suggestion for cancelling this lease sale and associated seismic exploration.

Sincerely,
KAWERAK, Inc.

Vera Metcalf

Vera Metcalf, Program Director
Eskimo Walrus Commission

Enclosure: Resolution 06-01

cc: Charles D.N. Brower, Chair, Eskimo Walrus Commission
John Trent, Supervisory Biologist, USFWS
file

Eskimo Walrus Commission

Resolution 06-01

WHEREAS, the Eskimo Walrus Commission was formed in 1978 with representation of 19 walrus hunting communities throughout the Northern, Northwestern and Western Alaska coastal communities; and

WHEREAS, the indigenous peoples of the coastal communities of Alaska have utilized marine mammals for thousands of years; and

WHEREAS, marine mammals seasonally migrate or continuously reside throughout the coastal areas of Alaska; and

WHEREAS, the lands, waters and wildlife of the coastal areas are particularly vulnerable to environmental impacts; and

WHEREAS, the US Department of Interior Minerals Management Service notified the Eskimo Walrus Commission and coastal communities regarding proposed seismic testing and the upcoming lease agreement period for possible offshore drilling in the Beaufort and Chukchi Seas; and

WHEREAS, the proposed sites of seismic testing and possible offshore leasing has been identified for the coastal areas during the migration of marine mammals which could have an adverse impact; and

WHEREAS, seismic testing or offshore drilling could harm the subsistence way of life of the Native peoples who live along the coastal areas of Alaska; and

NOW THEREFORE BE IT RESOLVED THAT the Eskimo Walrus Commission objects to the proposed seismic testing and opposes offshore drilling in the Beaufort & Chukchi Seas of Alaska that marine mammals migrate or live.

BE IT FURTHER RESOLVED that the Eskimo Walrus Commission urges the U.S. Fish & Wildlife and State of Alaska to closely monitor the proposed seismic testing and offshore drilling proposals to ensure it does not occur where marine mammals migrate and/or live.

ATTEST: Charles D. Brower

Charles D. Brower, Chairman

MMS Responses to Eskimo Walrus Commission Comments

EWC 008-001

The MMS acknowledges the migratory nature of many of the marine mammal species in the Sale 193 area but, based on our analysis of the available information, believes that oil and noise disturbance effects on these species would not produce impacts on the whale, walrus, and seal hunts in Diomede, Shishmaref, Gambell, and Savoonga. The subsistence impacts section evaluates oil-spill impacts for Kotzebue and vicinity communities, Shishmaref, Wales, and the Russian Arctic Chukchi Sea coastal communities. Oil spills are not modeled or analyzed for the Bering Sea communities of Gambell and Savoonga.

EWC 008-002

The commenter is directed to Section III.C.3.c(3)(h), Russian Northern Chukchi Sea Coastal Communities, where all of these concerns are discussed in detail.

EWC 008-003

The commenter is referred to Section V.C.8.b and III.B.6.a(5) for a discussion of the effects of climate change on marine mammals and the importance of terrestrial haulouts to walruses.

EWC 008-004

The commenter is referred to Section IV.C.8.b and III.B.6.a(5) for a discussion of the effects of climate change on marine mammals and the recent changes in habitat use by walruses. Section IV.C.1.h discusses the potential impacts to walruses from oil and gas activities in the Chukchi Sea.

EWC 008-005

We agree that Traditional Ecological Knowledge (TEK) for walruses would be a rich source of additional information in the Chukchi Sea region slated for leasing activity. While MMS conducts research, hearings, and other face-to-face meetings that document TEK, TEK sources on walruses are scant in the available literature and public testimony and remain difficult to find. The traditional and local knowledge gathered and considered in the EIS analysis represents the best information that has been gathered to date. More will be gathered in the future and will help inform future environmental assessments and decisionmaking.

EWC 008-006

The MMS believes that our required mitigation measures are adequate and appropriate for the decisions to be made at this leasing stage. Additional site- and proposal-specific mitigation measures are identified and become requirements during review and decisions on specific activities proposed by lessees and operators. In addition, mitigation measures are developed through consultation and coordination with other Federal and State agencies such as NMFS, FWS, and the State Historic Preservation Office.

We assume that the “site -specific monitoring review period of 30 days” in the comment is in reference to review of Exploration Plans. MMS acknowledges that this is a short time within which to review an EP and supporting information, which are by nature technical and detailed documents. However, by law, MMS has 30 days in which to approve, disapprove, or require modification of the EP and past experience has shown that 30 days is adequate.

The EIS descriptions and analyses use the best available information. In many instances, the only information is that gathered by industry or their contractors. Further, the MMS Environmental Studies Program provides the solid scientific information needed for critical program decisions that must, by law,

accommodate the delicate balance between the protection of the human, marine, and coastal environments and the Nation's exploration, development, and production of petroleum energy resources and other marine minerals and energy-related alternate uses. Environmental studies are designed to address specific information needs concerning the environmental and socioeconomic state of a region, both before and after OCS activity. Studies provide the information necessary to develop measures to mitigate adverse impacts on the environment.

The OCS Lands Act requires the Secretary of the Interior to monitor the human, marine, and coastal environments of areas to be leased or developed for offshore oil and gas resources. The MMS continually pursues strategies to enhance the planning, development, and implementation of environmental monitoring efforts – both as a means to evaluate the effectiveness of OCS lease stipulations and other environmental mitigation measures, and for research on what additional monitoring may be needed.

EWC 008-007

The MMS agrees with the comment. Determining a specific height at which Pacific walruses will not react to overflights is difficult. Aircraft occasionally cause extreme reactions; however, the variability of walruses response is large and unpredictable (Kruse, 1997). Pacific walruses react differently on icefloes than on terrestrial haulouts, and the level of disturbance depends on the type of aircraft, speed, and direction of the aircraft; the number and age of walruses present; surrounding ambient noise from wind or wave action; and other factors. The MMS in consultation with FWS has reevaluated this issue and determined that 1,500-ft AGL or ASL (above sea level or above ground level) and 0.5-miles lateral distance is an adequate buffer in most cases when walruses are hauled out on ice (Efroymson and Suter, 2001). This mitigation measure also will ensure that the altitude restrictions for aircraft flying over walrus haulout areas are consistent with those for cetaceans and marine birds, which will make it easier for pilots to comply with all flight-restriction mitigation measures. Section II.B.3 has been updated accordingly.

EWC 008-008

The MMS has reworded the section of the Executive Summary pertaining to large oil spills and has removed the qualitative language associated with the oil spill probabilities.

EWC 008-009

Determining oil-spill effects on walrus prey species is difficult. Clam-patch size and density are highly variable, and such information for high-latitude mollusks is sparse and highly variable (Ray et al., 2006). Walrus feeding may deplete areas of prey quickly and alter community composition (Ray et al., 2006). The large mollusks that walruses feed on are mostly slow-growing species and, thus, vulnerable to overexploitation or other disruptions (e.g., oil spills) to their populations (Ray et al., 2006). Recovery from any disruption would be slow in the cold, seasonally ice-covered Chukchi Sea (Oliver et al., 1985). For example, populations of amphipods (another benthic invertebrate) off the coast of France were reduced by 99.3% following the *Amoco Cadiz* oil spill in 1978 (~70 million gallons). Ten years after the spill, amphipod populations had recovered to only 39% of their original maximum densities (Dauvin, 1989, as cited in Highsmith and Coyle, 1992).

EWC 008-010

In the event that a large oil spill occurred and contaminated essential whaling areas, major additive significant effects could occur when impacts from contamination of the shoreline, tainting concerns, cleanup disturbance, and disruption of subsistence practices are factored together. Oil-spill response, although required and rigorously reviewed, remains an unproven technology under many Arctic conditions. For a discussion of this issue as it relates to subsistence resources and practices, see Section IV.C.1.l(3), Effectiveness of Mitigation Measures.

The Executive Summary has been changed to adopt the language quoted by the commenter on page IV-340 that states: "Disruption of subsistence-harvest resources, such as that created by a large oil spill, would have predictable and significant consequences and would affect all aspects of sociocultural resources—social organization, cultural values, and institutional organization" (Luton, 1985).

See also responses to comments for **Barrow 003-022**, **Barrow 003-029**, **Barrow 003-030**, and **NSB 006-009**.

EWC 008-011

There are viable oil-spill response options for open-water and broken-ice conditions. Oil-spill-removal organizations located on the North Slope and in Cook Inlet have developed oil-spill-recovery equipment inventories and response tactics capable of cleaning up oil in those arduous and challenging conditions. These tactics and equipment would be used in creating a response organization for Chukchi-based drilling operations. Nonmechanical methods such as in situ burning also have been shown to effectively reduce the amount of oil in the environment. There also is ongoing research both nationally and internationally aimed at improving response options in the arctic environment.

Document 009

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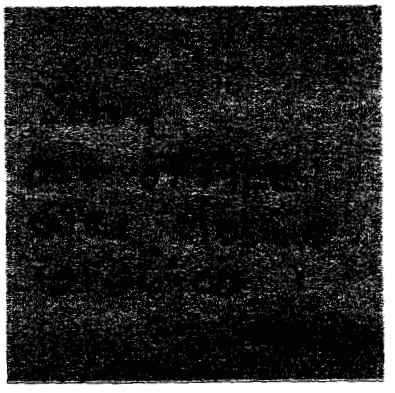
U. S. Outer Continental Shelf (OCS)
Minerals Management Service
AOCS Chukchi Sea Planning Area O&G Lease Sale 193
and Seismic Surveying Activities Draft EIS

COMMENTS
Submitted by:

Ukpeagvik Inupiat Corporation
Barrow, Alaska
December 23, 2006



Ms. Renee Orr
Minerals Management Service
Room 3120
381 Elden Street
Herndon, Virginia 20170

Re: Submitted via Public Online Commenting System
http://ocsconnect.mms.gov

Dear Ms. Orr;

The Ukpeagvik Inupiat Corporation (UIC) was incorporated in 1973 as the for profit ANCSA village corporation for the native village of Barrow, Alaska.

UIC is supportive of responsible oil and gas exploration and development on Alaska's north slope, namely, within the NPRA, the Foothills, and we also promote opening of ANWR. However, with respect to the proposed sale of leases and subsequent exploration and development of offshore areas in the Chukchi Sea, we are opposed.

The MMS has performed responsibly in prior similar actions, but in this instance, there is a tremendous gap of information and inconsistency in the DEIS issued for comment. There is a vital need for science to be conducted before we can be assured that private industry can enter into this hostile, frontier and extremely precious bio-productive area that is our lifeblood. Indeed, the arctic ocean serves not only Inupiat, but many, many others aside from just us.

The Inupiat people have relied on the arctic seas for their sustenance for millennium, and our culture is derived of whaling and living as one with our environment. The projected forty percent likelihood of oil spill disasters in our oceans is not an acceptable risk that we will tolerate. Your planning is insufficient, and therefore we object. We recommend further public consultation.

The Alaska Eskimo Whaling Commission and the North Slope Borough have already consulted with and cautioned the MMS about the deficiencies in your current planning efforts. UIC concurs with the advice and comments that those two entities have consistently provided to the MMS during Open Water conferences.

In April, 2006. UIC submitted comments regarding the MMS 5 year leasing plan. If our comments were reviewed, it is not reflective in the proposed sale 193 DEIS. As stated in those comments, we reiterate:

"UIC remains open to cooperative interaction with all stakeholders with an interest in progressive, responsible, prudent, and protective development of non-renewable resources, and like utilization of the arctic's special life sustaining renewable resources."

Attached, please find specific comments and directed questions that need to be answered.

Respectfully,

, LAND Chief for

UKPEAGVIK INUPIAT CORPORATION
Max E. Ahgeak, President & CEO

cc: distribution

Comments to the AOCS Chukchi Sea Planning Area O&G Lease Sale 193 and Seismic Surveying Activities Draft EIS

Specific Comments: in Table

General comments:

Several times throughout the document, it mentions that a more detailed version exists in a previous EIS, or document. Should this not be a stand-alone report, which includes all information needed to make accurate comments. Not all readers have access to multiple years of MMS documentation. In addition, there is mention of the Programmatic Environmental Assessment (PEA), with the web site listed, but no example references made from it. It would be great if some example notes were pulled from, that document to supplement this DEIS.

Many statements are misleading throughout the document, and do not refer to any scientific evidence. For example, the document mentioned there are many unknowns about a specific effect; however, in the next sentence it will state that impacts would be considered unlikely. There is often no evidence or supporting documentation to back it up. This also misleads the reader into thinking that impacts are minimal, when MMS really cannot validate the potential impact.

Many citations are old, 1980's or early 1990's. It seems as though more recent information exists, but is not being utilized.

A recent study proves that underwater noise at low frequencies breaks the water surface. This should be referenced in the Draft.

Nikbin Darius. 2006. Underwater sound breaks the surface. Physics Web A community website from the Institute of Physics Publishing. October, 2006. http://physicsweb.org/articles/news/10/10/14/1

Godin, Oleg. A. 2006. Anomalous Transparency of Water-Air Interface for Low-Frequency Sound. The American Physics Society. October, 2006. http://scitation.aip.org/getabs/servlet/GetabsServlet?prog=normal&id=PRLTAO00009700001616430100000 1&idtype=cvips&gifs=yes

MMS makes many references throughout the DEIS that no documentation exists to relate specific activities to a potential impact. Therefore, they often conclude that such activities do not have an impact on potentially affected resources (i.e. no documentation equals no impact). The fact that there is no documentation does not equal no impact, but indicates that more research is necessary to define those impacts. This lack of clarity confuses the reader, and is misleading.

Appendix A.1-2a, b, c, and d maps detail is poor. Maps are an easy and creative way to get a great deal of information across to the reader that is straightforward and necessary. The maps are lacking many details that could help the reader identify where important areas are in relation to the oil spills and breeding bird colonies noted in the text of this document. For example, Cape Lisburne, and Cape Thompson are not listed on the map, however, they are mentioned frequently in the report. The breeding bird colonies, Maritime National Wildlife Refuge, nor NPRA are listed. Other topics that should be added to the maps include known feeding and molting areas. These three very important details tell the reader what important species-specific habitats are where in relation to the ERA's. The scale is inconsistent for all the maps.

009-001

- On Map A.1-2a, ERA 36, 47, and 65 are missing.

009-002

- On Map A.1-2d, the Spectacled Eider Critical Habitat should be highlighted. It is one of the most important features on this map, and should be identified as such. The area labeled 74, but it does not appear in the legend.

009-003

Anthropogenic food appears to have subsidized raven and glaucous gull populations at several Arctic sites. Nest sites on infrastructure also encourage nesting by ravens. As population numbers have increased, common ravens have become predators to tundra-nesting birds on the Arctic coastal plain (USDOI 2004). A section should be included on common ravens increasing in population with increased oil infrastructure, and how they may impact ground nesting birds, with the development of onshore oil facilities and pipelines.

009-004

The Common Raven should be included in section III.B.5 and in section IV C.1.g since this species has the potential to increase its population due to anthropogenic use the North Slope of Alaska. Ravens depredate eggs and young of many if not all tundra nesting birds. Ravens have the capability of reaching offshore facilities such as the Northstar facility to nest, breed, and rear young. It needs to be noted that a pair of ravens have nested on the Northstar facility. Therefore, offshore development may potentially increase raven access to areas (breeding colonies on barrier islands) not previously affected by ravens before. This could be detrimental to many species.

009-005

Lower trophic level organisms are at the bottom of the food chain, and area source of food for many species. This document minimizes the impact to this group of animals, when very little is known in the sale area.

Essential Fish Habitat should be discussed and mapped.

009-006

Global warming - As global warming becomes more of an issue, impacts from loss of habitat will also magnify potential oil exploration and development. Polar bear have been recently documented drowning due to exhaustion from swimming increased distances to get to sea ice. This should be included as a cumulative impact that will increase over time.

009-007

Appendix B Threatened and Endangered Species in Volume 2 is not included in the Table of Contents at the beginning of Volume 2. The Threatened and Endangered Species section is a very important piece of information when identifying potential impacts from the lease sale. The location of this section needs to be apparent to the reader.

009-008

A beneficial addition to this document could include a short description of the equipment to be used, and the methodology of the seismic activity. This could be located in the introduction of the document. If the reader did not have any previous knowledge of seismic procedures, they would be very confused as to how the seismic array looks like, how it works, how far part transects are etc. what are the maximum number of airguns used, how long do the airguns extend down the cable, the duration of the seismic survey, etc.

009-009

Document Title: Comment for MMS Seismic Plan for Chukchi Lease Sale 193			
Date: December 22, 2006			
Item #	Page # Table # Figure # Specific Paragraph	**Comments**	
	IV pg 64 par 1	To mention that because "die offs" of invertebrates were not seen during recent seismic observations, does not mean that there weren't any impacts to invertebrates. This would be hard to observe. Marine mammals (seals) may have scavenged any remains. And Marine Mammal Observers are not looking for this they are primarily focused on marine mammals, and the boat is moving away from the area impacted, anything killed would be behind the boat.	009-010
	IV 65 par 2	Line 13, needs a citation of what work has been done to prove that no gross evident of effects of the discharges on benthos or marine mammals.	009-011
	IV 66 par 5	MMS could require seafloor surveys - Seafloor surveys must be completed before any installation of platforms.	009-012
	IV pg 67 par 1	Numerous buried pipelines radiating out would disturb a large area and all invertebrate habitat recolonization for > 10 years. Cite this. How does MMS know this?	009-013
	III pg 28 par 3	The Chukchi is known to be highly diverse and patchy. These patches should be identified to prevent any potential impacts. Several rare fish species were noted by biologists to occur in the lease sale area. It would be hard to assess the impacts if no knowledge of the area exists. It was stated that no research has been collected on pelagic life stages or species, only demersal fish. I would recommend that fish baseline studies occur to set the stage for monitoring long-term trends and impacts from offshore development.	009-014
	III pg 28 par 5	No fish studies have occurred in the last 20-30 years in the Chukchi. Baseline studies should be completed to identify abundance, distribution, population and habitat use of fish before any further seismic activities occur offshore	009-015
	IV pg74 par 1	Good to explain how important hearing is to fish – communication, courtship, mating etc...	009-016
	IV pg74 par 4	The airgun noise startles the fish, they fall out of rank, grouping tighter. Is this true for all species of fish, or do some react differently? Does the strength of underwater frequency affect the mortality of certain species of fish over other species? If guns are continually going off every 5 seconds, when will the fish get their hearing back, and when will the school reestablish itself? There seems to be many unknowns and baseline research needs to be completed initially before seismic activity should occur.	009-017
	IV pg 75 par 2 &3	Why the discussion of squid in the fish resources section. Should this not be in the lower trophic level section? ***Seismic*** surveys blamed for giant squid deaths. By: MacKenzie, Debora. New Scientist, 10/2/2004, Vol. 184 Issue 2467 should be cited here.	009-018
	IV pg 76 par 2	How would you identify fish presence before ramping up?	009-019
	IV pg 77 par 5	Last sentence needs a citation – Adverse effects to the migration....	009-020
	IV pg 78 par 3	Second last sentence and last sentence needs a citation. – However vessel noise is expected.... As much as several hundred meters (cite). And back up the last sentence with data.	009-021
	IV pg 83 par 1	Adverse impacts would recover in less than 3 generations to fish and their habitats? Cite this.	009-022

Document Title: Comment for MMS Seismic Plan for Chukchi Lease Sale 193			
		Threatened and Endangered Species	
	IV pg 117 par 1	Uncertainty on potential effects of loud noise on large cetaceans or an oil spill to cetacean calves. There have been scientific studies completed on effects of oil on cetaceans. Cite these studies.	009-023
	IV pg 117 par 3	Bold sentence at beginning of paragraph is too wordy and long.	
	IV pg 118 par 1	Last line – needs a citation. The fact that they are hunted would heighten their response in some instances. When did this occured was it quantified when response was heightened?	009-024
	IV pg 118 par 2	The population is resilient and robust now because of its ESA listing, and close monitoring. Cumulatively this could change quickly.	
	IV pg 120 par 2	Second last sentence needs a citation. There also are potential pathways....based on data from previous studies. What previous data?	009-025
	IV pg 120 par 3	Cite this sentence. What is the estimable probability of occurrence? What project?	009-026
	IV pg 124 par 3	Half way down the paragraph, where baleen hearing frequencies are listed. It would be good to have the output frequency strength of the airguns referenced here, so people could compare them.	009-027
	IV pg 126 par 4	Last sentence - Typo – There are **no** instead of **not**	009-028
	IV pg 129 par 3	Line 3 – a single blast of an airgun is not the same as continuous blasts every 5 seconds during typical seismic operations, so this is not directly comparable to standard seismic activity.	009-029
	IV pg 129 par 3	Sentence beginning with: Bowheads sometimes.... Please define "sometimes"	009-030
	IV pg 130-131	Reference to old studies (1980's) and findings from early tests of bowhead reactions to seismic noise. It was stated on pg 128 that current airgun output proposed for the Chukchi is greater today than in many of those previous studies. Therefore, comparisons to the previous studies may be questionable.	009-031
	IV pg 131 par 1	Sentence starting with: The authors - should be "Reeves et al. 1983?"	009-032
	IV pg 134 par 2	The size of airguns used for years 1996 to 1998 are discussed, but what about the guns used in recent years? It is stated earlier that the airguns used have a higher output	009-033
	IV pg 131 par	First sentence – How brief ? define brief.	009-034
	IV pg 136 par 1	Last sentence – needs a citation. – Bowheads often tolerate....	009-035
	IV pg 139 par 5	Zooplankton is in the marine mammals section, suggest moving to the lower trophic level section. It is prey for bowheads, but should be discussed in its correct location in the document	
	IV pg 144 par 2	Cite the available information that states current vessel strikes are low	009-036

Document Title: Comment for MMS Seismic Plan for Chukchi Lease Sale 193			
	IV pg 144 par 2	Last sentence – cite this- Available data that vessel strikes will not become an important source of injury or mortality	009-037
	IV pg 145 par 2	Typo – "area" should be "are accompanied"	009-038
	IV pg 145 par 5	Last full sentence – it is highly uncertain that bowhead use could overlap with seismic activities in the Chukchi during the summer – this is not true. We now know that some whales remain in the Chukchi Sea all summer.	009-039
	IV pg 147 par 3	Last sentence – certain places due prey resources. The addition of " due **to** prey resources"	009-040
	IV pg 148 par 1	Third line – However, it is unlikely such an impact – Quantify "unlikely"	009-041
	IV pg 148 par 1	Last sentence – The probability of such an accident .... – Quantify this, and cite it.	009-042
	IV pg 161 par 6	Typo – second line – what should be whale ?	009-043
	IV pg 162 par 2	Second last sentence - Typo shallow water, not water shallow.	009-044
	IV pg 162 par 5	Second sentence -Typo – sale area not sale are	009-045
	IV pg 165 par 2	Second last sentence – typo – relation tot he – should be to the...	009-046
	IV pg 165 par 3	MMS Should include the 40% probability of a large spill occurring here in this paragraph -	009-047
		Birds	
	IV pg 183 par 4	Recent studies have proved that low frequency underwater noise is transmitted through the waters surface through the air. Nikbin Darius. 2006. Underwater sound breaks the surface. Physics Web A community website from the Institute of Physics Publishing. October, 2006. http://physicsweb.org/articles/news/10/10/14/1 Godin, Oleg. A. 2006. Anomalous Transparency of Water-Air Interface for Low-Frequency Sound. The American Physics Society. October, 2006. http://scitation.aip.org/getabs/servlet/GetabsServlet?prog=normal&id=PRLTAO00009700001616430100000 1&idtype=cvips&gifs=yes	009-048
	IV pg 184 par 1	Fourth line down – "visual range" – quantify this.	009-049
	IV pg 182 par 2	Second sentence - Spilled oil has the greatest potential for affecting large number of birds due to its toxicity, etc.... loss of feather insulation causing hypothermia should be added here.	009-050

Document Title: Comment for MMS Seismic Plan for Chukchi Lease Sale 193			
	IV pg 182 par 3	Second sentence - good point to state this throughout this section - that the entire sale area lacks site specific data, and that it is 15-30 years old. This statement should be made several times when potential imacts are described for its validity.	009-051
	IV pg 184 par 2	Last sentence - 30km, where did this number come from? Please citation	009-052
	IV pg 184 par 4	This paragraph is contradictory - The first two sentences states that seismic impulses can harm or kill diving birds, and the threshold for physiological damage is unknown. The third sentence states that the bird would have to be very close to the airgun to cause injury, if that were possible at all. The first sentence needs to be cited, and states clearly that injury is possible.	009-053
	IV pg 185 par 5	Second sentence - High-intensity lights are needed.... etc..to spot marine mammals during the nightime operations or when visibility is hampered by rain or fog. why would seismic operations continue during poor visibility ? the entire seismic mitigation plan is based on visibility of marine mammals. Sightability at distances where marine mammals may be impacted inside the exclusion zone may be outside the extent of the high intensity lights. If lights must be used, how can the mammal free exclusion zone be monitored? To mitigate for marine mammal impacts and marine bird strikes. Seismic operations should be discontinued when the onset of poor visibility begins. With the long daylight hours during the Arctic summer, this should not be necessary.	009-054
	IV pg 185 Par 6	Last sentence should have a citation. How rare are bird strikes, what does the data state?	009-055
	IV pg 186 par 1	Second sentence - Cite this - " Direct oiling of marine and coastal birds... etc..	009-056
	IV pg 186 par 2	This paragraph should cite the works that compared lightly oiled versus heavily oiled birds returning to the nest. I would also assume that lightly oiled birds would bring oil back to contaminate the nest, not just bring contaminated food to feed the chicks. This impact would be the same whether light or heavily oiled with regards to adults returning to the nest and oiling the chicks.	009-057
	IV pg 187 par 5	Typo - Third sentence " Support vessels and aircraft would likely need ..... during **then** open water period, should be **the**	009-058
	IV pg 196 par 5	First sentence - Where is ERA 15 ? It is not listed on the referenced map A.1-2a. Reference should be to Map A.1-2c. Why is Cape Lisburne and Cape Thompson not listed on any of the maps?. MMS refers to these two areas as breeding colonies, but has not identified them on any maps.	009-059
	IV pg 196 par 6	First sentence - The OSRA model predicts a relatively low percent chance .... - Quantify this, how low?	009-060
	IV pg 197 par 1	Third sentence - Environmental Resource Area 49 ... Cite map. This is important since it is the highest area with a chance of an oil spill occurring.	009-061
	IV pg 197 par 2	Second sentence - ERA 21-23 and ERA 24/64 are spring..... Again what map are they associated with so the reader can refer to it. Why on the Maps are ERA's titled ERA 45, and sometimes 47.Ice/Sea segment 10. This is confusing because you label ERA's two different ways in these maps. Standardize.	009-062
	IV pg 197 par 5	Third sentence - In cold climates, and oils spot the size of a square inch..... - cite this.	009-063
	IV pg 198 par 2	this paragraph illustrates the need for some data collection to identify impacts of small spills on birds	009-064
	IV pg 198 par 5	Sentence 5 – "The USEPA would need to initiate consultation with the FWS to determine the likelihood that the proposed discharges associated with exploration and production activities would adversely affect marine and coastal birds." – State when MMS would initiate this consultation ?	009-065
	IV pg 201 par 3	First sentence – "The potential effects of an oil spill are greater with Murres than most other marine and coastal birds species because a spill could impact discrete colonies, namely those at Cape Lisburne and Cape Thompson." Explain why effects on murres are greater than other coastal bird species.	009-066

Document Title: Comment for MMS Seismic Plan for Chukchi Lease Sale 193			
	IV pg 201 par3	Last sentence - the Figure label should be Fig III B7. The addition of "molting area" could be added to the legend to confirm that the large blue area is a flightless period for males and juveniles. The map should also include a symbol showing breeding colonies on both Cape Lisburne, and Cape Thompson	009-067
	IV pg 202 par 1	First sentence - Cite this, and quantify it. -with low productivity rates.... recovery would likely take more than 3 generations.	009-068
	IV pg 202 par 4	Last sentence - The adverse population impacts from this event would be somewhat.... etc... that a large percentage of the hatching year cohort could be lost... Cite this and quantify " a large percent".	009-069
	IV pg 202 par 6	Sentence 5 - Puffins also may incur sublethal effects and either succumb at a later date... etc..... Cite this.	009-070
	IV pg 203 par 1	third sentence - Recovery from mortality associated with an oil spill..... take more than 3 generations to occur. Cite this important statement.	009-071
	IV pg 203 par 2	last sentence - Given the distribution of these colonies etc... population recovery could occur from surrounding colonies once oiled beach habitats are restored. Cite this, was there a previous situation where a colony was depleted from oil spills, and recruitment from other colonies repopulated this breeding colony. Cite this.	009-072
	IV pg 203 par 6	last sentence - This would be an adverse impact to the regional population.. recovery would likely be in fewer than 3 generations. Cite this.	009-073
	IV pg 204 par 2	Second sentence - Specific breeding colonies.... show these colonies on the map. black guillemots breed on the barrier islands.	009-074
	Iv pg 204 par 2	Last sentence - cite this. – Specific breeding colonies on barrier islands could experience extensive mortality... etc.. recovery in fewer than three generations.	009-075
	IV pg 204 par 2	yellow billed loons are petitioned to be listed on the Endangered Species List by FWS. They are also considered a sensitive species identified by BLM. This should be addressed in this section.	009-076
	IV pg 205 par 3	Third sentence - Spills originating from P11... etc - This should refer to a map in the appendix.	009-077
	IV pg 204 par 7	Long-Tailed Ducks. First sentence - Disturbance impacts from seismic surveys would be **lowest** during the post breeding molting period, because most birds are concentrated in coastal lagoons along the Chukchi Sea. Should this not include it would be **highest** for oil spills?	009-078
	IV pg 205 par 7	Second sentence - Fig III.B.6 should be Fig .IIIB.8	009-079
	IV pg 206 par 5	First sentence - this should be cited	009-080
	IV pg 207 par 1	First sentence - The King eider population is relatively stable etc... cite this	009-081
	IV pg 207 par 3	Last sentence - Impacts to habitat in Kasegaluk... etc.. **number of years**, and continue to affect brant for a **long time** - this needs to be quantified. And cited.	009-082
	IV pg 208 par 4	Black-legged kittiwake - It seems as though this species should be listed with the rest of the high potential for substantial effects category with the shearwaters and auklets. The first sentence in the fifth paragraph states that the potential effects of oils spills would be similar to other seabirds that nest at Cape Lisburne, and Cape Thompson	009-083
	IV pg 220 par 3	third sentence - If a small oil/fuel spill were to occur, it would be easily avoided by marine mammals.- this needs a citation.	009-084

Document Title: Comment for MMS Seismic Plan for Chukchi Lease Sale 193			
	IV pg 226 par 2	second sentence - However if mortality.... typo - it would **be not be** consistent. The first be should be removed?	009-085
	IV pg 234 par 3	First sentence - Recent information indicates that..... This sentence needs to be referenced.	009-086
	IV pg 241 par 4	Typo - last sentence - 1 year or **linger**, should be longer ?	009-087
	IV pg 249 par 1	First sentence - Potential effects of oil-development activities .....Also note in this paragraph that muskox concentrate and feed in the riparian areas especially in the winter months	009-088
	IV pg 251 par 2	Third sentence – "However, the several square kilometers of caribou and muskox tundra grazing habitat destroyed by onshore development."... Suggest that baseline studies would be conducted to determine calving areas, or insect relief areas.	009-089
		Mitigation	
	II pg 20 .II B.4a#1	Exclusion Zone - what is the approximate distance for the isopleth 180 and 190? How often is it re-evaluated throughout the survey activities? Can MMS make a relative comparison of 180 dB to human hearing. How would that sound to a human, so the reader can relate better to this. Does this exclusion zone ever change throughout the season, or is it fixed?	009-090
	II pg 20 .II B.4a#2	Monitoring - How many individuals are monitoring at once? How are Marine Mammal Observer's trained prior to seismic event? How many hours at a time does one individual observe? Is 30 minutes enough time to Determine if marine mammals are present prior to ramp up of the guns? Do some marine mammals stay underwater for longer than 30 minutes?	009-091
	II pg 20 B.4a3	Shut down- does this occur instantaneously or is there a ramping down period? Why would any seismic activity occur during the nightime or poor visibility conditions (fog)? In order to effectively monitor the exclusion zone, visibility should be good.	009-092
	II pg 21 B.4A#5	Field Verification- The exclusion zone should be re-evaluated periodically throughout the day when environmental conditions change, and when a new observer relieves the previous observer.	009-093
	IIpg 21 B.4a#6	Why and how often would aerial surveys occur?	009-094
		Proposed Sale	
	II pg 30 par 1	First sentence - the local effects of produced water would probably be moderate ... etc.. cite this.	009-095
	II pg 30 par 4	Last sentence - These construction.... cite how MMS knows that recovery would occur in three generations. There is very little data that has been collected in the Chukchi, and all of it is out of date. How can MMS make this assumption?	009-096
	II pg 30 par 5	last sentence - Given a lack of....this sentence proves that baseline studies are imperative to identify rare or unique species, so they do not go unnoticed, or undetected.	009-097
	II pg 30 par 6	First sentence - Depending on the timing.... some pink and chum runs could be eliminated. Cite example of salmon colonizing a river system. Reference the following sentence demonstrating that recovery of the species -strays have occured or will occur and is possible.	009-098

Document Title: Comment for MMS Seismic Plan for Chukchi Lease Sale 193			
	II pg 30 par 7	First sentence -need to back this up with data to prove that recovery will occur in less that 3 generations.	009-099
		Threatened birds	
	Vol 2 pg 38 par 4	2 typos – Third paragraph – Stellers eiders are so rare in some years that they are not detected **al** all – should be at all. Next sentence needs a capital I.	009-100
	Vol 2 pg 46 par 6	The 2002 BO used common eider……The result of this methodology indicated that 0.4 spectacled eider and 0.02 Stellers eider would be taken per well-year. This seems to be an underestimation, in that this sale is juxtaposed to the critical habitat of both spectacled eiders and Stellers eiders, therefore there will be more birds to be impacted. There is also going to be more birds accumulating on the west coast from all the north slope breeding individuals and molting birds compared to the Northstar facility location, since they migrate west.	009-101
	Vol 2 pg 52 par 4	Second last sentence – If a bird were unable to leave….. enough vapors could cause some damage. Quantify some damage.	009-102
		Cumulative Effects	
	V Pg 20-21	Lower Trophic level Organisms – This seems to be just a regurgitation of the summary, and not much discussion on cumulative impacts oveer time and increased infrastructure development in the sale area. Cumulative Impacts would be moderate and minor. What evidence do you use to back this up?	009-103
	V pg 21	Fish Resources – Third sentence The cumulative effect of exploratory discharges…. This need to backed by data.	009-104
	V pg 21 par 3	Second last sentence – A probable large oil spill likely would impact certain spawning and rearing habitats for decades. The sentence prior to this states that the effects would be moderate. Define moderate, this does not seem to be a moderate effect.	009-105
	V pg 22 par 2	Essential fish habitat would be minimal does not seem sufficient. Describes how MMS came to these conclusions, and cite other papers. What about climate change.	009-106
	V pg 22 par 2	Fourth and third last sentence under EFH – Overall, the cumulative level would be minimal to moderate. The next sentence states that A large oil spill would likely would impact certain spawning and rearing habitats for decades. The second sentence implies that cumulative impacts would be more than moderate.	009-107

Responses to Ukpeagvik Inupiat Corporation Comments

UIC 009-001

Environmental Resource Area 10 is described as the Ledyard Bay Spectacled Eider Critical Habitat on Map A.1-2d. A map depicting this area was inadvertently left out of the Biological Evaluation (Appendix C), but is now available at http://www.mms.gov/alaska/ref/Biological_opinionsevaluations.htm or from MMS.

UIC 009-002

See response to comment **UIC 009-001**.

UIC 009-003

See response to comment **UIC 009-001**.

UIC 009-004

This potential impact is discussed in Section IV.C1.g(3)(f). Although not specifically addressed as a mitigation measure for this phase of the leasing process, recommendations to address this issue are described in Appendix C (page 50 of Appendix C, now available at http://www.mms.gov/alaska/ref/Biological_opinionsevaluations.htm or from MMS) and are anticipated to be addressed in future EIS's and Section 7 consultations for threatened birds. We clearly identify a goal of minimizing the potential for enhancing predator populations that could arise from future construction of infrastructure and associated developments.

UIC 009-005

See response to comment **UIC 009-004**.

UIC 009-006

As described in Section III.B.3, Essential Fish Habitat for the Chukchi Sea consists of all marine and freshwaters that serve as spawning/rearing/or migration habitats for salmon. EFH is described and mapped by in the final EIS for Essential Fish Habitat Identification and Conservation in Alaska, prepared by NMFS (2005), and available from NMFS in Juneau, Alaska or online at http://www.fakr.noaa.gov/habitat/seis/efheis.htm.

UIC 009-007

This comment is addressed in Section V.C.8.c(3) (draft EIS page V-51).

UIC 009-008

The MMS has included a more comprehensive Table of Contents at the beginning of Volume II in order to make appendices easier to find.

UIC 009-009

The EIS includes a description of 3D/2D exploration seismic surveys and high-resolution site-clearance seismic surveys in Section IV.A.2.b. A brief definition of seismic surveying has been added to the introduction as suggested.

UIC 009-010

The comment is similar to one from the NSB. See response to comment **NSB 006-094**.

UIC 009-011

The comment is an objection to a statement made without supporting references. The statement has been removed, but this does not affect the conclusion of the section, which is based on the supporting materials that remain.

UIC 009-012

As stated by 30 CFR 250.214(f), each proposed well requires an assessment of any seafloor and subsurface geological and manmade features and conditions that may adversely affect your proposed drilling operations.

UIC 009-013

The comment is a request for a citation concerning the benthic recolonization rate. The section is referring to a summary of the rates found in Section III.B.1. The information is in Section III.B.1.b. To avoid confusion, the additional information has been provided and the relevant reference in Section III.B.1.b (Conlan and Kvitek, 2005) has been added. The changes do not change the conclusion of the section.

UIC 009-014

We used the best available information to complete our analyses. As new information becomes available, we incorporate it into our decisionmaking process. The MMS Environmental Studies Program is considering whether support for additional survey work is warranted.

UIC 009-015

See the response to comment **UIC 009-014**.

UIC 009-016

Sound is an important component of the marine environment and has a bearing on impacts from seismic surveys.

UIC 009-017

The response of some fish species are described in Section III, Affected Environment. This section describes how some species may react differently than others. While research on the reaction of fish to underwater sounds has not been conducted on all species that may be present in the Chukchi Sea, enough has been completed to draw reasonable conclusions. Effects on fish are dependent on sound intensity, and the analysis is predicated on the concept that if the sound is harmful, the fish will move away from the source before injury occurs. The ramping-up of airguns procedure is believed to allow fish an opportunity to move away from a sound source before it reaches full intensity. Based on existing information, these movements are considered to be temporary and localized.

UIC 009-018

Squid are evaluated in this section as they are typically considered a fishery resource, similar to crab, shrimp, etc. The Fish Resources section typically precedes the Fisheries/Essential Fish Habitat section.

Our literature reviews identify articles published in scientific journals and did not identify the popular article in NewScientist magazine. While squid infrequently wash up on shore in Barrow, it is unclear if the observations of squid mortality in Spain were directly attributable to the seismic testing, that seismic-survey parameters near the Spain mortality event would be similar to those proposed in the draft EIS, or that giant squid are common in the Chukchi Sea.

UIC 009-019

Fish presence is not determined prior to ramping up. The purpose of ramping up is to initiate airgun firing with the lowest sound source and then slowly increase to the full airgun strength. Starting at the lowest intensity is believed to warn fish of the sound source and provide them an opportunity to leave the immediate area before sounds increase to the point that physical injury would occur.

UIC 009-020

This conclusion is based on how sound radiates from a moving seismic survey source vessel, especially when the vessel is closer than 20 miles from shore (see Sec. IV.C.1.d(2)(b)).

UIC 009-021

This information can be found in Section IV.C.1.d(2)(b)3.

UIC 009-022

The adverse impacts associated with the described activity would be localized and temporary. Federal and State oversight during permit review also would minimize these impacts to the greatest extent practicable. Despite mitigation, there could be short-term displacement of some fish from areas of in-water work, and small areas of habitat could be affected. These impacts would be limited to one season, and any fish lost are anticipated to be quickly replaced by subsequent reproduction/recruitment.

UIC 009-023

This specific section of the draft EIS is meant to provide an overview of the principles and assumptions underlying the bowhead whale analysis. More detailed information on effects from noise and oil spills on bowhead whales, including results from available studies, can be found in Sections IV.C.1.f(1)(b) and IV.C.1.f(1)(g).

UIC 009-024

The referenced paragraph does not refer to a specific study. The possibility that disturbance from oil and gas industry operations might have more of a cumulative impact on bowheads because they are also hunted seasonally is only one of many possibilities considered here.

UIC 009-025

A citation has been added to Section IV.C.1. The citation references the documents on the Northstar and Liberty development projects.

UIC 009-026

See response to comment **UIC 009-025**.

UIC 009-027

The requested information has been added to the text.

UIC 009-028

The typo has been corrected.

UIC 009-029

The commenter has misread the statement. The four controlled tests conducted by Richardson, Wells, and Wursig (1985) involved the use of a single airgun (as opposed to an array of multiple airguns), not single firings.

UIC 009-030

The use of the word "sometimes" simply reflects that the study results showed some reactions by bowheads and at other times no reactions. The entire paragraph does provide an adequate overview of the study results. The MMS believes the use of the word "sometimes" is appropriate.

UIC 009-031

The incorporation of results from previous studies is appropriate. The draft EIS should use the best available information in its analysis. In some cases, this involves studies that have occurred some time ago. More importantly, MMS's assessment does acknowledge that airgun arrays and sizes are different than in the previous studies, and any statements regarding comparisons between these studies and potential effects from the Proposed Action are appropriately qualified as such.

UIC 009-032

The sentence has been revised.

UIC 009-033

Additional information has been provided in the text as requested.

UIC 009-034

The MMS uses the term "brief" as defined in the Merriam-Webster dictionary as "short in duration or extent."

UIC 009-035

The MMS has removed the last sentence from this paragraph. However, please note that the discussion beginning on the bottom of p age IV-136 and continuing through page IV-138 (draft EIS) does describe several studies that concluded bowhead whales appear to be less sensitive to seismic noise in their summer feeding grounds than during the fall migration.

UIC 009-036

Thank you for the comment. The MMS prefers to leave the discussion on zooplankton where it is currently found.

UIC 009-037

The citation has been added as requested.

UIC 009-038

The typo has been corrected.

UIC 009-039

The statement reinforces that little is known about bowhead use of the Chukchi Sea in the summer, and that it is highly uncertain as to the extent of overlap between seismic activity and bowhead whales in the summer. It does not suggest overlap does not occur but rather stresses that there is uncertainty about the extent of any overlap. The MMS believes the statement is appropriate as written.

UIC 009-040

The typo has been corrected.

UIC 009-041

Likely is a common term used throughout many environmental documents and is meant to qualify rather than quantify the potential for an effect.

UIC 009-042

See the response to comment **UIC 009-041**.

UIC 009-043

The typo has been corrected.

UIC 009-044

The typo has been corrected.

UIC 009-045

The typo has been corrected.

UIC 009-046

The typo has been corrected.

UIC 009-047

The probability of oil spills is discussed in Section IV.A.4.

UIC 009-048

Oleg Godin has recently developed a theory about how low-frequency sounds originating in water could transfer into the air environment. His predictions may be undergoing laboratory experimentation, but we could not identify a published scientific article where they have been verified. Furthermore, seismic

surveys use high-frequency acoustics. As a consequence, we do not believe that, should his theory be verified, the relevant findings would be pertinent to the draft EIS.

UIC 009-049

We believe the context of the use of this term by Lacroix et al. (2003) is line-of-sight or, in other words, the birds could see the seismic vessels.

UIC 009-050

The phrase has been added to the sentence as requested.

UIC 009-051

We believe we have reiterated this point where appropriate in the impact analyses.

UIC 009-052

This sentence refers to potential fish displacement away from a seismic vessel, which is described in Section IV.C.1.d(2)(b)2), Impacts to Behavior.

UIC 009-053

This paragraph points out that seismic airgun noise has the potential to harm birds, particularly their hearing, but there is no information indicating under what conditions (i.e., sound intensity, distance, etc.) this would occur. The draft EIS assumes that signal intensity would be greatest close to the airgun source, but that birds tend to physically move away from vessels in a manner that prevents them from being in close proximity to the airgun array. Seismic surveys have been conducted all over the world, including the Chukchi Sea, and we are unaware of any physical injuries to seabirds being reported.

UIC 009-054

The use of high-intensity lights during seismic surveys is primarily to conduct safe operations on the aft deck of a vessel. The MMS and NMFS do not require their use to monitor the exclusion zone for the presence of marine mammals at night or during foggy conditions. This is because they would be more of an attractive nuisance for birds, including the threatened Steller's eider (i.e., they would cause bird collisions with vessels and cause injuries and mortalities), than an effective tool for detecting marine mammals.

Seismic surveying requires an essentially ice-free operational environment, which means that the window for surveying is very short. Because of this, seismic surveys attempt to operate 24 hours a day, 7 days a week. Continuous operation of the airgun array is expected to deter marine mammals from entering the exclusion zone. In fact, one of the required marine mammal mitigation measures is to keep at least one airgun firing during vessel turns, when normally all the airguns would be shut off. Based on this expectation, surveying is allowed to continue into darkness or in deteriorating visibility conditions (e.g., fog) as long as the airgun array is continuing firing. If the array is shut down for any reason, ramp up to restart the survey cannot be initiated at night or when monitoring the exclusion zone is not possible, for instance when there is fog. Although visual observers are the major component of monitoring the exclusion zone, other methodologies are available for monitoring, including passive acoustic and possibly the use of aerial drones.

UIC 009-055

There is little published information on bird strikes on the North Slope. Much of the pertinent information is described on pages 43 and 44 of the draft EIS, Appendix C (now available at http://www.mms.gov/alaska/ref/Biological_opinionsevaluations.htm or from MMS). The Biological Opinion for the Beaufort Sea Planning Area (see USDOI, MMS, 2003a) included some unpublished information on bird strikes for the Northstar Island facility (a production platform in the Beaufort Sea) in September/October 2001. Eighteen dead sea ducks were recovered, including 4 king eiders, 6 common eiders, and 8 long-tailed ducks. This indicates that collisions are a concern with threatened eiders. Bird strike information often is difficult to obtain and, while a lack of reports may indicate it is not a frequent event, there is little consistent effort to report such events. The MMS has chosen to require mitigation measures that avoid or minimize bird collisions and the reporting of any bird strikes that do occur.

UIC 009-056

We direct the reader to the more comprehensive description of oil spill effects in Section IV.C.1.g(3)(g), Effect of Large and Small Oil Spills.

UIC 009-057

Our analysis assumed that heavily oiled birds would not be able to return to the nest. Our analysis also assumed that any oiled egg would not hatch viable young. We did not assume, however, that a parent delivering contaminated food would also contaminate the nest.

UIC 009-058

The typo has been corrected.

UIC 009-059

The ERA 15 is shown on Map A.1-2c in Appendix A. the ERA's 14 and 15 are defined as including these colonies (see Table A.1-13, Appendix A). Capes Thompson and Lisburne also are identified as land segments on Map A.1-3b. All of the information was contained within the draft EIS, but the narrative will be changed in future NEPA documents to make it easier for the reader to find it.

UIC 009-060

The spring lead system persists before the summer open-water season and is described in Section IV.C.1.g(4)(a)2), Winter Spill.

UIC 009-061

The ERA 49 is the Hannah's Shoal Polynya as shown on Map A.1-2a.

UIC 009-062

All of the ERA's are shown on Maps A.1-2a to 2d. The ERA's tend to have a unique characteristic, generally important to a specific resource, such as birds. They could, however, represent a seasonally-important habitat that a number of species use (see definitions in Tables A.1-13-15, Appendix A). The ice/sea segment refers to the edge of the pack ice, and was broken into smaller units for analyses.

UIC 009-063

There are literally dozens of examples of this term being used to describe the small amount of oil that can compromise the integrity of seabird plumage. Also described in metric terms (2-3 cm^2), or volumetric terms (12.5 mL), or simply a few drops of oil or the size of a coin, nickel, dime, etc. For typical examples see United Nations Environmental Programme (2003) and Montevecchi et al (1999).

UIC 009-064

We concur. A study to collect some of this information is just one of many information needs identified by MMS. The MMS is only able to support a small amount of this research.

UIC 009-065

The USEPA has completed ESA Section 7 consultation with the FWS, issuing a general permit: Authorization to Discharge under the National Pollutant Discharge Elimination System (NPDES) for Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters. More details on the consultation are available from the FWS, Fairbanks Fish and Wildlife Field Office or on-line at: http://yosemite.epa.gov/r10/water.nsf/95537302e2c56cea8825688200708c9a/bc30f88057c7455088256c870082cd07/$FILE/AKG280000FP.pdf

UIC 009-066

We have added the citation Piatt and Anderson (1996) to the text and to the bibliography.

UIC 009-067

We have corrected the figure number and added molting area to the legend in this figure. The figure properly identifies the colony locations at Cape Lisburne and Cape Thompson.

UIC 009-068

See response to comment **UIC 009-006**.

UIC 009-069

The ERA 18 is displayed on Map A.1-2a, Appendix A.2. This represents the core of the molting area, where most (not necessarily all) hatching-year juveniles and their male parents would occur during the postbreeding period. A spill reaching this ERA has the potential to affect all murres within it, considered to be a “large percent” of the hatching-year juveniles and their attendant male parents. Providing an absolute percentage would reflect precision where little exists.

UIC 009-070

This is the same general mechanism of mortality provided for all seabird species.

UIC 009-071

There are many similarities between the life-history strategy of puffins and murres. The life history of murres is described in a previous section.

UIC 009-072

Horned puffins have special nesting habitat requirements. Not all coastal barrier islands have suitable burrowing sites or persistent marine debris/driftwood. If there are not enough sites available, some birds may not be able to nest each year. The loss of a number of breeding adults would decrease competition for these limited sites by conspecifics from neighboring unaffected areas, which would allow replacement birds to use these sites and repopulate the colony. Perhaps the best examples of horned puffins recolonizing suitable habitats are from the fox-removal work conducted by the USDOI, FWS on islands in the Alaska Maritime NWR.

UIC 009-073

This conclusion was based on the size of these populations (estimated to be >100,000). Shearwaters from the Arctic commingle with other populations to breed in the southern hemisphere. Similarly, auklets are at the northern extent of their range in the Arctic, with millions found farther south in the Bering Sea (see Shuntov, 1999).

UIC 009-074

Black guillemot colonies have not been mapped. We assume their breeding distribution is the same as the distribution of barriers islands in the project area.

UIC 009-075

Black guillemots share similar nest-site characteristics as horned puffins. Please refer to our response to comment **UIC 009-072**.

UIC 009-076

We have updated this section in the EIS.

UIC 009-077

We have included map page numbers following pipeline locations in the EIS.

UIC 009-078

This conclusion is based on the seismic-survey vessel activities being physically buffered by offshore barrier islands. If long-tailed ducks were distributed more offshore, they would be in closer physical proximity to vessel activity. Molting long-tailed ducks would be vulnerable to an oil spill when concentrated in coastal lagoons, as described in Section IV.C.1.g(6)(a).

UIC 009-079

The text has been corrected.

UIC 009-080

We have updated the status of common eiders in Section III.B.5.f(3).

UIC 009-081

We have updated the status of king eiders in Section III.B.5.f(4).

UIC 009-082

Oil may persist in estuarine habitats or eliminate/reduce aquatic plants important to brant (see Sec. IV.C.1.j(4)(e), Large spills).

UIC 009-083

Although there are basic life-history differences between kittiwakes and murres and puffins, we concur with this comment and have moved kittiwakes into the higher potential category.

UIC 009-084

The sentence has been removed.

UIC 009-085

The typo has been corrected.

UIC 009-086

The citation has been added (see Sec. III.B.6.c).

UIC 009-087

The typo has been corrected.

UIC 009-088

The text has been revised.

UIC 009-089

Text acknowledging the need for baseline studies has added to the paragraph.

UIC 009-090

The exclusion zone is based on NMFS acoustic criteria for the received levels at which cetaceans and pinnipeds potentially may be injured by noise. The actual size of the zone is very specific to the site where seismic surveys are occurring. Therefore, a standard requirement (noted in #5 on II-21 of the draft EIS) mandates field verification of the exclusion zone size before conducting the survey and each time the survey moves into a new area. In addition, the field-verification techniques must be consistent with NMFS-approved guidelines and procedures.

Although some general comparisons can be made between human and marine mammal hearing, it would be difficult to develop a comparison of sufficient information to equate a received sound level on a marine mammal to a human. Instead, it is best to analyze the potential for impacts per species and even per age, sex, and other factors such as activity engaged in at the time of hearing the noise.

UIC 009-091

The number of observers monitoring at one time varies with a number of factors on a given vessel. These include but are not limited to numbers of observers assigned to a vessel, number of vessels in an operation, phase of and type of activity each vessel is engaged in, the specific time of day and conditions when visibility/sea mammal sightability conditions are suitable, daily work-shift organization and scheduling,

availability of observers and other factors of a specific operation at sea. Operations in high latitudes can extend to 24 hours a day due to extended period of sunlight in summer months. NOAA Fisheries set the specific requirements, data standards and qualification standards for observers and industry/applicant/permit holder is responsible for the training of observers who conduct the monitoring effort. Hours that an individual performs monitoring activities are standardized in most cases to four hours at a time but can vary depending on conditions and fatigue factors, weather, number of observers available, and mission activities of the vessel that demand monitoring activity.

Typically most marine mammals do not stay underwater for more than 30 minutes unless wounded or in response to unusual stimuli. For example, bowhead whales most commonly dive for durations of five to ten minutes and calves breathe more frequently. Dives of up to 15-20 minutes have been recorded. An instance of a wounded bowhead whale remaining submerged for 80 minutes has been reported by Charles Scammon (1874). Thirty minutes is considered a reasonable time under good observation conditions, to determine if sea mammals of a number of species are present within cetacean and pinniped safety radii (which must be visible prior to ramp up operations); and the ramp up procedure is designed to gradually introduce anthropogenic sound levels to the environment to allow undetected marine mammals or those beyond the safety radii to take further avoidance action and move away from the source prior to sound levels reaching harmful levels.

UIC 009-092

Shut-down is essentially instantaneous when power to all of the airgun arrays is shut off. There is no equivalent requirement to ramping down required.

Seismic surveying requires an essentially ice-free operational environment, which means that the window for surveying is very short. Because of this, seismic surveys are conducted 24 hours a day, 7 days a week, if possible. Continuous operation of the airgun array is expected to deter animals from entering the exclusion zone. In fact, one of the mitigation measures required for marine mammals is to keep at least one airgun firing during turns. Based on this expectation, surveying is allowed to continue into darkness or in deteriorating visibility conditions as long as the airgun array is continually firing. If the array is shut down for any reason, ramp up to restart the survey cannot be initiated at night or when monitoring the exclusion zone is not possible.

Although visual observers are the major component of monitoring the exclusion zone, other methodologies are available for monitoring, including passive acoustic, active acoustic, and the use of aerial drones.

UIC 009-093

The radius of the exclusion zone is determined on the distance from the sound source of a specified sound level measured in decibels. Field verification is required to determine this distance. This distance may vary from area to area, reflecting changes in factors such as water depth and seafloor topography. The MMS and NMFS have determined that modeling using a sound-propagation series is sufficient to adjust the exclusion zone for changes in area. The attenuation of sound in the marine environment is not expected to differ substantially during the day within a given area.

UIC 009-094

One aspect of meeting the negligible impact determination under the MMPA for an Incidental Take Authorization is to have a NMFS-approved plan for aerial or equivalent monitoring of the exclusion zone. The details of this plan are provided to NMFS for review before such an authorization is issued. Conducting seismic surveys under MMS permits are then conditional upon receipt by the applicant of an MMPA authorization from NMFS and/or FWS. Therefore, it is not appropriate here how often the survey would occur but again the monitoring plan would need to be sufficient for MMPA authorizations to be issued.

UIC 009-095

The comment is a request for a citation in the introductory summary (Section II), and specifically for the effect of any discharge of produced water. The introductory summary is supported by an assessments of discharge effects in Section IV.C.1.c(4)(a)2). That section has been modified to clarify the analysis. The modification does not change the conclusion. A reference to Section IV.C.1.c(4)(a)2) has been added to the summary at the start of assessment for Lower Trophic-Level Organisms.

UIC 009-096

This section is a summary of more detailed sections later in the document. See the response to comment **UIC 009-022**.

UIC 009-097

We used the best available information to complete our analyses. The MMS Environmental Studies Program may support additional fish survey work in the future.

UIC 009-098

We believe it is commonly understood that a small portion of returning salmon stray from their natal streams. Several clear examples of salmon colonization behavior have been documented, particularly in new streams uncovered by receding glaciers on the Kenai Peninsula or Glacier Bay, Alaska (e.g., numerous papers by Dr. Alexander Milner are listed at http://www.gees.bham.ac.uk/research/ees/AMM/alaska.htm). As with many other species, salmon would be expected to expand their distribution as habitat conditions became more favorable, such as in response to climate change.

UIC 009-099

This section is a summary of more detailed sections later in the document. See the analyses in Section IV.C.1.d(3)(d)3), Species-Specific Effects.

UIC 009-100

The typos have been corrected.

UIC 009-101

We used the best available information to estimate the incidental take of threatened eiders. Lacking specific information on the potential differences between the two areas, we used the same variables and methodology that was used for similar developments. Most of the projected incidental take on eiders was attributed to construction of roads and other land-based facilities on the NRP-A. In fact, much of the potential development would occur on the NPR-A.

UIC 009-102

The range of physical damage from inhalation of hydrocarbon vapors includes inflammation and damage of the mucous membranes of the airways, lung congestion, emphysema, pneumonia, hemorrhage, and death.

UIC 009-103

Additional information has been added to the cumulative effects assessment.

UIC 009-104

This information is included in the analyses in Section IV.C.1a(4) Discharges.

UIC 009-105

The draft EIS states: "Overall, the cumulative level of effect on fish resources would be moderate in most cases." The remainder of that paragraph describes the situations where that is not the case.

UIC 009-106

The EFH pertains to salmon spawning, rearing, and migration habitat. Of all the potential impact categories analyzed for the Proposed Action, only a large oil spill would pose significant impacts to EFH. The EFH is subject to modification by a number of other activities and climate change. The Proposed Action is evaluated according to its relative potential contribution to all anticipated impacts.

UIC 009-107

See response to comment **UIC 009-106**. While it could pose significant impacts to EFH, a large spill is considered a low-probability event.

Document 10

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December 22, 2006

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Re: Chukchi Sea Planning Area Oil and Gas Lease Sale 193 and Seismic Surveying Activities in the Chukchi Sea -- Draft Environmental Impact Statement (OCS EIS/EA MMS 2006-060)

Gentlemen and Ladies:

This letter and the accompanying attachments provide the comments of ConocoPhillips Alaska, Inc. (CPAI) regarding the Minerals Management Service's (MMS) Draft Environmental Impact Statement OCS EIS/EA MMS 2006-060 (DEIS for Lease Sale 193). The DEIS addresses the potential environmental impacts that may result from MMS' proposed Lease Sale 193 in the Chukchi Sea Outer Continental Shelf (OCS), and a range of alternatives, as well as preleasing seismic survey geophysical permitting. CPAI is a strong supporter of oil and gas leasing in the Alaska OCS in general, and of Lease Sale 193 in the Chukchi Sea OCS in particular. We encourage MMS to authorize preleasing seismic surveys in 2007 and to proceed thereafter with Lease Sale 193.

CPAI is Alaska's largest oil and gas producer. As the largest owner of state and federal exploration leases in Alaska, and a major owner in the two largest fields on Alaska's North Slope, CPAI is a long-standing and active participant in oil and gas exploration and development activities in Alaska. Among other ongoing activities, CPAI conducted a seismic exploration program in the Chukchi Sea OCS in 2006, and intends to conduct further seismic exploration in federal waters in the Chukchi Sea OCS in 2007. Consistent with our direct and significant interests in the Alaska OCS Region, CPAI has previously commented to MMS in support of the proposed plan for the 2007-2012 oil and gas leasing program in the OCS, pursuant to which Lease Sale 193 would proceed.[1]

CPAI commends MMS for its thoughtful and detailed analysis of potential environmental impacts. Subject to important concerns discussed in the remainder of our comments and the accompanying attachments, the DEIS demonstrates that MMS is taking the requisite hard look at the probable environmental consequences of the proposed action. Subject to our specific

[1] CPAI's comments regarding MMS' proposed OCS leasing program for 2007-2012 were provided by the Erec Isaacson letter of November 22, 2006 to Ms. Renee Orr and Mr. James Bennett of MMS.

concerns, we believe that the DEIS provides a convincing analysis in support of both Lease Sale 193 and prelease seismic exploration activities in the Chukchi Sea in 2007.

Notwithstanding the many strengths of the proposed leasing decisions and the DEIS, we have the following important concerns:

1. ***Marine and coastal resources may be protected without lease exclusion zones in coastal areas of the Chukchi Sea.*** Exclusion of areas from leasing limits the opportunities to discover commercially developable oil and gas reserves. This problem is significant in frontier areas, such as the Chukchi Sea OCS. Marine and coastal resources may receive all necessary protection without exclusion zones through the use of protective lease stipulations such as those used by MMS' sister agency, U.S. Bureau of Land Management (BLM), in areas of the National Petroleum Reserve – Alaska (NPRA). Because excluding large areas from leasing is not necessary to protect marine resources or subsistence, it is inconsistent with the Outer Continental Shelf Lands Act (OCS Lands Act), which instructs MMS to promote responsible and expeditious development of OCS oil and gas resources.

2. ***Preleasing seismic surveys will have no discernable adverse impact on the health, status, habitat, survival or recovery of marine mammal stocks, or the use of such stocks for subsistence.*** There is no evidence in the scientific literature to support statements in the DEIS that imply possible population-level impacts from seismic activity. MMS has acknowledged that there have been no documented mortalities, physical injuries or physiological effects on marine mammals from seismic surveys. The Bering-Chukchi-Beaufort (BCB) Seas bowhead whale population has steadily increased before, during and after substantial seismic exploration activities in the Chukchi Sea in the 1990s. MMS has also acknowledged that all oil and gas activity on the North Slope of Alaska, and in the adjacent OCS, has had no detectable adverse population-level effects on the health, current status, habitat or recovery of marine mammal stocks.

3. ***Imposition of exclusion zones for seismic surveys at the 120 dB and 160 dB isopleths as mitigation measures conflicts with the OCS Lands Act, is unsafe and impracticable, and is unsupported by the best available scientific evidence.*** All available information demonstrates to a high degree of certainty that the BCB Seas bowhead whale population is steadily growing in size, is resilient to the level of mortality and human activity that are currently occurring due to subsistence hunting and other causes, and has surpassed the lower limit of the stock's original size before intensive commercial whaling. Imposition of 120 dB and 160 dB exclusion zones as mitigation measures for the benefit of bowhead whales cannot be reconciled with decades of data regarding the sustained health of the BCB Seas bowhead whale stock, presents significant and unwarranted safety risks, and is impracticable to implement. NMFS' Office of Protected Resources has

confirmed that the BCB Seas stock is adequately protected through use of a 180 dB exclusion zone. Imposing biologically unnecessary, unsafe and infeasible mitigation requirements ultimately defeats the purposes of the OCS Lands Act. The scientific and legal flaws with 120 dB and 160 dB restrictions genuinely threaten both the feasibility and the legal sustainability of MMS' decisions.

These concerns are addressed in our detailed comments below.

I. STATUTORY CONTEXT

Proposed Lease Sale 193 and the one year of preleasing seismic activities evaluated in the DEIS require MMS decisions pursuant to the OCS Lands Act. In addition, the environmental analysis performed by MMS in the DEIS must comply with the requirements of NEPA. The DEIS includes brief discussions of these statutes, and others, in § I.C (Regulatory and Administrative Framework).

This section of CPAI's comments provides a short summary of important OCS Lands Act and NEPA requirements that are relevant to, and that support, CPAI's comments and concerns. As discussed further in Sections III and IV below, proposed exclusion zone restrictions for seismic activities at the 120 dB and 160 dB isopleths are not feasible, present serious unwarranted risks to human life, lack a scientific justification, and conflict with the OCS Lands Act and NEPA.

A. Outer Continental Shelf Lands Act

The OCS is a significant source of oil and gas for the Nation's energy supply. Offshore areas of the United States supply over 25 percent of the country's natural gas and oil production, and are estimated to contain roughly 60 percent of the oil and 40 percent of the natural gas resources in remaining undiscovered fields in the United States. The important role of oil and gas exploration and development in the OCS is clearly reflected in the OCS Lands Act and its implementing regulations.

In 1978, Congress specifically amended the OCS Lands Act to address both the nation's energy needs and safety concerns. The congressional policies embodied in the 1978 Amendments declare the OCS to be a vital national resource with significant quantities of oil and natural gas that should be made available for "expeditious and orderly development" subject to appropriate "environmental safeguards." 43 U.S.C. §§ 1332(3), 1801(7), 1802(1)-(2) (OCS resources should be made available as "rapidly as possible" to reduce dependence on foreign sources and meet the nation's energy needs). In addition, Congress stated that operations on the OCS should be conducted in a "safe manner" which prevents or minimizes activities that endanger life or health. 43 U.S.C. §§ 1332(6), 1801(9), 1802(3) (regarding safety concerns).

In amending the OCS Lands Act, Congress recognized the central role exploration plays in the successful development of OCS oil and natural gas resources. 43 U.S.C. § 1334(a)(7) (directing Secretary to promulgate regulations for the prompt and efficient exploration of the OCS); H.R.

Rep. No. 95-590 at 70 as reprinted in 1978 U.S.C.C.A.N. at 1477 (noting importance of seismic exploration to discovery of undetected recoverable reserves); id. at 1551-52 (intentionally preserving Secretary's authority to permit public and private exploration strategies before lease sale). Information about hydrocarbon resources and sea floor properties gained through seismic exploration is essential to Congress' goal in the OCS Lands Act of making energy resources on the OCS available to meet the nation's energy needs as "rapidly as possible." 43 U.S.C. §§ 1332(3), 1802(2); St. Pierre Decl., Ex. E (2006 PEA at 1, 3).[2]

Courts interpreting the OCS Lands Act have consistently found that expeditious exploration and development of the OCS is the *primary purpose* of the statute. Natural Res. Def. Council, Inc. v. Hodel, 865 F.2d 288, 302 (D.C. Cir. 1988); Energy Action Educ. Found. v. Andrus, 631 F.2d 751, 761 & n.58 (D.C. Cir. 1979) ("'basic purpose of [the OCS Lands Act] is to promote the swift, orderly and efficient exploitation of our almost untapped domestic oil and gas resources'" in the OCS) (quoting H.R. Rep. No. 95-590 at 53 as reprinted in 1978 U.S.C.C.A.N at 1460). Indeed, because expeditious exploration and development of the OCS is the objective of the statute, environmental considerations, while important, need not be given the same weight as those related to potential oil and gas discovery. California v. Watt, 668 F.2d 1290, 1316-17 (D.C. Cir. 1981) ("A balancing of factors is not the same as treating all factors equally.").

In enacting the OCS Lands Act, Congress was well aware that oil and gas exploration and development of the OCS is not without environmental impacts. Nevertheless, Congress established a clear mandate for expeditious exploration and development of OCS oil and gas resources. MMS must authorize such activities under the OCS Lands Act provided that impacts to human, marine and coastal environments are reasonably balanced with energy needs.

B. National Environmental Policy Act

Although the OCS Lands Act establishes the primary standards applicable to decisions by the MMS to authorize the proposed action, the DEIS is also subject to the requirements of NEPA. In contrast to the OCS Lands Act, NEPA does not mandate particular results:

> [I]t is now well-settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process. [citations omitted]. If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA to deciding that other values outweigh the environmental costs. . . . Other statutes may impose substantive environmental obligations on federal agencies, but NEPA merely prohibits uninformed – rather than unwise – agency action.

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[2] Copies of the St. Pierre Declaration, as well as the other declarations referenced in these comments, have previously been served on MMS. Nevertheless, additional copies of these materials are provided to MMS as attachments to this comment letter. See § V below.

Robertson v. Methow Valley Citizens Council, 490 U.S. 322, 350-51(1989). The focus of NEPA's process is to ensure federal agencies take a hard look at the probable environmental consequences of a proposed action and a reasonable range of alternatives.

Two aspects of NEPA environmental impact analysis are particularly relevant to the Lease Sale 193 DEIS. First, while NEPA does not mandate particular results, MMS is required to distinguish between significant impacts and non-significant impacts based upon consideration of the context and intensity of the proposed action and alternatives. MMS has clarified its significance analysis by identifying "significance thresholds" for each resource category in § IV.A.1. As defined by MMS, impacts which meet or exceed the established significance threshold constitute significant impacts, while impacts that fall below the significance threshold do not. Having established such thresholds, it is incumbent upon MMS to quantify the probable impacts by resource category in order to determine whether the proposed action does or does not meet the significance thresholds.

Second, while the consideration of a reasonable range of alternatives is central to NEPA process, the choice of alternatives is bounded by common notions of feasibility. Accordingly, an agency is not required to consider alternatives or mitigation whose implementation is remote, speculative, ineffective, inconsistent with the basic policy objectives of the proposed action, or would not serve the purposes of the proposed action. Consistent with this requirement, MMS has previously acknowledged that its alternatives must be "implementable," which MMS defines as "feasible in the technical (logistical or engineering limitations), environmental, economic and social senses." See MMS' Programmatic Environmental Assessment of Arctic Ocean Outer Continental Shelf Seismic Surveys – 2006 (2006 PEA) at § II.B .[3]

II. ALTERNATIVES ANALYSIS

The DEIS identifies and analyzes four alternative agency actions for Lease Sale 193. Alternative I, the Proposed Action, would allow MMS to offer for lease approximately 6,155 whole or partial blocks, and excludes from leasing a 15-mile to 50-mile corridor along the coast (the "polynya" or "spring lead system"). Alternative II is the No Action alternative. Alternatives III and IV would authorize the lease sale subject to coastal lease exclusion corridors that are more expansive than identified in Alternative I. Curiously, the DEIS does not analyze either of the two Chukchi Sea leasing alternatives identified by MMS in its Proposed OCS leasing program for 2007 – 2012 (Proposed Plan for 2007-2012), which is the 5-year OCS leasing plan pursuant to which Lease Sale 193 will be conducted. The Proposed Plan for 2007-2012 analyzes

[3] MMS' 2006 PEA is often referenced by the Lease Sale 193 DEIS in regard to potential impacts from seismic activity. Accordingly, in addition to the comments provided in this letter, CPAI hereby incorporates the 2006 PEA comment letter submitted to MMS by the Alaska Oil and Gas Association dated May 10, 2006. See § V below.

proposals to open the Chukchi Sea OCS to leasing without a coastal exclusion zone (Alternative 1) and with a 25-mile coastal exclusion zone (Alternative 5).

CPAI strongly supports a lease sale for the Chukchi Sea OCS consistent with Alternative 1 (the Proposed Action) identified in MMS' pending Proposed Plan for 2007-2012 and the related DEIS. MMS' proposed action for the 2007-2012 5-year period does not include a coastal exclusion zone in the Chukchi Sea. Effective protection of resources may be accomplished without excluding coastal areas from leasing through the use of stipulations. In the alternative, CPAI supports Alternative I, but modified consistent with Alternative 5 identified in the Proposed Plan for 2007-2012, which would establish a 25-mile coastal exclusion zone. CPAI opposes Alternatives II through IV in the DEIS because they are not consistent with MMS' existing 5-year plan, the new 5-year plan under which Lease Sale 193 will take place, or the purposes of the OCS Lands Act. The restrictive approaches identified in Alternatives II though IV of the Lease Sale 193 DEIS are not necessary or justified to mitigate significant potential environmental impacts.

A. Alternatives That MMS Should, But Did Not, Analyze

Section 18 of the OCS Lands Act, 43 U.S.C. § 1344, requires the preparation of a 5-year plan that specifies, as precisely as possible, the size, timing and location of areas to be assessed for Federal offshore oil and gas leasing. Lease Sale 193 will be conducted under the 5-year plan for 2007–2012, which currently is in the proposed stage.

The Proposed Plan for 2007-2012 analyzes two alternative actions (other than the no action/no leasing alternative) with respect to leasing of the Chukchi Sea OCS. Under Alternative 1 of the Proposed Plan for 2007-2012, the Chukchi Sea OCS planning area would be opened to leasing without lease exclusion zones. Under Alternative 5, the planning area would be opened to leasing, except for a 25-mile coastal corridor. Because MMS has not identified or analyzed any other program options regarding the Chukchi Sea OCS, it is reasonable to expect that MMS will adopt a final 5-year plan for 2007-2012 consistent with one of these two choices.

010-001

Unfortunately, and inexplicably, MMS' Lease Sale 193 DEIS does not consider or analyze either of these alternatives. Accordingly, none of the three action alternatives analyzed in detail in the DEIS are consistent with MMS' Proposed Plan for 2007-2012 and the requirements of the OCS Lands Act. Nor is the choice of alternatives in the DEIS consistent with the requirements of NEPA. NEPA mandates that MMS analyze in detail a reasonable range of alternatives.

> Consideration of reasonable alternatives is necessary to ensure that the agency has before it and takes into account all possible approaches to, and potential environmental impacts of, a particular project. NEPA's alternatives requirement, therefore, ensures that the "most intelligent, optimally beneficial decision will ultimately be made."

Northern Alaska Environmental Center v. Kempthorne, 457 F.3d 969, 978 (9th Cir. 2006), quoting Calvert Cliffs' Coordinating Comm. v. U.S. Atomic Energy Comm'n, 440 F.2d 1109, 1114 (D.C.Cir. 1971). While we do not intend to suggest that MMS is required to consider every available alternative, it is inconceivable that a reasonable range of choices does not include either of the two alternatives identified in MMS' proposed 5-year plan. More specifically, although the 25-mile exclusion zone analyzed in the Proposed Plan for 2007-2012 might fall within the reasonable range of the exclusion zone choices analyzed in the Lease Sale 193 DEIS, it is clear that MMS has unreasonably failed to analyze a no exclusion zone alternative. MMS should include these reasonable and previously-analyzed alternatives in the Final EIS. In addition, as discussed further below, MMS should select modified Alternative 1 from the Proposed Plan for 2007-2012 as the Preferred Alternative because this option most fully satisfies the OCS Lands Act's mandate for expeditious and environmentally sound oil and gas resource development.

010-001

B. Alternative I (Proposed Action)

CPAI strongly supports adoption of a modified version of Alternative I - the Proposed Action. CPAI proposes that MMS modify Alternative I to eliminate the lease exclusion corridor, and to allow leasing and exploration activities throughout the planning area subject to appropriately protective lease stipulations. Alternatively, CPAI supports modifying Alternative I consistent with Alternative 5 in MMS' PP for 2007-2012 to adopt a 25-mile coastal lease exclusion zone.

1. Lease exclusion zones unduly restrict exploration that may be conducted under protective lease stipulations

The remote Chukchi Sea is an area of uncertain but high oil and gas potential. As well-stated by the MMS in the DEIS:

010-002

> In a typical frontier area a simple concept often holds true – area equals opportunity. Removing areas from leasing will eliminate the chance that commercial development will occur in that particular area. In one sense, deferring an area could redirect exploration effort into remaining open areas. However, considering the area as a whole, restricting access limits the opportunities for successful exploration, which could lead to commercial development.

DEIS for Lease Sale 193 at pp. IV-8, -9. Opening up the broadest area for leasing, while imposing protective requirements within the proposed 25-mile coastal zone that allow exploration activity during summer and fall months would be equally protective of marine and coastal resources, without preempting valuable leasing and exploration activities.

As MMS has acknowledged, exclusion of areas from leasing limits the opportunities to discover commercially developable oil and gas reserves. MMS has analyzed a range of lease exclusion zones, finding that more expansive exclusion zones result in opportunity losses of between 15 percent and 36 percent. See 2006 DEIS for Lease Sale 193 at p. IV-9 & Table IV.A-3.

Unfortunately, these lost opportunity calculations use the opportunity presented by leasing with a 15- to 50-mile exclusion zone as the baseline. Accordingly, the DEIS does not identify the relative lost opportunity that would result from using a no exclusion zone with protective lease stipulations scenario as the baseline, and then analyzing a 25-mile exclusion zone as proposed in MMS' pending 5-year plan, the 15- to 50-mile exclusion corridor proposed in Alternative I, and the more expansive exclusion areas proposed in Alternatives III and IV. In this respect, the DEIS is deficient under NEPA because it neither provides necessary information, nor analyzes the reasonable range of alternatives.

010-002

2. The environmental benefits of a coastal lease exclusion zone have not been analyzed

MMS has not analyzed the environmental consequences of conducting Lease Sale 193 without a coastal exclusion zone. CPAI assumes that MMS has proceeded in this manner because the current 5-year leasing plan provides for the polynya exclusion zone identified in Alternative I. However, Lease Sale 193 will not be conducted pursuant to the existing 5-year plan. MMS' Proposed Plan for 2007-2012, pursuant to which Lease Sale 193 will be conducted, does not propose the polynya exclusion zone identified in Alternative I. Moreover, MMS' Proposed Plan for 2007-2012 analyzes a no exclusion zone alternative that is never even mentioned in the Lease Sale 193 DEIS. Accordingly, for the reasons stated in § II.A above, MMS' failure to analyze the environmental consequences of conducting Lease Sale 193 without an exclusion zone fails to satisfy the requirements of NEPA.[4]

010-003

3. Seismic activity is not conducted in the polynya

The principal purpose of the proposed lease exclusion zones is protection of the spring bowhead migration and spring subsistence hunt.[5] However, seismic activity is not conducted in the polynya, and other stipulations could protect the spring migration and subsistence hunt without closing the area to all oil and gas exploration and development.

010-004

[4] In the absence of any analysis in this DEIS, it is notable that the DEIS for the Proposed Plan for 2007-2012 does not indicate that significant and unmitgatable impacts are expected to resources in the absence of a coastal lease exclusion zone. See CPAI's letter of November 22, 2006 to Ms. Renee Orr and Mr. James Bennett of MMS (comments regarding MMS' proposed OCS leasing program for 2007-2012) at § II.A.1.

[5] See DEIS for Lease Sale 193 at p. IV-149 (seismic surveys could have "biologically significant" adverse impacts if they affected areas of the polynya).

The polynya and related spring bowhead whale migration are, by definition, a seasonal event.[6] During this time, seismic exploration is not feasible due to heavy ice conditions. Moreover, MMS has never allowed seismic or other oil and gas activity to occur prior to July, after completion of the spring bowhead migration and the spring subsistence hunt. Because lease exclusion zones would foreclose all activities year round in an effort to protect a seasonal resource issue, such regulatory restrictions are an unnecessarily blunt tool. Seasonable permit stipulations, for example, would be a more targeted and effective means of protecting the polynya than closing large areas to all oil and gas activities.

4. Essential support activities must be allowed in lease exclusion areas

If MMS does exclude coastal areas from Lease Sale 193, it is essential that MMS clarify the intent and scope of its decision. Even if coastal areas are excluded from oil and gas leasing, vessel traffic through these areas to coastal communities will be necessary in order to support and supply exploration and development activities within leased areas of the Chukchi Sea. If MMS were to determine that all support activities are prohibited within the exclusion zone, it would not be practicable to conduct exploration, let alone development, in most of the remote Chukchi Sea OCS. Accordingly, if a coastal exclusion zone is established for Lease Sale 193, MMS' decision should make clear that supply and support activities through the exclusion zone are not prohibited.

010-005

C. Alternatives III and IV

For the reasons discussed in connection with Alternative I above, CPAI opposes Alternatives III and IV. These alternatives would exclude even larger areas from leasing, resulting in lost opportunity to discover commercial developable reserves calculated by MMS at 15 to 35 percent in comparison to Alternative I (which, due to the proposed polynya exclusion zone, already results in significant lost opportunity that MMS has not calculated). This lost opportunity is not justified as mitigation for anticipated environmental impacts because the probable impacts are generally short-term, localized and not significant, and because sensitive resources and the subsistence hunt may be protected in other less restrictive but effective ways.

010-006

The polynya exclusion zone is defined as the spring lead system used by the BCB Seas bowhead whale stock for its spring migration and by local communities for their spring bowhead whale

[6] Although bowheads predictably migrate through the polynya in the spring, thereby supporting a spring subsistence hunt, there is no evidence that bowheads use the same area preferentially or in significant numbers during the fall migration. To the contrary, recent data from satellite tagged whales confirms that bowheads migrate due west from Pt. Barrow to the west coast of the Chukchi Sea, and then south along the coast to Bering Sea wintering areas. See http://www.wc.adfg.state.ak.us/index.cfm?adfm?adfg=marinemammals.bowheads. Consistent with this pattern, insofar as CPAI is aware, there have been no fall bowhead subsistence hunts in the Chukchi Sea since the 1880s.

subsistence hunt. The expanded exclusion zones identified in Alternatives III and IV are intended to afford additional protection to the BCB Seas bowhead whale stock during the spring migration and to also afford additional protection to the spring subsistence hunt. However, lease exclusion zones are not necessary to protect the spring migration and related subsistence hunt. MMS has never allowed open water oil and gas activities to occur in the Chukchi Sea until July in order to protect the spring migration and subsistence hunt. Protective lease stipulations of this type have in the past, and would again in this instance, ensure protection of the spring migration and subsistence hunt without expansive lease exclusion areas.

Several conclusions by MMS are especially notable in establishing that there is no sound basis for creating expansive lease exclusion zones in this instance. First, MMS has concluded that the probable environmental impacts under Alternative I from all routine activities resulting from Lease Sale 193 to subsistence resources would not be significant.[7] Indeed, MMS has concluded in connection with its 5-year planning process that only limited non-significant impacts would be expected to subsistence activities and resources from lease sales in the Chukchi Sea without lease exclusion zones. See DEIS Proposed Plan for 2007-2012 at IV-226. Second, MMS has concluded that adoption of either Alternative III or IV would not change its estimate of potential significant adverse impacts from the proposed lease sale and subsequent activities. See DEIS for Lease Sale 193 at ES-vi & §§ IV.C.2-.3. In other words, analyzed by resource category, the scale and intensity of environmental impacts under Alternative I (polynya deferral area), is the same as the scale and intensity of environmental impacts under either Alternatives III or IV (substantially larger deferral areas). Third, MMS has accurately observed that because adoption of expansive deferral areas causes a significant reduction in the opportunity for discovery of commercially developable reserves, it only transfers or exports environmental impacts to other countries. Id. at ES-vi. As MMS has correctly assessed, restrictions placed upon Lease Sale 193 will not result in a reduction of U.S. energy needs. Insofar as oil is not discovered and produced from Chukchi Sea resources, most of the avoided environmental impacts are transferred to those countries from which the U.S. imports oil and to those countries along transportation routes.

010-007

D. Alternative II (No Action)

CPAI opposes Alternative II because the no action alternative would conflict with, rather than promote, the objective of the OCS Lands Act. The objective of the OCS Lands Act is the expeditious development of OCS resources to help meet the Nation's future energy needs. In addition, the no action alternative would be inconsistent with both the current plan and the succeeding proposed 5-year plan for oil and gas leasing. Finally, we concur in MMS' conclusion that adoption of Alternative II would not avoid environmental impacts, but rather would result in the transfer or export of environmental consequences to those countries from or through which the U.S. imports oil. See DEIS for Lease Sale 193 at ES-vi.

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[7] See DEIS for Lease Sale 193 at ES-iv ("Short-term, local disturbance could affect subsistence-harvest resources, but no resource or harvest area likely would become unavailable, and no resource population would experience an overall decrease.").

III. SEISMIC SURVEYS HAVE NOT CAUSED DISCERNABLE ADVERSE IMPACTS TO ANY MARINE MAMMAL POPULATION

Geophysical surveys using seismic reflection are an essential, state-of-the-art, component of oil and gas exploration in the OCS. Geophysical data are used by both industry and the MMS to make informed economic and regulatory decisions regarding potential accumulations of oil and natural gas. As one of the earliest components of the lengthy and costly process leading from leasing of lands, to exploration, development and production of hydrocarbon resources, seismic surveys are both critical to OCS resource development mandated by Congress and, in the marine environment, a low impact activity with no detectable long-term effects.[8]

The DEIS contains (or incorporates by reference) extensive discussion and analysis of environmental impacts related to possible preleasing seismic activities in 2007 or postleasing seismic activity in later years. The principal focus of this analysis is on potential impacts from noise on marine mammal populations, particularly the BCB Seas stock of bowhead whales. In general, CPAI concurs in the findings in the DEIS that no population-level impacts are expected. See, e.g., DEIS for Lease Sale 193 at II-33 (overall, bowheads likely to experience only temporary, nonlethal effects), IV-180 (same). In fact, as MMS has stated in connection with its ongoing 5-year planning process for OCS leasing, there is also no evidence that seismic exploration has ever resulted in detectable reductions of any marine mammal stock or species population.

> [T]here is no evidence to suggest that routine [seismic] surveys may result in population-level effects for any of the affected marine mammal species. There have been no documented deaths, physical injuries, or physiological effects on marine mammals from seismic surveys (MMS, 2004a).

See DEIS for the Outer Continental Shelf Oil & Gas Leasing Program: 2007-2012 (OCS EIS/EA MMS 2006-004) at IV-115. This fact is strong support for both the absence of significant adverse environmental impacts from probable seismic exploration activities,[9] and for authorizing seismic activity throughout the Chukchi Sea OCS in Lease Sale 193.

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[8] See St. Pierre Decl. Ex. G (2006 PEA) p. 3 ("The MMS needs geological and geophysical seismic-survey information to fulfill its statutory responsibilities to ensure safe operations, support environmental impact analyses, . . .and perform other statutory responsibilities.").

[9] The NEPA significance threshold established by MMS for threatened or endangered species, such as the bowhead whale, and for polar bears "is an adverse impact that results in a decline in abundance and/or change in distribution requiring one or more generations for the indicated population to recover to its former status." DEIS for Lease Sale 193 at p. IV-5. For other biological resources, including seals, walrus, and other whale stocks, the significance threshold is set at a decline in abundance or a change in distribution requiring three or more

Despite the clarity of decades of observations and data, and despite MMS' conclusion that impacts to all stocks of marine mammals are expected to be temporary and nonlethal, the DEIS includes or references unsupportable statements regarding potential adverse impacts to the BCB Seas stock of bowhead whales. In various places, the DEIS indicates that significant uncertainty exists regarding potential impacts of seismic activity on bowhead whales, particularly with respect to calf survival and growth, and female reproduction. See, e.g., DEIS for Lease Sale 193 at IV-149. With respect to bowhead cows and calves, the DEIS and materials incorporated by reference speculate without support that seismic activity could have population-level impacts by separating cow/calf pairs. The DEIS also assumes that bowhead whales will deflect from seismic activity by a distance of at least 20 kilometers. Id. at pp. IV-146. Each of these statements is addressed in detail below.

A. Seismic activity has never caused population-level impacts to marine stocks

There is no evidence that seismic exploration has ever resulted in detectable reductions of any marine mammal stock or population.

> Available information does not indicate that oil- and gas-related activity (or any recent activity) has had detectable long-term adverse population-level effects on the overall health, current status, or recovery of the BCB Seas bowhead population. Data indicate that the BCB Seas bowhead whale population has continued to increase over the timeframe that oil and gas activities has occurred.

Biological Evaluation of the Potential Effects of Oil and Gas Leasing and Exploration in the Alaska OCS Beaufort Sea and Chukchi Sea Planning Areas on Endangered Bowhead Whales (*Balaena mysticetus*), Fin Whales (*Balaenoptera physalus*), and Humpback Whales (*Megaptera novaeangliae*) (MMS' 2006 Alaska OCS BA) at p. 123. This fact is strong support for MMS to adopt an oil and gas leasing plan that allows for seismic activity throughout the Chukchi Sea OCS.

CPAI is aware of no evidence in the scientific literature of seismic operations causing mortality, injury, or decline in any marine mammal population. NMFS has prepared stock assessment reports annually since 1995 for sixty-five species of marine mammals in the North Pacific Ocean, Alaskan Arctic Ocean, Eastern North Pacific Ocean, Gulf of Mexico, and Eastern Tropical Pacific Ocean (Hawaii), which address mortality as well as other population characteristics for determining each species status.[10] Over this 11-year period (2005 is most

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generations for recovery. The DEIS finds that the expected impacts from all routine activities that may occur as a result of Lease Sale 193, let alone from seismic exploration, do not meet these significance thresholds (i.e., the probable environmental impacts from the proposed action on bowhead whales and on other marine mammals are not expected to be significant.).

[10] See http://www.nmfs.noaa.gov/pr/sars/species.htm.

recent reporting period), there have been active seismic activities in the Gulf of Mexico, the western North Atlantic Ocean, the eastern North Pacific Ocean, and the sub-Arctic and Arctic Ocean off Alaska and adjoining Canada. Yet, for this same span of years, there have been no reported deaths or injuries of marine mammals, or declines of their populations, from seismic operations.

Deaths, injuries, and population declines of marine mammals documented in the status reports have been associated with fisheries interactions and harvest, ship strikes, chemical pollution, debris, sonar, and commercial and aboriginal harvest of marine mammals. Similar findings have been reported for the world stocks of polar bears with over-hunting being the most common factor for polar bear declines (Lunn et al. 2002).[11] Consequently, marine mammal population declines or failures of populations to increase have been entirely associated with these anthropogenic effects and not seismic operations.

B. The BCB Seas population of bowhead whales is healthy and resilient

CPAI concurs in MMS' findings regarding the health and resilience of the BCB Seas stock of bowhead whales. As determined by MMS earlier this year:

> All available information (e.g., Shelden et al., 2001; IWC, 2004a, b; NMFS, 2003a, b) indicates that the BCB Seas population of bowheads is increasing, resilient to the level of mortality and other adverse effects that are currently occurring due to the subsistence hunt or other causes, and may have reached the lower limit of the estimate of the population size that existed prior to intensive commercial whaling.

MMS' 2006 Alaska OCS BA at p. 10. See also DEIS for Lease Sale 193 at p. IV-118 ("Based on available information, the bowhead population that may be affected is robust and resilient to a relatively steady lethal take in the subsistence hunt. . . . We do not expect direct mortality on baleen whales from the Proposed Action but acknowledge that mortality could occur. However, it is clear that this population has continued to recover, despite previous activities that caused disturbance and lethal take. This continued recovery is informative about its resilience at least to the level of disturbance and take that have occurred within the past 20 years.").

It is well-established that the BCB Seas population of bowhead whales is healthy and increasing (Angliss and Outlaw, 2005). The current population estimate is 10,470-10,545 bowhead whales (Zeh and Punt 2004, George et al. 2004a), which may be approaching its carrying capacity (Brandon and Wade 2004). In addition, the population is increasing at an annual rate of 3.4-3.5% (359-369 whales/year), which is a rate similar to previous estimates and indicative of a reproductively healthy population (Brandon and Wade 2004; George et al. 2004a). The most

[11] Complete citations to scientific sources referenced in this comment letter are provided in Appendix A.

recent published count of 121 calves during the 2001 census was the highest recorded for the population (George et al. 2004a). The high calf count is reflected in a high pregnancy rate and low length at sexual maturity, which is characteristic of an increasing population (George et al. 2004b). George et al. (2004a) concluded that the recovery of the BCB Seas bowhead whale population is likely attributable to low anthropogenic mortality, relatively pristine habitat, and well-managed subsistence harvest.

The increase in the BCB Seas population has coincided with over 30 years of oil and gas activities in the Beaufort and Chukchi Seas. Activities have included offshore seismic drilling, and production on man-made islands. During this time and throughout these activities the population has grown from fewer than 5,000 to over 10,000 animals (Zeh and Punt 2004). In addition, the population has maintained, with no noticeable alteration, interruption, or displacement, its historical seasonal use patterns and migrations between the Bering and Beaufort Seas (Treacy 2001, 2002; Treacy et al. 2006). These events have occurred every year during the period of oil and gas activities at essentially the same general time, location, and order by sex and age groups, except when affected by ice conditions.

The health of the population and regularity of the timing and location of the migration has enabled the Eskimo hunters to harvest 832 bowhead whales between 1974 and 2003 (Suydam and George 2004). The number of whales harvested each year has been fairly consistent as demonstrated for the period between 1999 and 2003, the period with the most recent records. During this time, the annual harvest was 42, 35, 49, 37, and 35 whales (Suydam and George 2004), which is similar to the harvest in the previous seven years. Variation in the harvest is due to the environmental factors (Suydam and George 2004). The International Whaling Commission (IWC) set the quota in 2002 at 67 strikes per year with a total landed not to exceed 280 over a five-year block. This information confirms that the integrity of the harvest and availability of bowhead whales to hunt has not been affected by activities of the oil and gas industry.

C. There is no evidence that bowhead cows abandon their calves in response to seismic exploration or any other human activity

Although MMS has concluded that overall impacts to marine mammals are expected to be limited, the DEIS and other incorporated materials repeatedly make the unsupported statement that significant impacts to stocks could occur if activities result in the separation of cow and calf pairs. This statement is entirely without scientific support. There is no evidence in the scientific literature regarding bowhead or other baleen whales, that indicates seismic exploration and related activities have ever caused the separation of cow/calf pairs or resulted in a cow abandoning its calf or a feeding area. To the contrary, all of the scientific evidence shows that seismic and other anthropogenic activities, including the most extreme activity, commercial whaling, have not caused the separation or abandonment of cow/calf pairs. The cow/calf maternal bond in bowhead and other species of whales is among the strongest found in nature.

The unyielding strength of this mother-offspring bond is supported by field observations reported by renowned marine mammal researchers and accounts by commercial whalers. Years of field observations of bowhead whales have never shown seismic operations to cause cow-calves to separate or abandon each other (Reeves, et al. 1984; Richardson et al 1986, 1987; Koski and Johnson 1987; Richardson 1999). Moreover, the scientists responsible for these studies as well as unpublished observations and studies (John Richardson, Bill Koski, and Bernd Wursig),[12] who have collectively logged thousands of hours of observations of bowhead whales, have all confirmed that they have never observed a single instance of seismic operations or other oil and gas activities in the Alaska Arctic Ocean causing a cow to separate from or abandon its calf. Similar findings have been reported for other marine mammals exposed to man-caused activities, where NMFS scientist Phillip Clapham[13] has not observed or found any cases of humpback whale cows separating or abandoning calves because of an anthropogenic activity. Consistent with these observations of the cow/calf bond, Wartzok et al (1989) reported two observations of bowhead cows and calves separated by a few hundred meters quickly rejoined each other when a ship approached them.

Commercial whalers often capitalized on this cow/calf relationship to kill whales. Tonnessen and Johnson (1982) reported that whalers hunting right whales would first harpoon the calf, and as the mother refused to abandon her young, she became easy prey for the harpooner. Scammon (1968) noted that whalers commonly hunted the lagoons off Mexico for gray whales, where a cow with a young calf made it easy to harpoon the parent because in trying to escape the calf would tire rendering the inseparable cow vulnerable to kill.

The strength of this bowhead cow/calf bond to persist throughout the history of seismic and other oil and gas operations in the Beaufort Sea is demonstrated by the rate of increase in the western arctic bowhead whale population. The population has increased from a few thousand whales in the 1970s to an estimated 10,545 animals in 2001 (George et al. 2004a; Zeh and Punt 2004; Angliss and Outlaw 2005). The population has been increasing at an annual rate of 3.4-3.5% or over 350 calves per year, which if extrapolated to 2006 would currently put the population size over 12,000 animals (adjusted for the aboriginal harvest) or well within the 10,400-23,000 whales estimated in the population prior to commercial whaling (Brandon and Wade 2004; Angliss and Outlaw 2005; Woodby and Botkin 1993). These results clearly show that the population is growing and reproductively healthy (George et al. (2004a); George et al. (2004b)), and the calf survival rates are high, which collectively confirm that the cow/calf bond has not been disrupted or altered by seismic or other oil and gas operations.

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[12] John Richardson, LGL, personal communication with Jay Brueggeman on October 12, 2006; Bill Koski, LGL, personal communication with Jay Brueggeman on October 12, 2006; Bernd Wursig, Texas A&M, personal communications with Jay Brueggeman on November 8, 2006.

[13] Phillip Clapham, NMFS, personal communication with Jay Brueggeman on November 7, 2006.

D. Bowhead whales do not routinely deflect 20 kilometers from seismic operations

The DEIS includes statements that bowhead whales have rarely been observed within 20 kilometers of active seismic operations. See, e.g., DEIS for Lease Sale 193 at IV-146. However, this statement is contradicted by the available scientific literature. Bowheads have been observed near operating seismic ships (Reeves, et al. 1984; Richardson et al 1986, 1987; Brueggeman et al. 1990) and near controlled tests with single airguns and airgun arrays (Richardson et al. 1986; Ljungblad et al. 1988). Bowheads exposed to pulses from vessels more than 7.5-8 km away rarely show avoidance (Reeves, et al. 1984; Richardson et al 1986, 1987; Koski and Johnson 1987). Summering bowheads showed normal activities 3-5 km from active seismic operations (Richardson et al 1986). These studies clearly demonstrate that bowheads commonly occur well within 20 km of active seismic operations.

More recently, a study reported by Richardson (1999) concluded that migrating bowheads avoid active seismic operations by at least 20 km. However, the interpretation of the data is questionable based on the sample size and absence of corroborating behavioral observations recorded during the study as discussed below. Sample sizes were small or problematic in the three-year study Richardson used to draw his conclusions. The data were analyzed for 1996, 1997, and 1998 to assess response of bowheads to seismic sounds. Sample sizes were 26 bowheads observed during no-seismic and 11 during seismic in 1996, 115 during no-seismic and 6 during seismic in 1997, and 59 during no-seismic and 65 during seismic in 1998. The sample sizes for 1996 and 1997 were clearly too small to draw any conclusions about seismic effects. The sample sizes were adequate in 1998 for analysis, but too few animals were recorded in the 0-10 km and 10-20 km distance intervals for no-seismic (3, 4 whales) to compare with seismic (0, 2) operations for analysis, suggesting that the absence of more similar numbers of whales to those in more distant categories may have been due to other factors than seismic operations. Furthermore, the mere presence of two bowheads in the 10-20 km interval during seismic operations indicates that not only were some whales relatively close, but their distribution was apparently unaffected by the operations.

Distances of all whales from the operations were highly variable over a wide range of distances, including those in the higher distance categories for no-seismic and seismic periods. The variability of these observations suggests that the observed distribution more likely was caused by natural events such as location, movement, and abundance of prey resources and not necessarily seismic operations. An even distribution of whales relative to distance would be expected for no seismic unless this relationship was affected by natural environmental conditions or normal bowhead behavioral activities. It is noteworthy that seismic operations have been shown to cause behavioral responses of bowheads at or above the 160 dB, which corresponds to distances of 3-8 km from a seismic vessel, beyond which (i.e., 10-20 km) behavior would be expected to be normal (Richardson et al. 1986).

In addition, bowhead whale behavior observed during the study does not support Richardson's conclusions. Responses of bowheads to a disturbance are expressed by changes in normal

behavior, such as changes in headings, swim speed and resting. However, behavioral changes were not seen in the bowheads observed by Richardson (1999) during the no-seismic versus seismic operations. In fact, Richardson states that there was (1) no significant difference in bowhead headings between seismic and no-seismic periods, (2) proportions of various behaviors observed during seismic periods were similar to those during no-seismic periods, and (3) there was no significant difference in the swimming speeds of bowheads during seismic and no-seismic periods. These analyses provide no evidence of the seismic operations affecting bowhead, and suggest the bowheads were behaving normally, which would be expected since they were beyond the 160 dB level.

As a consequence, the small sample sizes and lack of corroboration of the behavioral data argues against Richardson's conclusions. Clearly, other factors may have been responsible for the distribution of bowheads relative to seismic operations. A key consideration that was not measured was the distribution of prey resources at the time of the observations. Bowhead distribution could have been associated with feeding or other environmental factors, which is indicative of the observed normal behavior and uneven distribution of bowheads during the seismic and no-seismic periods. More years of data than essentially the one year used in Richardson's analysis are necessary to draw any conclusions about bowhead responses during no-seismic and seismic operations at the distances reported by Richardson (1999). In addition, future studies should include measurements of prey distribution and abundance to assess bowhead distribution relative to distance from active seismic operations.

IV. PROPOSED MITIGATION MEASURES INVOLVING SEISMIC ACTIVITY EXCLUSION ZONES AT THE 120 dB and 160 dB LEVELS ARE UNSAFE, ARE NOT FEASIBLE TO IMPLEMENT AND ARE NOT SUPPORTED BY SCIENCE

The DEIS includes discussion and analysis of all of the mitigation measures for seismic operations previously identified in the 2006 PEA. See, e.g., DEIS for Lease Sale 193 at § II.B.4.b. These mitigation alternatives include imposition of seismic survey exclusion zones at either or both the 160 dB and 120 dB isopleths. Id. p. II-22 (identifying Seismic Survey Mitigation Alternatives) 3 (120 dB exclusion zone), 4 (160 dB exclusion zone) and 5 (120 dB and 160 dB exclusion zones). The DEIS and 2006 PEA suggest that these extraordinary measures may be justified by general concerns regarding uncertainty and information gaps, concerns regarding potential impacts to cow/calf pairs, and concerns regarding as many as four simultaneous seismic surveys. Id. at p. II-28.

CPAI's objections to these proposed mitigation measures are well-known to MMS. In commenting on the 2006 PEA, CPAI opposed these measures because there is no scientific basis to support them, because they are not safe or implementable, and because such extraordinary restrictions are not justified as mitigation for the minor environmental consequences of seismic operations.[14] After these measures were imposed in permits issued by MMS and NMFS, CPAI

[14] CPAI's comments on the 2006 PEA were incorporated in and presented through the written comments of AOGA. See Note 2 above.

challenged these measures in federal district court and before the Interior Board of Land Appeals (IBLA). As MMS is aware, CPAI was also able to conduct its 2006 seismic program because the federal district court and the IBLA stayed implementation of the 120 dB exclusion zone requirement. In doing so, the court emphasized, quoting from a joint MMS and NMFS document, that "'the bowhead whale population is robust and has increased steadily over the past several decades alongside ongoing seismic exploration without the use of the new monitoring requirements.'"[15]

CPAI maintains its strong objections to the 120 dB and 160 dB mitigation options. These requirements are based upon supposition and speculation that cannot be reconciled with decades of well-documented data regarding the sustaining health of the BCB Seas bowhead whale population. Moreover, these measures are impracticable, present significant human safety risks and undermine the purpose of seismic survey programs. In sum, as explained below, these measures conflict with applicable law, the analysis in the DEIS is inadequate under NEPA to support adoption of these measures and, in the final analysis, the measures, however well-intended, lack a rational scientific basis.

A. Scientific Evidence Does Not Support the 120-160 dB Exclusion Zones

1. There is no credible scientific foundation for the 120-160 dB exclusion zones

There is no scientific evidence whatsoever to suggest that the seismic activities associated with Lease Sale 193, with use of a 180 dB exclusion zone and other routine mitigation and monitoring requirements, will have an adverse population-level impact on the BCB Seas stock by reducing annual rates of recruitment or survival, or will have anything more than a minor and transitory effect on individual whales. Brueggeman Decl. ¶¶ 35, 42. MMS has been authorizing offshore seismic activity in the Chukchi and Beaufort Seas subject only to 180 dB monitoring and exclusion zone requirements. Brueggeman Decl. ¶¶ 22-23; St. Pierre Decl. ¶ 12, 21 (indicating substantially similar measures have been used for past 25 years). Throughout this time, the bowhead whale population has continued to increase. Brueggeman Decl. ¶¶ 15-16, 21, 39; St. Pierre Decl., Ex. E (2006 PEA at 83, 86).

MMS and NMFS have both recognized, as indeed they must, that the BCB Seas bowhead population is healthy and has been increasing at a steady rate for many decades. See St. Pierre Decl., Ex. E (PEA at 83) (bowhead whale population "is increasing in abundance and has increased in abundance substantially since the last [ESA] consultation between MMS and NMFS involving the Chukchi Sea OCS Planning Area"); id. (2006 PEA at 86) (data "suggests a steady recovery of this population"); id. (2006 PEA at 100) ("All recent available information indicates that the population has continued to increase in abundance over the past decade and may have

[15] See CPAI v. NMFS, Case No. 3:06-cv-0198, Order Granting Motion for Stay at 2 (D. Alaska, Sept. 8, 2006)

doubled in size since about 1978. The estimated current annual rate of increase is similar to the estimate for the 1978-1993 time series."). As emphasized above, this dramatic population increase has occurred alongside ongoing seismic exploration, oil and gas development, and other industrial activities, all performed *without* use of a 120 dB or 160 dB exclusion zones. Brueggeman Decl. ¶¶ 15-16, 39, 42; see id. ¶ 21 (bowhead whale population has more than doubled in size during period of ongoing oil and gas activities).

Based on this information, MMS and NMFS have determined that "[n]o data are available indicating that, other than historic commercial whaling, any previous human activity has had a significant adverse impact on the current status of BCB Seas bowheads or their recovery." St. Pierre Decl., Ex. E (2006 PEA at 83); see also id. ("Currently available information indicates that bowheads that use the Alaskan Beaufort Sea and Chukchi Sea Planning Areas are resilient at least to the level of human-caused mortality and disturbance that currently exists, and has existed since the cessation of commercial whaling, within their range."); id. (2006 PEA at 85) ("All available information indicates that the BCB Seas population of bowheads is increasing, resilient to the level of mortality and other adverse effects that are currently occurring due to the subsistence hunt or other causes, and may have reached the lower limit of the estimate of the population size that existed prior to intensive commercial whaling."). See § III.A above (no evidence that seismic exploration has ever resulted in a reduction of any marine mammal stock or population).

While there is ample evidence that bowheads are continuing to thrive under a 180 dB monitoring and exclusion zone, there is no scientific information indicating that imposition of 120 dB or 160 dB monitoring and exclusion zones is necessary to prevent undue harm or otherwise protect the species.[16] Indeed, NMFS' longstanding guidance and NMFS' conclusions regarding the impacts of seismic activity conducted using 180 dB mitigation measures contradict any such finding. See 71 Fed. Reg. at 43,117, 43,126 ("NMFS believes that 160 dB is the appropriate threshold for Level B Harrassment.")[17]; Brueggeman Decl. ¶¶ 26-28 (explaining that 160 dB threshold for presuming harassment of cetaceans is conservative); St. Pierre Decl. Ex. D at 6, 8 (NMFS incidental take statement finding that seismic activity conducted using only 180 dB exclusion zone is not likely to result in harm, injury or death to any whales, or cause adverse

[16] The speculative nature of the 120 dB requirement is further illustrated by the fact that neither MMS nor NMFS has been able to established with any degree of certainty that seismic sounds will be discernible by whales over natural background noise at the 120 dB isopleth. As MMS recognizes, ambient sounds in the Chukchi Sea often can exceed 120 dB and are therefore likely to mask seismic sounds at that distance from the source. Id. (2006 PEA at 19) (ambient noise in Arctic marine environment is in the range of 63-133 dB); see also Brueggeman Decl. ¶ 34.

[17] Notably, no federal agency has ever made a finding that "harassment" as defined in the Marine Mammal Protection Act (MMPA) occurs for cetaceans at sound levels below the 160 dB threshold.

population-level impacts); see also DEIS for Lease Sale 193 at II-33 (MMS' finding that overall, bowheads are likely to experience only temporary, nonlethal effects from all oil and gas activities occurring as a result of Lease Sale 193), IV-180 (same).

2. The health and resilience of the BCB Seas stock is not uncertain

The DEIS and other referenced materials largely rely upon uncertainties regarding the biological significance of noise in the marine environment for proposed mitigation at the 120 dB and 160 dB levels. Indeed, there are many uncertainties regarding the biological significance of exposing individual whales to the acoustic effects of seismic surveys and other human activities. However, despite some inevitable unknowns, there is great certainty that: (i) no seismic activity has ever resulted in population-level effects to any marine mammal species;[18] and (ii) over a period of decades, there have been and continue to be no discernable population-level consequences to the BCB Seas bowhead whale population from all of modern human activity. These undisputed, highly credible, scientific facts – all developed without the benefit of 120-160 dB exclusion zones and monitoring measures – are the best measure of the effectiveness of the current sound criteria for protecting the BCB Seas bowhead whale population. See Brueggeman Decl. ¶¶ 25, 40.

The best measure of the effectiveness of the current 180 dB mitigation measures in preventing significant impact to the BCB Seas bowhead whale population is the status of its health. Id. An adverse effect from seismic activity or other anthropogenic activities, including the subsistence harvest, would manifest itself by causing a decline in the population size, reproductive rate and/or physical condition of the population. However, data collected during long-term monitoring of the bowhead whale population and the subsistence harvest show: (i) the population is increasing and likely has surpassed the lower level of its carrying capacity; (ii) the reproductive rate is consistent with a healthy and increasing population; and (iii) harvested whales are in excellent physical and reproductive condition (Suydam and George 2004: George et al. 2004b; Angliss and Outlaw 2005). An increasing population indicates that there are no barriers to accessing a healthy ecosystem, which was confirmed by NMFS' decision on August 30, 2002 to not designate the Beaufort Sea as critical habitat. A strong reproductive rate indicates sex ratios, breeding, birthing, nursing, weaning, and feeding are all normal. Normal body condition indicates the population has access to adequate food supplies, areas to rest, and manageable levels of stress throughout its seasonal movements between the Bering and Beaufort Seas.[19]

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[18] See § III.A above.

[19] Nor do the available data support speculation that in the absence of exposure to seismic activity or other disturbances, increases in the population would have been greater. The BCB population has been steadily increasing for decades at an annual rate that is consistent with the maximum theoretical net productivity rate calculated by NMFS for this population. Brueggeman Decl. ¶ __. It is well-established among the scientific community that this rate of increase is indicative of a healthy marine mammal stock. Id. ¶ __ & Ex. D at 8.

In sum, while uncertainties regarding the significance of acoustic events certainly exist, all available information indicates to a very high degree of certainty that the BCB Seas bowhead whale population is steadily growing in size, resilient to the level of mortality and other adverse effects that are currently occurring due to subsistence hunting or other causes, and unaffected at the population-level by decades of oil and gas activity, including seismic exploration in the Chukchi Sea OCS. MMS may not act on speculation and surmise about undetected biological impacts from seismic surveys when there is a clear scientific consensus, based upon the best available data, that the totality of all human impacts is having no discernable, let alone significant, effect on the BCB Seas population's health, status, habitat, survival and recovery.

3. There is no evidence that bowhead cows abandon their calves in response to seismic exploration or any other human activity

A commonly suggested basis in the DEIS for imposing additional seismic mitigation measures is the potential for such activities to affect bowhead whale cow/calf pairs. In particular, the DEIS and supporting materials include speculative statements that seismic activity may potentially cause population-level effects if they result in the abandonment of calves by cows.[20] However, as addressed in detail above, all of the scientific evidence shows that seismic and other anthropogenic activities, including commercial whaling, have not caused the separation or abandonment of cow/calf pairs. See § III.C above. The cow/calf maternal bond in bowhead and other species of whales is among the strongest found in nature. Id.

4. Multiple seismic surveys have been conducted without adverse impacts

The DEIS implies that mitigation measures, such as the 120-160 dB exclusion zones, may be necessary because of unprecedented levels of seismic activity in Chukchi Sea with unknown impacts and, furthermore, because of the unknown impacts of the combination of seismic activity in the Beaufort and Chukchi Seas.[21] See DEIS for Lease Sale 193 at p. IV-11 (assuming

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[20] The cow/calf issue is apparently based on (1) the fact that human babies are more sensitive to sounds than adults and (2) studies reporting that gray whale cow/calf pairs responded to (moved away from) lower sound levels than other age groups. St. Pierre Decl., Ex. G (2006 PEA) at 110-111; see Brueggeman Decl. ¶ 32 (explaining why analogy is inappropriate). MMS and NMFS acknowledge that there is no direct information suggesting adverse effects on bowhead whale cow/calf pairs from seismic sounds at any level, and have not explained use of the 120 dB threshold in this context. See St. Pierre Decl., Ex. G (2006 PEA) at 110-11.

[21] The seismic vessel scenario presented by the MMS in the environmental consequences section of the DEIS to assess impacts to fall migrating bowhead whales is based on misinterpreted data, and it is not supported by the scientific literature. See DEIS for Lease Sale 193 at IV-145, -147. The scenario relies on Richardson's (1999) data to suggest that seaward movements of migrating whales exposed to large airgun arrays or multiple seismic operations in nearshore areas on the shelf could be constrained by offshore sea ice. As stated previously, the

as many as four separate seismic programs in the preleasing period of 2007). However, all three premises of this suggested justification – unprecedented seismic activity in the Chukchi, unprecedented combined seismic activity in the Beaufort and Chukchi, and uncertainty of effects – are proven false by the history of seismic operations in the Chukchi and Beaufort Seas, and by the sustained health and fitness of the BCB Seas bowhead whale population.

Seismic operations have been occurring in the Chukchi Sea OCS every year since 1981, except during 1988, 1991, 1992, 1993, and 1995 to 2004. Seismic operations in the Chukchi Sea OCS were most intense between 1981 and 1990 when five seismic vessels were operating during one year, four during four years, three during three years, and two during two years. Similar, and at times greater, levels of seismic operations occurred in the Beaufort Sea during this time, and more recently from 1998 to 2004 as well. Accordingly, the highest potential levels of seismic activity anticipated by MMS in the Chukchi Sea, and in combination between the Chukchi and Beaufort Seas, are well within the range of seismic activity that has been occurring over the last 25 years. MMS has not provided information, nor is there any, to suggest that future levels of seismic activity will exceed historical levels.

Moreover, as addressed above, the BCB Seas bowhead whale population has more than doubled in size during the 25 year period OCS seismic activity has been conducted in the Chukchi and Beaufort Seas. Between 1978 and 1993, the BCB Seas stock of bowhead whales increased at a rate of 3.1% (Raftery et al. 1995). Correspondingly, the population increased 60% from approximately 5,000 to 8,000 animals during this time (Angliss and Outlaw 2005). The population has continued to increase at a similar rate (3.4-3.5%) to where the most current estimate (2001) is 10,545 (Angliss and Outlaw 2005), which if extrapolated to 2006 would easily exceed 12,000 animals, a level well within the pre-commercial exploitation size of 10,400 to 23,000 animals (Woodby and Botkin 1993). The population growth is underpinned by high pregnancy and survival rates and low mortality rates (George et al. 2004a, b), factors

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distances Richardson reported that bowhead whales respond to seismic airgun sounds during the fall migration is questionable and should not be the basis for the scenario. See § III.D above. In addition, the scientific literature demonstrates that it is highly unlikely sea ice would hamper seaward movements of bowhead whales. Bowhead whales are highly adapted to sea ice and frequently migrate or feed under sections of ice. Several studies have shown that during years of heavy ice in the Beaufort Sea, bowhead whales move offshore and migrate in the leads and open water within the sea ice (Treacy et al. 2006, Moore 2000). Moreover, offshore sea ice would not be a barrier to fall migrating bowhead whales because it is generally broken with areas of new ice forming, which creates a checkerboard pattern of open water areas and light ice for the whales to surface. This combined with the morphology of bowhead, which is adapted to an ice-dominated habitat through hundreds of years of evolution in the Arctic (McLeod et al. 1993), provides them some ability to break sea ice in order to breathe (Carroll and Smithhisler 1980, Burns et al. 1981, George et al. 1989). They have been observed to break ice up to 18 cm thick (George et al. 1989). Consequently, it is not likely that sea ice would constrain the movement of bowhead whales exposed to seismic sounds during the fall migration.

characteristic of a healthy population. In addition, the bowhead population has also continued to occupy its historic summer and winter ranges and migration routes, thereby demonstrating that seismic activity has not caused any temporal or spatial displacement (Treacy et al. 2006). In fact, like many increasing populations, it has geographically expanded use of its summer range as indicated by the presence of bowheads in areas not normally used during summer such as off Point Barrow and elsewhere along the northern coast of Alaska. MMS confirmed these unwavering historic use patterns by stating in the DEIS that there is no indication that human activity (other than commercial whaling) has caused long term displacement of bowhead whales. See DEIS for Lease Sale 193 at p. V-35.

The scientific information on the BCB Seas bowhead whale population, and on other marine mammal populations,[22] demonstrates that multiple seismic operations over many years have not affected the health or status of bowhead whales, gray whales, polar bears, or other marine mammals. Accordingly, data from the past 25 years reliably demonstrates that future seismic operations subject to existing mitigation measures will have no more than a negligible effect on these populations.

5. The 2006 monitoring results indicate very low interaction levels

The DEIS states that MMS intends to look to the data collected during the 2006 seismic survey season as important new information bearing on the need for the 120-160 dB exclusion zones. DEIS for Lease Sale 193 at § II.B.5.c. Data from CPAI's 2006 seismic operations does not support a need for the 120-160 dB mitigation measures.

CPAI staffed three vessels for 24 hours per day with marine mammal observers between July 14 and October 16, 2006 in the region of seismic operations in the northeastern Chukchi Sea to document occurrence of bowhead whales and other marine mammals. In addition, aerial surveys of marine mammals were flown twice weekly in a band along the coast between Point Hope and Point Barrow and out 20 miles from shore from July 9 to 25 and again from August 23 to November 12, 2006.[23]

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[22] There is also no evidence in the scientific literature to suggest that the health of any marine mammal population has been affected by seismic surveys over the history of operations in the Chukchi and Beaufort Seas. For example, the Eastern North Pacific gray whale population, which summers in northeastern Chukchi Sea, was removed from the threatened or endangered species list in 1994 due to its recovery to pre-commercial exploitation levels. This population has continued to expand the use of its historic summer range in concert with seismic operations as evidenced by the occurrence of higher numbers of whales feeding in more areas in the northeastern Chukchi Sea and Beaufort Sea. The population is considered to be at carrying capacity.

[23] Seismic operations were terminated on September 22 for Shell, October 13 for CPAI, and November 11 for GSX in the Chukchi Sea.

A total of 51 bowheads were recorded in the Chukchi Sea during the vessel and aerial surveys between July 14 and November 12. Twenty-five percent (13) of the whales were seen during July and August, and 75% (38) after September with over half of them (21) encountered in mid-November. The sightings included many single animals, indicating that few cow/calf pairs had as yet migrated into the Chukchi Sea. No large aggregations of whales were encountered or observed. During this time, larger feeding aggregations were observed in the Beaufort Sea, east of Point Barrow during the aerial surveys. These results suggest that very few bowheads use the region of the seismic operation in the Chukchi Sea from July through September, when most seismic operations occur. A few bowheads begin to enter the Chukchi in October and mid November, but most appear to pass through the northeastern Chukchi Sea later, after the completion of seismic operations. Larger aggregations and most cow/calf pairs appear to also move through the region at a later time based on the observations during the time of the vessel and aerial surveys. The implications of these data are supported by the scientific literature (Treacy et al. 2006; Moore and Reeves, 1993).

In sum, the new information provided by monitoring during the 2006 seismic survey season suggest that only a small number (in both absolute numbers and as a percentage of the bowhead population) were exposed to seismic operations.[24] These data indicate that the fall migration largely occurs after all or most seismic operations have ended as a result of severe weather and sea ice formation in mid to late October and November. Imposition of new stringent mitigation measures would be inconsistent with these data, which indicate that the normal migratory behavior of bowheads, combined with weather conditions, provides a high level of protection that is in addition to and independent from existing regulatory protections (i.e., 180 dB exclusion zone).

B. The DEIS Fails To Analyze Safety, Feasibility and Effectiveness

MMS has failed to consider important and relevant factors in its analysis of the proposed 120 dB (and the proposed 160 dB) mitigation measures. First, the OCS Lands Act imposes a clear duty on MMS to consider safety. See 43 U.S.C. § 1332(6) (operations on OCS "should be conducted in a safe manner"); H.R. Rep. No., 95-590 at 159 as reprinted in U.S.C.C.A.N. at 1565 (regulators must consider safety of procedures and equipment); S. Rep. No. 95-284, at 79 (1977) (indicating "the highest degree of safety" should be used in "OCS operations"); Copeland v. Gulf Oil Corp., 672 F.2d 867, 868 n.2 (11th Cir. 1982) (recognizing "heavy emphasis [OCSLA] places on safety"); W & T Offshore, Inc., 164 IBLA 193, 194 (2004) ("Congress intended to ensure that development of oil and gas resources be conducted safely").[25] Despite this statutory

[24] The 51 observed whales are 88 percent fewer than the number of whales NMFS predicted would be subject to temporary harassment from the 2006 seismic activity of CPAI using the 180 dB exclusion zone). See St. Pierre Decl. Ex. J p. 5.

[25] MMS has acknowledged that obtaining seismic information is critical to its ability to address its statutory obligation to address safety. See St. Pierre Decl. Ex. E (2006 PEA) p. 3

obligation, and despite extensive evidence presented to MMS, the DEIS contains no mention, let alone analysis, of this topic. See James M. Chudnow, 67 IBLA 360, 362 (1982) (stipulations will be upheld "only if the record shows that [the agency] adequately considered the factors involved").

In addition, MMS has previously acknowledged its obligation to consider only those measures that are implementable, which MMS has defined to mean "feasible in the technical (logistical or engineering limitations), environmental, economic, and social senses." St. Pierre Decl. Ex. G. p. 24 (2006 PEA). Although MMS has been provided with substantial information establishing that the 120 dB mitigation measures are not implementable, none of this information is discussed in the DEIS. Indeed, no attempt has been made by MMS to quantify costs, evaluate the available technologies, identify risks, or otherwise consider the feasibility of the 120 dB monitoring requirement. MMS cannot determine whether the proposed measures are a reasonable means to their intended purpose without addressing the well-documented fact that the 120 dB requirements are not implementable. See St. Pierre Decl. Ex. G. p. 26 (2006 PEA) (MMS and NMFS' joint acknowledgement that "[l]ogistical complications and engineering limitations make effective monitoring of the 120-db isopleths-exclusion zone (in Alternatives 3 and 5 [of the PEA]) very difficult and overall not feasible to accomplish."). See also Earl R. Wilson, 21 IBLA 392, 393 (1975); James M. Chudnow, 67 IBLA 360 (1982) (stipulation must reflect a reasonable means to accomplish a proper agency purpose).

C. The 120 dB Exclusion Zone Is Not Safe or Implementable

In the 2006 PEA, which MMS has referenced and incorporated into the DEIS, MMS and NMFS admitted that the 120 dB requirements were "very difficult and overall not feasible to accomplish." St. Pierre Decl. Ex. G, p. 26. This conclusion is amply supported by the associated safety risks, technical problems and costs of the 120 dB measures.

The required aerial monitoring is extremely unsafe due to the remote location of the survey area, unpredictable weather conditions, unfavorable ocean temperatures, and limited daylight hours, which make it unlikely that a rescue could be attempted in the event of mechanical problems. Smith Decl. ¶¶ 6, 8 (surviving an emergency water landing in the Arctic is highly unlikely); *see id.* ¶ 14 (aerial monitoring of survey area presents unacceptable risk of catastrophic accidents and fatalities); see also AOGA's Comment Letter on 2006 PEA at § IV.B.

Setting aside the unwarranted risk to human life, monitoring the 120 dB exclusion zone is not practicable due to the challenges imposed by the size of the zone, poor weather conditions, and the remote locations of the planned seismic activities in the Chukchi Sea. Monitoring the 120 dB isopleth would require aerial surveillance of a mobile zone of approximately 7,850 square kilometers, with at least a 50 kilometer radius, around a vessel that will transit thousands of

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("The MMS needs geological and geophysical seismic-survey information to fulfill its statutory responsibilities to ensure safe operations, . . .").

kilometers in the Chukchi Sea. Smith Decl. ¶¶ 5-6. There are no available aircraft that meet the specific criteria for such a program. *Id.* ¶¶ 9-13. Assuming a suitable plane could be located, which is not likely, the cost would be approximately $700,000. *Id.* ¶ 11. Even *if* an appropriate plane could be found, the monitoring would be of dubious effectiveness, since flying time would be limited to one pass over the survey area per day. *Id.* ¶¶ 7, 10-11.

When these substantial concerns were pointed out in comments on the draft PEA, NMFS and MMS merely responded that the 120 dB requirement would be "costly, and most difficult to implement." St. Pierre Decl. Ex. G at 49. In apparent recognition of the dangerous nature of the required aerial monitoring program, the 120 dB requirement was modified in 2006 to allow an alternative passive acoustic monitoring (PAM) program. 71 Fed. Reg. at 43,130. However, the feasibility of this substitution was not analyzed in the 2006 PEA and is not addressed in the DEIS. Insofar as CPAI is aware, a PAM system has never be required as a means of enforcing a marine mammal exclusion zone in Arctic waters. St. Pierre Decl. ¶ 16. It is not known whether an appropriate system could discern whale calls over the sounds of the seismic source, whether it will have the necessary range to cover the 120 dB isopleth area, or whether it will prove capable of positioning whales. Faust Decl. ¶ 15; St. Pierre Decl. ¶ 7. Moreover, use of a PAM system in this manner involves safety risks of its own, as it requires mobilization of a second chase vessel and crew in an already logistically-complex program conducted under extreme conditions. Faust Decl. ¶¶ 16, 29.[26]

Finally, implementation of the 120 dB requirement is so onerously costly that it could render the seismic program uneconomic. In terms of out-of-pocket costs, mobilizing a second chase vessel and crew, and devising or obtaining an appropriate PAM system, (which cannot be done because effective PAM technology does not exist for this purpose), would cost approximately $1,700,000 for one season. Faust Decl. ¶¶ 15-17. Although the extent of the impact on operations is uncertain, a conservative estimate is that a 120 dB exclusion zone would result in total shut-down of seismic operations for 1-2 days per week for the duration of a seismic season, resulting in losses of $7-14 million.[27] Faust Decl. ¶¶ 18-21. The associated lost opportunity cost from the

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[26] During CPAI's 2006 seismic survey program, a PAM system was implemented consistent with research requirements at times when seismic activity was not occurring. However, the PAM system was ineffective. No whales were detected and the system was unable to detect ambient sounds distinct from vessel noise at a distance of more than 1-2 kilometers. In addition, had the PAM system detected any whales, it is unlikely the location of the whales could have been determined. The farther an animal is from perpendicular (90 degrees) to the PAM, the likelihood of determining distance or location incrementally declines to zero at an angle of either 0 or 180 degrees.

[27] Although not addressed in the DEIS, use of the PAM system in 2006 was conditioned upon a dramatic and onerous change in the applicable monitoring and shutdown requirements. In 2006, when using a PAM system to monitor the 120 dB zone, complete shutdown of seismic operations was required if a *single* bowhead whale was detected within the 7,850 square

inability to conduct adequate seismic exploration in the Chukchi Sea, as well as market impacts from lost future development opportunity, are incalculable. *Id.* ¶¶ 21, 28; St. Pierre Decl. ¶ 20.

D. The Preliminary Findings Of The Federal District Court Are Instructive

A final decision on the merits of CPAI's challenge to the 120 dB and 160 dB mitigation measures, which were imposed in 2006 permits issued by MMS and NMFS, is still pending. Nevertheless, it is at least instructive to consider the findings of the federal court in staying the effect of the 120 dB mitigation requirements. Faced with (i) a discretionary standard of review that required CPAI to demonstrate that the agencies were either acting without a rational basis or contrary to law, (ii) issues of science regarding which courts give great deference to agencies and (iii) an issue that not only concerns a listed endangered species with public appeal, but cow/calf pairs of the endangered species, the court nevertheless sustained CPAI's arguments for a stay. The court did so because of the strength of the case, reviewed above in this comment letter, demonstrating that imposition of these unprecedented mitigation measures is not a sensible regulatory action. As stated by the court in response to NMFS' motion to reconsider the stay order:

> [T]he Court [is] convinced that: (1) the bowhead whale population is robust and has increased steadily over the past several decades alongside ongoing seismic exploration without the use of the new monitoring requirements; (2) implementing the monitoring as required would pose substantial risks to human health and safety, would impose severe economic harm on plaintiff in the range of $7-$14 million, and would impair plaintiff's ability to carry out its 2006 seismic program resulting in incalculable and irremediable lost opportunity costs; (3) granting the requested stay would preserve the status quo of the past several decades; and (4) as [NMFS] has separately concluded, granting the requested stay would not result in adverse effects on the bowhead whale population.[28]

We do not contend that the court's orders regarding the stay order bind MMS in this matter or constitute a final decision. However, we do contend that the court's decision is relevant information for MMS regarding both the reasonableness of CPAI's concerns and the appropriateness of the proposed measures.

V. SUPPORTING SUBMISSIONS FOR THE ADMINISTRATIVE RECORD

CPAI's comments above make reference to other written comments that have been previously submitted regarding the 2006 PEA and the proposed OCS leasing plan for 2007-2012, as well as

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kilometer exclusion zone. Accordingly, a one whale located 50 kilometers from the seismic vessel would require a complete shutdown of seismic operations.

[28] CPAI v. NMFS, Order Denying Motions for Reconsideration at 4-5.

to declarations (with attachments) previously served on MMS in connection with the pending IBLA challenge. The declarations, in particular, contain testimony from experts in support of CPAI's comments. For purposes of the administrative record, we are providing copies of the following with this letter:

- Declaration of Jay Brueggeman (with attachments)
- Declaration of Bruce St. Pierre (with attachments)
- Declaration of Michael J. Faust
- Second Declaration of Michael J. Faust
- Declaration of Dave Smith (with attachment)
- Comment Letter dated November 22, 2006 from Erec Isaacson (ConocoPhillips Alaska, Inc.) to Ms. Renee Orr and Mr. James Bennett (MMS)
- Comment Letter dated May 10, 2006 from Judith M. Brady (Alaska Oil & Gas Association) to MMS
- CPAI v. NMFS, Case No. 3:06-cv-0198, Order Granting Motion for Stay (D.Alaska, Sept. 18, 2006)
- CPAI v. NMFS, Case No. 3:06-cv-0198, Order Denying Motions for Reconsideration (D. Alaska, Oct. 5, 2006).

All of these submissions listed above constitute part of CPAI's comments regarding Lease Sale 193. We request that MMS include these materials in the administrative record with respect to the DEIS and Lease Sale 193.

VI. CONCLUSION

The mandates of the OCS Lands Act strongly support Lease Sale 193 and preleasing seismic activity in 2007. CPAI urges MMS to proceed with Lease Sale 193 without a coastal lease exclusion zone. MMS should adopt reasonable protective lease stipulations for the benefit of the sensitive resources and subsistence activities occurring in the polynya during each spring season.

With respect to preleasing seismic survey activities in 2007, and postleasing seismic exploration thereafter, there is a high degree of assurance, based upon decades of data, that there will be no discernable population-level impacts to marine mammal populations, including the BCB Seas bowhead whales. Under these circumstances, the best scientific evidence and the mandates of the OCS Lands Act cannot be reconciled with imposition of exclusion zones at the 120 dB and/or 160 dB levels. These proposed mitigation measures may be well-intended; however, the premises for such extraordinary measures are speculative and contradicted by a large body of data regarding the sustaining and resilient health of the BCB Seas bowhead whales. Moreover the proposed restrictions are impracticable in implementation and present unacceptably high safety risks.

CPAI sincerely appreciates your consideration of our comments on the DEIS regarding Chukchi Sea OCS Lease Sale 193 and preleasing seismic activity. Please include this letter and the

attachments as our submission to the administrative record for the DEIS, the leasing decision of MMS and all related permitting decisions by NMFS regarding preleasing seismic activities.

Sincerely,

Ken Donajkowski
HSE Vice President
ConocoPhillips Alaska, Inc.

APPENDIX A
LITERATURE CITED

1. Angliss, R.P. and Outlaw. 2005. National Oceanic and Atmospheric Administration Technical Memorandum National Marine Fisheries Service-AFSC-133. U.S. Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service, Alaska Fisheries Science Center, National Marine Mammal Laboratory. Seattle, Washington.

2. Brandon, J. and P.R. Wade. 2004. Assessment of the Bering-Chukchi-Beaufort Seas stock of bowhead whales. Unpub. report submitted to Int. Whal. Comm. (SC/56/BRG20). 32 pp.

3. Brueggeman, J.J., G.A. Green, R.A. Grotefendt, and D.K. Ljungblad. 1990. Bowhead whale monitoring program relative to seismic vessel operations in the Beaufort Sea, 1990. EBASCO Environmental, Bellevue, WA 98004, Western Geophysical Company, Anchorage, AK. 33 pp. plus appendices.

4. Burns, J.J., L.H. Shapiro and F.H. Fay. 1981. Ice as marine mammal habitat in the Bering Sea. Pages 781-797 in D.W. Hood, ed. The eastern Bering Sea shelf: oceanography and resources, Vol. 2. University of Washington Press, Seattle.

5. Carroll, G.M., and J.R. Smithhisler. 1980. Observations of bowhead whales during spring migration. Marine Fisheries Review 42(9-10):80-85.

6. George, C.J., C. Clark, G.M. Carrroll, and W.T. Ellison. 1989. Observation on the ice-breaking and ice navigation behavior of migrating bowhead whales near Point Barrow, Alaska, spring 1985. Arctic 42:24-30.

7. George, C.J., J. Zeh, R. Suydam, and C. Clark. 2004a. Abundance and population trends (1978-2001) of western arctic bowhead whales surveyed near Barrow, Alaska. Mar. Mamm. Sci. 20(4):755-773.

8. George, C.J., R. Suydam, J. Zeh, and W. Koski. 2004b. Estimated pregnancy rates of bowhead whales from examination of landed whales. Paper SC/56/BRG10 presented to the Scientific Committee of the International Whaling Commission.

9. Koski, W.R. and S.R. Johnson. 1987. Behavioral studies and aerial photogrametry. Sect. 4 In: Responses of bowhead whales to an offshore drilling operation in the Alaskan Beaufort Sea, autumn 1996. Rep. from LGL Ltd., King City, Ont., and Greenridge Sciences Inc., Santa Barbara, CA, for Shell Western Expl. & Prod. Anchorage, AK. 371 pp.

10. Lunn, N.J., S. Schliebe and E.W. Born. 2002. Polar Bears: Proceedings of the 13th Working Meeting of the IUCN/SSC Polar Bear Specialist Group, Nuuk, Greenland. IUCN, Gland, Switzerland and Cambridge, UK. vii + 153 pp.

11. McLeod, S.A., F.C. Whitmore, and L.G. Barnes. 1993. Evolutionary relationships and classification. p. 45-70 In: J.J. Burns, J.J. Montague and C.J. Cowles (eds.), The bowhead whale. Spec. Publ. 2. Soc. Mar. Mammal., Lawrence, KS. 787 p.

12. Moore, S.E. 2000. Variability in cetacean distribution and habitat selection in the Alaskan Arctic, autumn 1982-91. Arctic 53(4):448-460.

13. Moore, S.E. and R.R. Reeves. 1993. Distribution and movement. p. 313-386 In: J.J. Burns, J.J. Montague and C.J. Cowles (eds.), The bowhead whale. Spec. Publ. 2. Soc. Mar. Mammal., Lawrence, KS. 787 p.

14. Raftery, A., J. Zeh, and G. Givens. 1995. Revised estimate of bowhead whale rate of increase. Rep. Int. Whal. Comm. 45:158. Reeves, R.R., D.K. Ljungblad, and J.T. Clarke. 1984. Bowhead whales and acoustic seismic surveys in the Beaufort Sea. Polar Rec. 22(138):271-280.

15. Richardson, W.J., B. Wursig, and C.R. Greene, Jr. 1986. Reactions of bowhead whales to seismic exploration the Canadian Beaufort Sea. J. Acoust. Soc. Am. 79(4):1117-1128. Richardson, W.J., R.A. Davis, C.R. Evans, D.K. Ljungblad, and P. Norton. 1987. Summer distribution of bowhead whales relative to oil industry activities in the Canadian Beaufort Sea, 1980-84. Arctic 40(2):93-104. Richardson, W.J., C.R. Greene, Jr., C.I. Malme and D.H. Thomson. 1995. Marine mammals and noise. Academic Press, San Diego. 576 p.

16. Richardson, W.J. (ed). 1999. Marine mammal and acoustical monitoring of Western Geophysical's openwater acoustic program in the Alaskan Beaufort Sea, 1998. LGL Rep. TA2230-3. Rep. From LGL Ltd., King City, Ont., and Greenridge Sciences, Inc., Santa Barbara, CA, for Western Geophysical, Houston, TX, and NMFS, Anchorage, AK, and Silver Springs, MD, 390 p.

17. Scammon, C.M. 1968. The marine mammals of the northwestern coast of North America, together with an account of the American whale-fishery. Dover Publications, Inc. New York. 319 pp.

18. Suydam, R.R. and J.C. George 2004. Subsistence harvest of bowhead whales by Alaskan Eskimos, 1974-2003. Paper SC/56/BRG12 presented to the Scientific Committee of the International Whaling Commission.

19. Treacy, S.D. 2002. Aerial surveys of endangered whales in the Beaufort Sea, fall 2001. OCS Study MMS 2002 061. U.S. Minerals Management Service, Anchorage, AK. 117 p.

20. Treacy, S.D., J.S. Gleason, and C.J. Cowles, 2006. Offshore distances of bowhead whales observed during fall in the Beaufort Sea, 1982-2000: an alternative interpretation. Arctic: 59(1):83-90.

21. Tonnessen, J.N., and A.O. Johnsen. 1982. The history of modern whaling. University of California Press. Berkeley and Los Angeles. 798 pp.

22. Wartzok, D., W.A. Watkins, B. Wursig and C.I. Malme. 1989. Movements and behaviors of bowhead whales in response to repeated exposures to noise associated with industrial activities in the Beaufort Sea. Report from Purdue University, Fort Wayne, IN, for Amoco Production Co., P.O. Box 800, Denver, CO 80201. 228 p.

23. Woodby, D.A. and D.B. Botkin. 1993. Stock sizes prior to commercial whaling. p. 387-407 In: J.J. Burns, J.J. Montague and C.J. Cowles (eds.), The bowhead whale. Spec. Publ. 2. Soc. Mar. Mamm., Lawrence, KS. 787 p.

24. Zeh, J.E. and A.E. Punt. 2004. Updated 1978-2001 abundance estimate and their correlations for the Bering-Chukchi-Beaufort Seas stock of bowhead whales. Unpublished report submitted to the Int. Whal. Comm. (SC/56/BRG1). 10 pp.

CONOCOPHILLIPS ALASKA, INC.
SUPPORTING SUBMISSIONS FOR THE ADMINISTRATIVE RECORD

1. Declaration of Jay Brueggeman (with attachments)
2. Declaration of Bruce St. Pierre (with attachments)
3. Declaration of Michael J. Faust
4. Second Declaration of Michael J. Faust
5. Declaration of Dave Smith (with attachment)
6. Comment Letter dated November 22, 2006 from Erec Isaacson (ConocoPhillips Alaska, Inc.) to Ms. Renee Orr and Mr. James Bennett (MMS)
7. Comment Letter dated May 10, 2006 from Judith M. Brady (Alaska Oil & Gas Association) to MMS
8. CPAI v. NMFS, Case No. 3:06-cv-0198, Order Granting Motion for Stay (D.Alaska, Sept. 18, 2006)
9. CPAI v. NMFS, Case No. 3:06-cv-0198, Order Denying Motions for Reconsideration (D.Alaska, Oct. 5, 2006)

MMS Responses to Conoco Comments

Conoco 010-001

The process for Lease Sale 193 was initiated under the 2002-2007 5-Year OCS Program, although if the lease sale occurs, it will take place under the 2007-2012 5-Year Program. In accordance with the 2002-2007 Program, the Notice of Intent to Prepare an EIS for Lease Sale 193 identified the area of the Proposed Action. This defined the boundaries of the area within which we would consider whether or not deferral alternatives are "reasonable." Deferral areas outside of these boundaries are, by definition, not "reasonable," because they are not within the area that can be offered for leasing. This comment is speculative, and would expand consideration into an area that was not identified under the 2007-2012 5-Year Program. This, in turn, would require MMS to reinitiate the NEPA process. The NEPA process for any sales that may be scheduled under the 2007-2012 5-Year Program will reflect the boundaries defined in the Final Program established by the Secretary of the Interior.

Conoco 010-002

The comment suggests that we analyze opportunity loss for an area beyond the boundaries of the area considered for leasing in Lease Sale 193. As explained in our response to comment **Conoco 010-001**, we are constrained from examining areas for leasing beyond that identified in the Five Year Program and subsequent actions. While these opportunity loss computations may be appropriately considered for setting the boundaries under the 2007-2012 5-Year Program currently under development, they are superfluous and beyond the scope of the area considered for Lease Sale 193.

Conoco 010-003

The comment is correct. We do not analyze a Coastal Exclusion Zone for Lease Sale 193, because the coastal area was analyzed and deferred from leasing under the 2002-2007 5-Year Program. See also the response to comment **Conoco 010-001**.

Conoco 010-004

The deferrals examined in the draft EIS were established to explore the potential mitigative effects of the Proposed Action alternatives on potential impacts to a range of resources, including walruses, fish, waterfowl, belugas, polar bears, seals, and subsistence-harvest activities, not just on the spring migration of the bowhead whale. The "lease deferral alternative" would not "foreclose all activities" in the area, as the comment states. Geological and Geophysical surveys conducted under 30 CFR 251 would not be affected by a "lease deferral alternative." To the extent that this comment states CPAI's preferred outcome of the option the Secretary may select, it is noted for the record.

Conoco 010-005

Areas excluded from leasing are simply not offered for leasing. Such deferral does not preclude other uses of the OCS. For this reason, the EIS appropriately examines the possible effects of a hypothetical exploration and development scenario to resources and other users of the OCS. The assumed activities included support vessels and aircraft transiting to, through, and from the lease sale area. The EIS identifies a number of reasonable stipulations and ITL clauses that would minimize those effects. Any future OCS plans will require additional environmental analysis. This analysis may further refine the mitigation. In keeping with the government's responsibilities under these reviews and laws such as the Endangered Species Act and the Marine Mammals Protection Act, additional measures may be identified and required.

Conoco 010-006

This comment states the rationale and CPAI's preferred outcome of the option the Secretary may select for the lease sale. As such, it is noted for the record.

Conoco 010-007

Alternative III (Corridor I Deferral) with its 60-mile buffer extending seaward from the Chukchi Sea shoreline would afford the greatest protection to subsistence resources, and this is why this alternative is analyzed in the EIS. This deferral is not included in the EIS or analyzed because of its potential mitigative relief from seismic-survey activities; rather, it is included because it would exclude these blocks from leasing and, therefore, prevent the placement of any exploration-drilling structures or any permanent production platforms in the deferred area. This in itself would afford extensive protection to marine mammals migrating through the polynya each spring, and to species such as walrus that remain in the region during open-water. Also, should a spill occur it would be farther from shore, making it less likely to contact land, and affording more response time. The MMS acknowledges that the statement is true that there have been no fall subsistence hunts in the Chukchi Sea since the 1880's. However, this does not mean that there will be none in the future. The Bering Sea community of Savoonga on St. Lawrence Island harvested bowhead whales during the fall of 2005—the first time in many years.