Document 019

ALASKA COALITION, ALASKA WATCH, ALASKA WILDERNESS LEAGUE, CENTER FOR BIOLOGICAL DIVERSITY, GREENPEACE, EARTHJUSTICE, NATURAL RESOURCES DEFENSE COUNCIL, NORTHERN ALASKA ENVIRONMENTAL CENTER, PACIFIC ENVIRONMENT, THE WILDERNESS SOCIETY, TRUSTEES FOR ALASKA

December 21, 2006

Mr. John Goll
Regional Director
Alaska OCS Region, Minerals Management Service
2801 Centerpoint Drive, #500
Anchorage, AK 99503-5823

RE: Comments on Chukchi Sea Planning Area Oil and Gas Lease Sale 193 and Seismic Surveying Activities Draft Environmental Impact Statement

Dear Mr. Goll:

I. INTRODUCTION

Our groups have asked that the Chukchi Sea be deleted from the Five-Year Plan. Please incorporate our comment letters on the plan and DEIS by reference. The Chukchi is one of the most productive areas of the Arctic Ocean and provides important habitat for many species of marine mammals, birds and fish. Not only is the Chukchi a productive intact habitat, it is vital to many Native subsistence users who have relied on its resources for thousands of years. The Chukchi is far from existing infrastructure, and it would present many technological challenges.

The Chukchi Sea is Alaska's most pristine Arctic Ocean resource. The region hosts endangered and depleted species, highly productive marine life and rich feeding and subsistence grounds for important marine species and the people who depend upon them. Yet not enough is known about the population, distribution, and behavior of many species in the region to justify the risks associated with OCS leasing, exploration and development. Too little is known about the resources of the Chukchi Sea, and adequate baseline studies are necessary before the Secretary can legitimately consider whether oil exploration and development are appropriate there. Moreover, there is no oil spill response technology available to remediate an oil spill during conditions present in the Chukchi during most of the year.

Marine ecosystems, marine mammals, sea birds, and coastal communities are all at risk from oil spills, noise and other disturbance and habitat impacts, which would inevitably occur during exploration and development. Devastating spills that cannot be cleaned up in broken ice risk endangered bowhead and other whales and migratory birds,

including the threatened spectacled and Steller's eiders. Oil pollution causes direct mortality, increases susceptibility to diseases in fishes, inhibits phytoplankton productivity, and interferes with reproduction, development, growth, and behavior of many species. In addition to the dangers of oil pollution, a number of other potential pollutants are common in offshore oil operations, including the dumping of toxic drilling muds and other chemicals involved in drilling

In addition, we are concerned about the impacts, especially to caribou and subsistence resources and activities, from a new overland pipeline and road across the National Petroleum Reserve-Alaska and other lands for the transport of oil from the Chukchi Sea. This pipeline could cross areas that were deferred from oil leasing under the Northwest NPR-A Integrated Activity Plan/ EIS in recognition of there high biological and subsistence values. The expansion of activity into these important and pristine areas justifies cancellation of Chukchi Sea Sale 193 (DEIS Alternative II, "No Lease Sale,") as well as deletion of the Chukchi Sea Program Area from the entire Five-Year Plan for 2007 to 2012.

II. OVERARCHING PROBLEMS WITH THE DEIS

A. MMS Should Not Be Considering Lease Sales in the Chukchi Before Completing the Five-Year Plan for 2007-2012.

Leasing large tracts in the Chukchi Sea represents a major departure from the status quo over the past decade or more and will cause significant impacts to an area where there are currently no active leases. Although public testimony from a multitude of interests have indicated that the current Beaufort leases and onshore development are "too much, too fast, too soon," MMS refuses to address the cumulative impacts of development and instead is pushing forward with an enormous lease sale in the Chukchi Sea. Although there was little interest in leasing this area over the life of the 2002-2007 5-Year Plan, as soon as industry indicated that they would like to prospect the Chukchi, MMS rushed to get out a lease sale as fast as possible. Indeed, MMS is preparing this lease sale before the new 5-Year Plan is complete.

It was not appropriate for MMS to launch this lease sale planning process prior to completion of the pending Five-Year Plan because it is not proposing the "special-interest" focused sale envisioned, described and evaluated in that plan. MMS acknowledges that Sale 193 is beyond the scope of "special interest leasing" option that had been contained in the 2002-2007 Five year plan (DEIS at I-9).

This "cart before the horse" approach is confusing, is an irrational planning process and represents a major shift in current policy. While Lease Sale 193 is purportedly being offered under the 2002-2007 5 Yr. Plan, it represents an area much greater than that envisioned in this plan. DEIS at ES-i To further complicate matters, the proposed 2007-2012 5 Yr. Plan makes reference to different buffer areas and has led to confusion at public meetings in the communities that will face the majority of impacts in these areas. Despite this, and the fact that the most common public comment on the sale was "cancel the sale," DEIS at II-3, MMS continues to fast-track a lease sale that will

cause significant impacts to the ecology and communities of the Chukchi. Even members of the petroleum industry have asked that the sale at least be delayed. DEIS at II-4.

MMS should take the time to address these concerns before rushing Lease Sale 193 out the door.

B. General Lack of Information.

One of the most striking aspects of the draft EIS is the glaring lack of information for most fish and wildlife, ecological and cultural (human) resources and synthesis of the relevant information necessary for evaluating environmental impacts of oil and gas exploration and development. While the Chukchi is known to be a productive Arctic Ocean area, shockingly little is know about its resources. As a result of this absence of baseline data, the EIS does not serve its intended purpose of informing the public and decision maker of the impacts of the proposal. There should be no leasing in the Chukchi until better information is available.

While there was initial information collected in the late 1970's and early 1980's under the OCSEAP program, current surveys and comparisons with past data are necessary r to establish the current conditions for pre-leasing and post-lease baseline studies required by OCSLA. This is especially crucial since rapid changes caused by global warming may render much of the data used by MMS for its description of the existing environment as well as in the impact analysis inaccurate as a baseline or for predicting post-lease impacts regarding fish and wildlife population numbers and trends, migrations, habitat use, subsistence resources and use, and cultural and other human impacts. Existing ecological relationships are also not well presented.

The conclusions of low and minor impacts asserted in the Executive Summary are substantially inappropriate given the MMS's own acknowledgement of inability to estimate impacts. Thus, the conclusions must be assumed to be politically motivated versus based on established scientific analysis.

The plan to lease the Chukchi Sea is particularly improvident given the lack of baseline scientific data, and fails to admit the significance of this lack of basic information. The Chukchi Sea EIS could not be considered scientifically thorough and many of its conclusions are also unwarranted given this lack of baseline scientific data. Given the inadequate science, one must conclude that the lack of baseline abundance, distribution, and behavior knowledge of most species in the Chukchi results would result in an inability for industry or MMS to monitor population changes or impacts. Moreover, the conditions in the Chukchi make development there more risky and risks more uncertain. As the draft EIS notes "no platform . . . has operated in environmental conditions equivalent to the Chukchi shelf." DEIS at IV-13.

Lack of baseline information would make it difficult to identify "special biological communities" that MMS states it will require industry to avoid. MMS states repeatedly (see, e.g., DEIS at IV-62-68, IV-372, V-20) that significant impacts could occur if development takes place near these special biological communities. MMS further

states that "The future MMS and the Corps' review of proposals for offshore platforms and pipelines would make sure that the facilities avoid special biological communities…." DEIS at IV-68. However, the significant lack of baseline data would make locating these communities nearly impossible, except for those areas that are known currently. At the MMS Workshop on COMIDA (November 1-3, 2006) agency scientists had virtual consensus on the need for baseline data for most marine species utilizing the Chukchi. Data needed included a basic inventory of new species, particularly whale, that are moving into the region due to climate change; abundance of all species; distribution data for most species; and behavioral data, including calving and feeding areas, particularly for endangered species such as the bowhead.

The examples of unknowns are staggering. For instance, in the case of fish, the draft EIS reveals,

> several data deficiencies remain. Information of current distribution and abundance . . . estimates, age structure, population trends, or habitat use areas are not available for fish populations in the northeast Chukchi Sea.

DEIS at III-28. The draft EIS goes on to note that "another important data gap is the lack of information concerning discrete populations for arctic fishes." Id. Moreover, [s]everal species are known only from a single specimen of each species; others are known from perhaps a handful of specimens collected years to decades ago. Population information is entirely lacking for such species." Id.

The catalogue of unknowns goes on. The draft EIS lists the current status of the following species in the Chukchi as unknown:

- black-legged kittiwake
- northern fulmar
- parakeet, least and crested auklets
- black guillemot
- ivory gull
- Arctic tern
- Kittlitz's murrelet

Baseline information, including mapping of current habitat use is necessary for the analysis of potential impacts on these species, many of which feed in the proposed Sale 193 area and nest in the adjacent Chukchi Sea units of the Alaska Maritime National Wildlife Refuge – including the "Ann Stevens- Cape Lisburne" sub-unit, Cape Thompson and Chamisso. Under the Alaska National Interest Lands Conservation Act, this refuge's purposes include fulfilling the international treaty obligations of the United States, including treaties for the conservation of whales, polar bears, and migratory birds, yet this issue was ignored by the DEIS. Description of national parks, preserves, refuges and conservation system units and special areas such as Kasegaluk lagoon that may be affected directly or through cumulative effects need to be provided in the existing environment section.

The maps of feeding areas for Common and Thick-billed murre colonies at Cape Lisburne and Cape Thompson fail to identify the fact that these two areas are Chukchi Sea units of the Alaska Maritime Refuge (Fig. III.B-7). Furthermore, neither trends in habitat use nor past and current use is provided. 019-001

There are no reliable estimates of the stocks of ringed seals, spotted seals, ribbon seals, polar bears, Pacific walrus, and minke whales or information on their current feeding, resting, and migration habitats. Pacific Right whale use of the Chukchi Sea should also be addressed. Current maps of gray whale, Pacific walrus, beluga, polar bear, and other marine mammal feeding and migration areas are needed. Recent information should be compared with past information on benthic feeding areas for Gray whales and walrus, including important areas for these species in the Chukchi polynya and sea ice edge (see maps in Phillips, R.L. 1987, Summary of geology, processes, and potential geohazards in the Northeastern Chukchi Sea at 21-31 in: D.A. Hale (ed.), Chukchi Sea Information Update. NOAA Ocean Assessments Division, Alaska Office. (OCS Study MMS 86-0097)). 019-002

Wildlife habitat data for the Chukchi Sea was also synthesized and mapped in the past (see Marine Mammals in Arctic Alaska, Land Mammals of Arctic Alaska, and Birds of Arctic Alaska in P.A. Miller, D.A. Smith, and P.K. Miller, 1993, Oil in Arctic Waters: The untold story of offshore drilling in Alaska. 122 pp).

Even in the case of the endangered bowhead whale many crucial facts are unknown. For instance, it is unknown whether some of the population summers in the Chukchi. Moreover, "there are major question about bowhead whale feeding that remain to be answered." DEIS at III-48. In the end, MMS's conclusion for all marine mammals is that "because lack of data on marine mammal distributions and habitat use in offshore areas of the Chukchi Seas, it is uncertain what the level of effects would be in offshore areas." DEIS at II-40. This type of conclusion undermines NEPA's goal of encouraging informed decision making and it is contrary to OCSLA's requirements for pre-leasing and post-leasing data. In the absence of basic information, MMS should not go ahead with its leasing plan.

In terms of monitoring and mitigating impacts, without key information, such as distribution, abundance and breeding area knowledge, it is not possible to know how species are adapting their behavior or what the impacts are. Requiring industry to monitor when there is no baseline data or historical data to compare current findings with would render monitoring plans worthless in terms of assessing impacts. The draft EIS states, "Population-monitoring studies for key species need to be implemented in areas where significant industrial activities are likely to occur, so that it will be possible to compare future impacts with historical patterns and thus determine the magnitude of any potential effects." Draft EIS at ___. While such studies are advisable, and required by OCSLA, MMS's premise-- that an adequate baseline can be established--is incompatible with the current leasing schedule. MMS and other agencies confirmed the lack of baseline data at the science meetings in November of 2006. Therefore, the EIS fails to effectively acknowledge the significance of missing or insufficient data on the abundance,

distribution, foraging and breeding behavior of numerous species. In sum, the EIS fails to adequately assess potential impacts and cannot possibly estimate population level impacts or significant impacts.

The map of caribou calving areas (Fig. III.B-4) referred to in the text (DEIS p. III-84) actually shows bowhead whales. Caribou insect relief habitat is also critical and up to date and historical information should also be shown. 019-003

The DEIS contains inadequate information about affected physical environment in the Chukchi Sea as well as explanations of how physical hazards to oil and gas activities, including existing marine and coastal oceanographic conditions; sea ice (including changes in pack ice, shorefast ice, and various broken ice conditions); air temperature; precipitation; wind speeds; hydrological factors including freshwater drainage into ocean and sources of fresh water human and industrial uses; existing air quality including greenhouse gas emissions; existing water quality; various hazards including earthquakes, streudal scour, pressure ridge, gravel, coastal current sand; rates of current shoreline erosion, subsea and tundra permafrost and rates of melt, and climate change trends for all these conditions; potential petroleum resources; and potential renewable energy resources.

There is also no integration of any of the important physical features, such as sea ice, with fish and wildlife habitat use, such as populations of Pacific walrus and other species and how this is changing over time. Little physical information is mapped, and what is presented is either outdated (without the context of maps derived from new data for comparison of conditions given climate change), e.g. ice gouge density map is from 1982 and 1987 (Fig.III.A-4) or incomplete (some data on ice leads shown in Fig. III.A-14 does not include the entire Chukchi Sea area, may obscure the actual physical conditions of leads during any one season, and does not make a comparison with earlier ice conditions). Some examples of existing information include:

Alaska Department of Environmental Conservation, 2006, *North Slope Nearshore and Offshore Breakup study literature search and analysis of conditions and dates.* Summary only: http://www.dec.state.ak.us/spar/ipp/docs/IceTOC.pdf (Accessed December 21, 2006); CD available from ADEC Anchorage.

Zhang, X. and J.E. Walsh, 2006, Toward a seasonally ice-covered Arctic Ocean: Scenarios from the IPCC AR4 Model simulations. Journal of Climate, Vol. 19: pp. 1730-1747.

Subsistence use areas are not shown for Barrow, Atqasuk, Wainwright or Point Lay in the DEIS (Map 4 refers to web links for information about these communities but does not synthesize the current information for the DEIS). It is impossible for a reader without a high speed internet connection to use this information. Furthermore, based on a random check of links this one was not working on December 21, 2006 (http://www.co-north-slope.ak.us/acmp/resource_atlas.htm). 019-004

Even though impacts on subsistence are a major issue for local Inupiat communities, as well as of national concern as an environmental justice issue and due to 019-005

ANILCA title 8 and subsistence purposes of the Alaska Maritime refuge, there is inadequate basic information provided about these resources so that a credible analysis of effects of oil and gas activities on these resources could be done. The lack of mapped fish and wildlife, environmental and subsistence resource and use data, as well as such information with overlays of expected oil and gas activities, renders the EIS inadequate. Such techniques of presentation of information are standard practice, even by MMS in the past. Mapped information is readily understood by the general public. There were no maps in the executive summary showing the proposed alternatives or resources at stake, nor was a short summary document even produced for wide public distribution to local communities or the general public.

019-005

Furthermore taxpayers are already spending funds to compile such information including for Barrow subsistence for the stated purpose of MMS's "evaluation of potential effects of OCS exploration and development in the Beaufort Sea OCS region, as needed for future Environmental Assess and Environmental Impact Statement analyses," (Braund, S.R., et al. 2005, Subsistence mapping Nuiqsut, Kaktovik, and Barrow. Pp. 111 – 112 in: Alaska OCS Region, Tenth information transfer meeting and Barrow information update meeting: Final Proceedings, OCS Study MMS 2005-036.). That said, it is essential that such information be presented within the proper context, as discussion at that presentation indiated that lifetime subsistence use areas must be shown on maps if "contemporary subsistence use" is portrayed.

019-006

There is a lack of information in the draft EIS's discussion of the existing environment on subsistence uses in Russia and Canada that depend on potentially impacted Chukchi Sea resources such as Bowhead whales. In addition the cumulative impacts of such oil and gas activity on these communities need to be described. Some relevant past studies include Myrmrin, M.I., The Communities of Novoe Chaplino; Serenkiki, Uelen, and Yanrakinnot, and H.P. Huntington. 1999, *Traditional knowledge of the ecology of beluga whales in the Northern Bering Sea, Chukotka, Russia.* Arctic, Vol. 52(1): pp. 62-70; Justice Thomas R. Berger, 1977, *Northern Frontier, Northern Homeland: The Report of the Mackenzie Valley Pipeline Inquiry*.

019-007

Baseline data on existing changes to subsistence resources and uses and predictions of future changes caused by climate change need to be included. While the short, generalized paragraph regarding traditional knowledge on climate change in the entire Bering Sea and Chukchi Sea regions (DEIS p. III-9) introduces the topic, information for each local community is also needed, as well as for the marine and coastal waters in order to conduct an impact analysis. See sources we list in the climate change section.

019-008

C. The DEIS Does Not Adequately Address Mitigation Measures.

Under NEPA, an agency must describe and analyze the effectiveness of proposed mitigation measures. See 40 C.F.R. § 1502.16(h) (stating an EIS "shall include discussions of ... [m]eans to mitigate adverse environmental impacts"). "The requirement

019-009

that an EIS contain a detailed discussion of possible mitigation measures flows both from the language of the Act and, more expressly, from CEQ's implementing regulations." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351 (1989). "Mitigation must 'be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated.'" Neighbors of Cuddy Mountain v. United States Forest Serv., 137 F.3d 1372, 1380 (9th Cir. 1998) (quoting Carmel-By-the-Sea v. United States Dep't of Transp., 123 F.3d 1142, 1154 (9th Cir. 1997) (quoting Robertson, 490 U.S. at 353)). The proposed mitigation measures and their analysis in the draft EIS fall short in many respects.

019-009

Most notably, the draft EIS admits "the potential mitigation measures for various resources associated with the Chukchi Sea were identified for some resource categories but not included for analysis in this EIS." DEIS at II-5. This is a blatant violation of NEPA law. See, e.g., Neighbors of Cuddy Mtn., 137 F.3d at 1380.

019-010

Where mitigation measures are discussed, there is a lack of analysis and an over reliance on their effectiveness. In the case of oil spill response technology, there is no effective oil spill clean up technology. The only technology MMS cites as being practicable for removing oil from broken ice conditions is in situ burning. This method has serious environmental impacts, none of which are dealt with in the draft EIS. If these measures are expected to be allowed, as clearly they are by their repeated citation in the draft EIS (DEIS at IV-37, 46, 52, 226), then the draft EIS must include analysis of their impacts. Given the lack of effective oil spill clean up methods, MMS should not continually rely on the future oil spill response plans as mitigation.

019-011

In many areas, MMS states that mitigation will consist of monitoring requirements and the agency makes reference to "adaptive management". As discussed above, however, there is a dearth of information on the resources of the Chukchi. Without baseline data, monitoring is nearly meaningless and adaptive management is impossible.

019-012

Mitigation and monitoring activities are a clearly mandated component of leasing programs under the OCSLA. Accordingly, the design, impacts of the measures themselves, such as aerial flights or other vessel traffic, and effectiveness of these measures need to be comprehensively assessed in the public NEPA review of the proposed lease sales and seismic survey activities. Yet, even for the most controversial resources, such as endangered bowhead whales, only vague references to past EIS stipulations are given (DEIS at II-30). Those past plans did not have requirements for monitoring during the development phases.

019-013

This past open-water season, ConocoPhillips Alaska Inc. (CPAI) conducted seismic testing in the Chukchi without monitoring the 120 dB exclusion zone for cow/calf pairs that was required to mitigate impacts on the bowhead whale. CPAI received a preliminary injunction from the United States District Court for the District of Alaska after arguing, in part, that aerial monitoring of the Chukchi was too difficult.

019-014

Clearly these are controversial issues that should be addressed in the draft EIS on the proposed lease sale.

MMS clearly realized that it needed additional information for Chukchi Sea leasing activities when it held the workshop titled "Chukchi offshore monitoring in drilling area" on November 1-3, 2006 in Anchorage. MMS described the purpose of this workshop "to review existing research; to identify information needs; and to recommend research monitoring concepts, experimental designs, and scope of field studies to address MMS needs for environmental monitoring of potential Outer Continental Shelf oil and gas exploration and development," in its "Notice of MMS Workshop." This workshop therefore covered issues rightly to be addressed in the NEPA DEIS, such as mitigation, necessary monitoring, etc. MMS's workshop was held after the DEIS had been released to the public, did not have required public notice in the Federal Register, and as we understand it, there was no attendance by local community representatives (except a paid representative of Shell Oil). The proceedings of this meeting were not available for consideration in our review of the DEIS. Workshop observers noted that the scientists discussed the lack of ecological information for the Chukchi Sea. The OCSLA requires adequate pre-leasing baseline information and post-leasing monitoring of impacts and therefore the NEPA analysis should adequately address these issues given the controversial nature of the lease sale.

019-015

Similarly, the National Marine Fisheries Service held the "Arctic Ocean Open Water Seismic Meeting" on October 23-25, 2006, also during the Chukchi Sea Sale 193 ***and Seismic Surveying Activities*** [emphasis added] draft EIS comment period. This meeting also failed to have a federal register notice, public announcements or invitations. However, it addressed issues of seismic impacts related to leasing programs, and may have discussed cumulative impacts of seismic disturbance on bowhead whales in the Beaufort and Chukchi Seas. Still, that meeting covered bowhead whale impacts, not those of other marine mammals, birds, or fish. Given that National Marine Fisheries Service is a cooperating agency on the Chukchi Sea Sale 193 DEIS, it is incumbent upon the agency to conduct public review and comment as well as agency review as part of the on-going NEPA review. The lack of local outreach and participation by the federal agencies in both of these workshops belies the claims the these past workshops and projects that are not as relevant to Sale 193 analysis of impacts meet Environmental Justice requirements (DEIS at V-83 to 84). Moreover, the results of these recent meetings should have been analyzed in the draft EIS.

019-016

D. <u>The DEIS Does Not Address the National Need.</u>

MMS fails clearly to describe the national need for the proposed action. It does not show that potential oil and gas production will meet a significant national energy need. It does not even give a prediction of how much oil might be produced. MMS states that "future production from this frontier area is unlikely to ever reach the full economic potential as estimated by petroleum-resource assessments (USDOI, MMS, 2005) DEIS at IV-7. It fails to explain how the potential "one large oil field" that it assumes will be developed, DEIS at IV-3; IV-7, will make more than a drop in the bucket

019-017

of our national energy consumption nor how this justifies the potential damage to the pristine area if a major spill should take place.

MMS states that "After 30 years of leasing in the Alaska OCS, there are no commercial oil or gas fields located on Federal OCS lands (DEIS at V-6). Perhaps it is time to stop wasting federal funds on an ineffective pursuit that causes real environmental justice harm to the Alaska Native people in the region. Given the great distance of the Chukchi Sea from existing production infrastructure of the Trans-Alaska Pipeline, "Sale 193 does not meet OCSLA's goals for "orderly" development of the OCS. The national interest in the OCS waters also consists of the living resources, and given the lack of current information about the human and biological environment it is currently impossible to conduct the necessary "balancing" of these values of the potential energy resources.

E. The DEIS Does Not Contain An Adequate Analysis of Alternatives.

The purpose of an EIS it to "rigorously explore and objectively evaluate[s] all reasonable alternatives" to the proposed action. 40 C.F.R. § 1502.14(a) (2003). That discussion of alternatives "is the heart of the [EIS]," id. § 1502.14, and it "guarantee[s] that agency decisionmakers have before them and take into proper account all possible approaches to a particular project (including total abandonment of the project) which would alter the environmental impact and the cost-benefit balance." Alaska Wilderness Recreation & Tourism Ass'n v. Morrison, 67 F.3d 723, 729 (9th Cir. 1995) (quoting Bob Marshall Alliance v. Hodel, 852 F.2d 1223, 1228 (9th Cir. 1988); see also Angoon v. Hodel, 803 F.2d 1016, 1020 (9th Cir. 1986) ("[T]he touchstone for our inquiry is whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation.") (quoting California v. Block, 690 F.2d 753, 767 (9th Cir. 1982)).

Here, the draft EIS does not foster informed decision making because it does not contain a rigorous analysis of alternatives. The analysis of alternatives III and IV is cursory and based on unclear and unsupported assumptions. Apparently, MMS assumes that there would be the same level of development under these alternatives as for alternative I, but the agency provides no supporting data for the notion that leasing fewer acres will lead to the same level of development. Generally, MMS assumes that the deferral areas will protect resources, but again provides insufficient analysis to support these assumption. The critical importance of the Chukchi polynya and spring lead zone to migrating whales and birds and subsistence harvests is not well explained in either the existing environment section nor is the rationale for the various deferrals provided. Furthermore, it is not clearly documented that either alternative III or IV's proposed buffer zones would adequately protect these resources from oil industry impacts. As well, the Five-Year plan has a different 25-mile buffer zone that inexplicably was not analyzed in this EIS. In other places in the draft EIS, the agency recognizes that forcing development further offshore can increase some impacts. DEIS at IV-26 ("increased pipeline distances would increase the potential for a pipeline spill and would result in larger pipeline construction impacts.").

The DEIS needs to consider a renewable energy alternative as this could serve to address the national need for sustainable energy in remote, Native American tribal communities, a clearly unmet national need. A useful source is Alaska Energy Authority and Renewable Energy Alaska Project. 2006. Renewable energy atlas of Alaska: A guide to Alaska's clean, local and inexhaustible energy resources. Furthermore, MMS now has statutory authority over renewable energy resources on the OCS and a plan for the Chukchi Sea should also address these resources. The draft EIS needs to consider a carbon reduction alternative, in order to address the national need to reduce greenhouse gas emissions and solve global warming.

019-018

F. The Cumulative Impacts Analysis Is Inadequate.

NEPA requires that the EIS take a hard look at the cumulative impacts on the environment of activities occurring pursuant to Lease Sale 193. 40 C.F.R. § 1502.1; 40 C.F.R. § 1508.7. Cumulative impacts result "from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions," and "can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. The DEIS fails to provide an adequate cumulative impacts analysis in several respects.

019-019

The draft EIS section devoted to cumulative impacts contains a perfunctory analysis that fails to fulfill NEPA's "hard look" requirement. "Although the FEIS contains sections headed 'Cumulative Impacts,' in truth, nothing in the FEIS provides the requisite analysis. . . . . [I]t makes only conclusory remarks, statements that do not equip a decisionmaker to make an informed decision about alternative courses of action or a court to review the Secretary's reasoning." NRDC v. Hodel, 865 F.2d at 865 F.2d 288, 298 (D.C. Cir. 1988). The courts have repeatedly held that the duty to consider cumulative impacts is fulfilled only when the agency takes a "hard look" at the environmental consequences of the various actions. See, e.g., Neighbors of Cuddy Mountain, 137 F.3d at 1379 (agency must take "hard look" at cumulative impacts); Hodel, 865 F.2d at 298 (cumulative impacts analysis must be sufficiently detailed to "equip a decisionmaker to make an informed decision about alternative courses of action . . . ."); North Slope Borough v. Andrus, 642 F.2d 589, 599 (D.C. Cir. 1980) (agency must take "a good 'hard look' at the pertinent environmental questions"). To satisfy this requirement, a cumulative impacts analysis must contain "quantified or detailed information," Neighbors of Cuddy Mountain v. U.S. Forest Serv., 137 F.3d 1372, 1379 (9th Cir. 1998), and should include supporting "references to scientific studies and other materials so that a decisionmaker would have ready access to the information underlying the Secretary's findings and conclusions." Hodel, 865 F.2d at 300.

019-020

The cumulative effects analysis asserts that new technology will mitigate the effects of widespread development on the North Slope and the Arctic Ocean (DEIS at V-4). This assumption is unfounded. First, most of the examples pertain to onshore development. Second, many new technologies have failed to fulfill their promises. For instance, the draft EIS refers to "roadless" development as a new onshore technology that can reduce environmental impacts. Presumably this is a reference to the Alpine development. What the draft EIS fails to mention is that Alpine, the supposed small footprint oil development, is now being expanded dramatically, becoming a sprawling development that will be connected to the NPR-A by a road and a bridge over the Colville. If a major offshore spill occurs it would have devastating effects and there is no new technology to improve spill response in broken ice or most open water conditions in the Arctic Ocean. Due to global warming the much touted "ice road" technology is now severely limited in duration, (ACIA 2004 at 86) especially given the long travel distances of the Chukchi Sea shores from existing oil and gas infrastructure. Other limitations of the effectiveness of directional drilling, seasonal restrictions and other

019-021

mitigations that end up being weakened after initial leasing, are described by P.A. Miller. Broken Promises: The Reality of Big Oil in America's Arctic. http://www.wilderness.org/Library/Documents/upload/Broken-Promises-The-Reality-of-Big-Oil-in-America-s-Arctic.pdf (accessed December 21, 2006).

The cumulative case omits consideration of future oil activities from the aggressive leasing plan currently underway in the Beaufort Sea. The draft EIS itself admits that development in the Chukchi would likely encourage a greater level of activity in the Beaufort. DEIS at IV-1 ("Offshore development in the Chukchi outer continental shelf (OCS) would have synergistic effect on the level of offshore activities in the adjacent Beaufort Sea."). This activity could have serious impacts on resources, such as the bowhead whale and Southern Beaufort Sea polar bear population, that use both the Chukchi and Beaufort. Migrating whales could be exposed to multiple noise producing activities. The draft EIS fails to analyze the full cumulative impacts of noise. 019-022

Moreover, activities in the Beaufort and Chukchi could expose resources to multiple oil spills. The 5-year Plan DEIS states that up to 5 large spills are assumed to occur from OCS activities in the Alaska OCS.

The draft EIS fails to address the cumulative impacts to fish and wildlife from marine impacts including spills caused by the proposed expansion of the Red Dog Deep-water Marine Terminal. The Sale 193 and cumulative case analysis of subsistence resources and uses and impacts on cultures should include compliance with Section 810 of ANILCA since the proposed oil production relies on an assumed onshore pipeline traversing federal lands including the National Petroleum Reserve Alaska. 019-023

The DEIS fails to conduct adequate cumulative impact analysis for marine mammals, especially the combination of global warming and oil and gas exploration and production impacts. Indeed, the draft EIS fails to provide any cumulative impact analysis of Pacific Walrus (DEIS at V-41). 019-024

Climate change is another area that should be given more serious consideration in the cumulative impacts analysis. Global warming could have a serious impact on subsistence and human culture and environment beyond the population level effect it could have on various species. According to the NRC, "if migrations of bowhead whales (*Balaena mysticetus*), for example, were to shift farther offshore and if populations of seals near the coast were to be seriously reduced, the consequences for coastal human subsistence cultures could be dramatic." NRC Report at 92. The effect of distribution of subsistence species altered by offshore activities combined with the effects of global warming on subsistence need to be discussed in the cumulative impacts analysis; maps would also be particularly useful to the public understanding of this complicated issue. 019-025

In assessing the likely effects of global warming, the EIS also should consider the following sources: Pew Center on Global Climate Change, *Observed Impacts of Global Climate Change in the U.S.* (Nov. 9, 2004); U.N. Environment Programme, *GEO Year Book 2004/5: An Overview of Our Changing Environment* 42-46, 80-84 (2005); National 019-026

Academy of Sciences, *Joint science academies' statement: Global response to climate change* (June 7, 2005); The Wildlife Society, *Global Climate Change and Wildlife in North America* (2004), available at http://www.nwf.org/nwfwebadmin/binaryVault/Wildlife_Society_Report2.pdf, and Millennium Ecosystem Assessment, *Millennium Ecosystem Assessment Synthesis Report* 119 (Mar. 23, 2005), available at http://www.millenniumassessment.org/en/products.aspx (last visited Nov. 16, 2006); Huntington, H.P., and the communities of Buckland, Elim, Koyuk, Point Lay, and Shaktoolik, 1999, Traditional knowledge of the ecology of beluga whales (Delphiniapterus leucas) in the Eastern Chukchi and Northern Bering Seas, Alaska. Arctic 52(1): p. 49-61. This paper and others also describe the high sensitivity of belugas to noise disturbance from boats and other vehicles and traffic.

019-026

One example of a relevant type of information that should be considered includes observations of Alaska Native (Yupik) experts from Savoonga and Gambell on marine ice, ice and weather observations, stories, and historical records. See Oozeva, C., C. Noongwook, G. Noonwook, C. Alowa, and I. Krupnik. 2004, *Watching ice and weather our way* / Alulka, Tapghaghmii, Mangataaquli, Sunqaanga, Igor Krupnik. *Sikumengllu Eslamengllu Esghapalleghput*, Edited by Igor Krupnik, Henry Huntington, Christopher Koonooka, and George Noongwook, Washington DC: Arctic Studies Center, Smithsonian Institution. 208. pp.

Another useful reference explaining the magnitude of cultural and environmental change and how it may affect subsistence including in the Barrow area of the Chukchi Sea is Krupnik, I. and Jolly, D. (eds), 2002, *The Earth is Faster Now: Indigenous observations of Arctic environmental Chang*, Fairbanks, Alaska: Arctic Research Consortium of the United States. 384 pp.

Some information based on traditional knowledge gained in the communities is also available in Gibson, M.A., and S.B. Schullinger. 1998. Answers from the ice edge: The consequences of climate change on life in the Bering and Chukchi Seas. Anchorage: Arctic Network and Greenpeace. 32 pp.

There is also substantial existing information regarding the effects of coastal erosion on Chukchi Sea communities, including Kivalina, Point Hope and Barrow that was ignored by the DEIS, e.g. GAO 2003. *Alaska Native Villages: Most are affected by erosion and flooding but few qualify for federal assistance.* GAO-04-142. 91 pp. (accessed December 21, 2006, http://www.gao.gov/new.items/d04142.pdf.); Orson P. Smith. 2006. *Coastal Erosion Responses for Alaska: Workshop Proceedings.* Alaska Sea Grant http://seagrant.uaf.edu/bookstore/pubs/AK-SG-06-03.html; *Arctic Sounder* December 14, 2006, at 1-2, *Latest attempts to stem Kivalina's erosion problems fail: Most of $3 million sea wall falls into the Chukchi Sea.* Such information on coastal erosion is also crucial to evaluate potential feasibility impacts of hypothetical port sites and pipeline landings along the Chukchi Sea.

Issues related to the cumulative impacts analysis of particular resources are further discussed in the discussion of specific resources below.

G. The Significance Thresholds Are Inappropriate.

The significance criteria are arbitrary. MMS uses a significance threshold for biological resources of an adverse impact that will result in a decline taking three or more generations to recover. MMS does not provide scientific justification for the criteria used or explain why three generations of recovery is an appropriate threshold for a variety of different species that have very different reproductive and population trends. It is also important to evaluate impacts to fish and wildlife habitats, not just populations and the significance thresholds do not reflect this.

019-027

H. Failure To Consider Important Issues.

According to the draft EIS, "the issue of aquatic invasive species is directly pertinent to the conservation and management of fishery resources." DEIS at III-27. Yet, in the draft EIS MMS explicitly excluded the issue from its analysis. See DEIS at II-27 (listing aquatic invasive species as an issue eliminated from analysis). The draft EIS eliminates this issue from consideration based on the assumption that the climate of the Arctic will not support introduced species. There is no support for this assumption provided, however. Accordingly, this issue should be fully analyzed in the EIS.

019-028

I. The Development Scenario is Incomplete and Unreasonable.

The analysis of environmental impacts (Chapter 4) should begin with a complete and detailed explanation of the assumptions made and the activities projected to take place. It needs to provide an estimate of the location and number of barrels of oil in the "one large oil field" that will be developed (DEIS at IV-3; IV-7) and scientific justification for its estimate of potential production. While Table IV.A-5 shows "estimated resources of 1 billion barrels," nowhere is this figure justified with scientific analysis. There are no maps of petroleum resource potential, past exploratory well locations, past seismic surveys used to justify the development scenario that is provided. Further, it is not clear from the document what oil price range MMS used for a basis of its projections. If the oil price range used to estimate the amount of available oil is low the analysis will fail to cover the potential environmental effects at the high end of potential oil prices.

019-029

MMS should provide a hypothetical scenario map with location of seismic surveys, predicted exploratory and delineation wells, and the production scenarios including location of platforms, pipelines, processing plants, staging areas, docks and ports, potential sources of fresh water withdrawals and gravel, etc. whether onshore or offshore.

019-030

Drilling waste disposal for exploratory wells was not addressed in the assumptions for the effects assessment (DEIS at IV); potential sites for a potential onshore drilling waste treatment and disposal facility at the shorebase need to be shown (DEIS at IV-13, IV-15). Zero discharge is state of the art for drilling muds and cuttings disposal and needs to be evaluated as a mitigation measure (see Jonathon Wills. 2000. *Muddied Waters*, http://www.alaskaforum.org/other/muddiedwaters.pdf, accessed December 21, 2006)

019-031

Only vague information is provided regarding the highly risky potential production platforms and the discussion of the bottom-founded platform to be used as a central production facility states "no platform has operated in environmental conditions equivalent to the Chukchi Shelf." (DEIS at IV-13). These are major issues, especially given the damage to offshore rigs during the recent Rita and Katrina hurricanes in the Gulf of Mexico.

019-032

The location of the "shorebase" and "pipeline landfalls" are not provided (DEIS at IV-14). The estimate of "one to two barge trips" and 5 aircraft trips per day in the summer open-water season for shorebase construction (DEIS at IV-15) seems very low, given the thousands of plane flights and hundreds of barge and boat trips required to construct the facilities at the Northstar field. Analysis of past construction and operations activity levels for the offshore Northstar field, Endicott, and others should be provided.

019-033

The topic of whether oil and gas tankers may be used to transport oil, especially if seas become ice-free, needs to be addressed in the development scenario.

019-034

The cumulative impact scenario (Chapter V) similarly fails to give a complete and detailed explanation of the assumptions made and the activities and infrastructure expected to take place. It fails to analyze on-ice seismic surveys, even though those are being considered in the Beaufort Sea and have been extensively used in the past. Potential noise disturbance from barging of onshore and offshore drilling rigs and supplies for exploration and production is ignored as are other sources.

019-035

Nowhere does the draft EIS specify the total potential production of oil and gas from the Chukchi Sea (from either the "contribution by Vol. of OCS oil," Table V-7b or the "Speculative production" in Table V-7c). Although the text implies it is only the 1 billion barrels assumed for Sale 193, this overlooks the potential for the two other Chukchi sea sales proposed in the 5-year Plan. The MMS Five-year Plan shows anticipated production for the proposed program totaling 1 billion barrels for all three sales (Table 6), if this amount is anticipated from a single sale there is no reason not to cancel the first sale.

019-036

For the cumulative effects analysis to be meaningful, a hypothetical scenario map should be provided. One example based on Department of Interior information compiled from many sources onto one map is "Arctic Alaska: Offshore and onshore oil and gas development," (P.A. Miller, D.A. Smith, and P.K. Miller. 1993. Oil in Arctic Waters: The untold story of offshore drilling in Alaska. Anchorage: Greenpeace. 122 pp).

019-037

J. Economic Analysis

MMS fails to disclose fully the true economic costs to the public for development in the Chukchi, including huge public costs for baseline and post-lease monitoring and development of mitigation measures, volunteer public and community time required for public meetings, comment and review of actions. No costs for federal and state agency human resources for the vast permitting that will be required is calculated. In addition, no

019-038

costs for supplemental state and federal infrastructure or oversight are factored in. In fact no "costs" are discussed at all, only projections of profits. Such an analysis only provides a gross revenue projection without the real expense costs factored in. A true cost-benefit analysis needs to be provided which includes contingent valuation and passive use values. We expect that a true cost/benefit analysis could find that the minor amount of oil recoverable in the Chukchi would cost more to the taxpayer than the value of the product. The true costs to taxpayers would be excessive if all public costs were calculated (community and ecological costs, pollution cleanup costs, carbon and climate costs).

019-038

In the dismantling, rehabilitation and restoration phase at the end of activities in an area, MMS needs to consider full removal of all infrastructure instead of only requiring industry to plug offshore wells and leave pipelines in place. See DEIS at II-30. The requirement that the taxpayer pay the costs for oversight of a pipeline and plugged wells far offshore in one of the harshest ocean environments in the country is an outright abuse of the U.S. taxpayer - particularly given the profits the oil industry is currently making. The draft EIS and the Five-Year Plan also failed to address existing royalty relief that could significantly reduce OCS revenues.

019-039

K. The Oil Spill Projections and Impact Analysis Are Flawed.

The DEIS understates the potential consequences from a large spill. MMS projects a 40% chance of a large oil spill (greater than 42,000 gallons – 1,000 barrels) and project the chances this would foul an "environmental resource area" as up to 7% within 30 days (DEIS at IV-3, IV-25). Yet, it fails to describe the risks during longer durations of time, including the subsequent years following the spill incident and these should be included in the text.

019-040

A blowout scenario from exploratory well needs to be analyzed. Barge spills are relatively common and it can be expected that there will be far more barging of supplies to support Chukchi Sea operations given the lack of connection with the Dalton Highway compared to Beaufort Sea operations near the existing Prudhoe Bay field. MMS implicitly assumes, though does not explain, that there will be no tanker transport of crude oil from production wells yet does not provide an explicit lease stipulation that would prohibit this. Impacts of tanker spills need to be analyzed for the Chukchi production operations. MMS also needs to describe potential response, cleanup and remediation measures for spills and more clearly describe the lack of response measures. See E. DeCola, T. Robertson, S. Fletcher, S. Harvey, 2000, Offshore oil spill response in dynamic ice conditions: A report to WWF on considerations for the Sakhalin II Project.

019-041

The sources of information used to define the environmental resource areas in the oil-spill trajectory analysis need to be provided as without this one cannot understand what resources would be affected. The ecological significance of the various "ERA's" shown on Appendix A.2 maps need to be depicted in the legend so the general public can comprehend the resources for which a trajectory analysis was done. We are pleased that MMS has run an analysis of "grouped land segments." However, the results of the analysis are not explained clearly for a reader not versed in MMS's analysis method; the text needs to better explain the consequences to the natural resources at risk. It would be

019-042

very helpful to the public to show the "spillet" tracks for at least some of the trajectory analysis in order for the public to have a clearer understanding of the MMS work. The effects of spills on wilderness values of shorelines were not described. 019-043

The DEIS downplays the risks or consequences of chronic smaller crude oil spills. The analysis should also analyze pills of other substances including diesel oil, which is commonly spilled on the North Slope, glycols, which are toxic to animals, and others. While Table IV.A-6 predicts 444 refined oil spills totaling 408 barrels (17,136 gallons) this does not include other toxic substances reported annually to be spilled from the North Slope oil fields by Alaska Department of Environmental Conservation records. 019-044

The cumulative impacts of spills ignores effects of potential spills from the new and existing onshore transmission pipelines, as well as spills from the Trans-Alaska Pipeline System including the Valdez Marine Terminal operations and shipping in tankers to market and associated vessels. 019-045

The draft EIS fails to fully analyze the potential for pipeline leaks. According to the draft EIS there is "seafloor disturbance caused by the deep ice keels that ground almost yearly on the relatively shallow Hanna Shoal near the center of the proposed lease area." DEIS at IV-65. However, the draft EIS fails to integrate this information into the discussion of oil spills. Given that Hannah Shoal is the center of the proposed development, these ice keels could severely and regularly damage pipelines. The draft EIS states, "Ice has gouged the seafloor in water up to about 50 m in depth, so almost all of the pipelines would have to be buried deep enough to avoid disturbance from ice keels." Id. 019-046

There is virtually no example of this type of pipeline construction globally and no examples of how such a construction could withstand the impact of tons of pressure presented with an ice keel. The suggestion that pipelines be buried deeper than 50 m is not a proven viable solution to the problem of ice keels. Provided that both Beaufort Sea and Chukchi Sea seafloor is unconsolidated, one should extrapolate that an even deeper trench would be required. Seemingly unaccounted for in this hypothetical engineering proposal is the fact that the seafloor likely undergoes soil movement. The potential for oil spills or chronic leaks due to pipeline damage from ice keels is extremely high, and these impacts are ignored by the draft EIS. Such pipeline leaks could go undetected for years, seriously impacting endangered species and subsistence, and impairing the health quality of the ecosystem. 019-047

II. PARTICULAR RESOURCES OF CONCERN

A. Water Quality

The analysis of water quality is overly dismissive of the potential for chronic degradation of water quality. There are many potential pollutants, such as drilling mud and process water, that are routinely discharged as a part of offshore oil production. Just because the receiving water is relatively uncontaminated and the discharge may be far offshore, does not mean that the impact will be negligible. Drilling muds contain heavy 019-048

metals that will bioaccumulate in the food chain. Moreover, even localized effects can be significant. See, e.g., Anderson v. Evans, 371 F.3d 475, 491 (9th Cir. 2004). The EIS should give more serious consideration to the effect these contaminants will have on the ecosystem.

019-048

B. Lower Trophic-Level Organisms

The Chukchi Sea benthos generally is richer that other arctic shelves and contains many areas important to benthic grazers such as ducks, walruses, and gray whales. DEIS at III-25. The draft EIS acknowledges that there will be an effect on these organisms, characterizing the effect as "moderate." DEIS at IV-63. This conclusion, however, may be understated. Given the lack of information about where particularly productive areas are located, the effect could be more than anticipated. Indeed, the draft EIS itself recognizes that pipeline installation would have a "major level of effect." Id.

019-049

C. Fish

The analysis of fish has many shortcomings and fails to analyze the full potential for offshore activities to impact fish. Fish are the primary prey for many of the marine mammals in the planning area and represent an important subsistence resource. Many important issues are inadequately analyzed. For instance, the draft EIS reveals that gravel causeways will be used at landfall for pipelines. Such causeways previously have had negative impacts on Arctic fishes, but the draft EIS fails to discuss this history.

019-050

The draft EIS fails to reveal the full extent of the impact seismic activities may have on fish. Fish are equipped, like all vertebrates, with thousands of sensory hair cells that vibrate with sound. Some fish species have specialized organs, like the abdominal sac, called a "swim bladder," which can boost hearing and a "lateral line" of sensory and hair cells that run the length of their bodies. Fish use sound in many of the ways that marine mammals do: to communicate, defend territory, avoid predators, and, in some cases, locate prey.[1]

019-051

One series of recent studies showed that fish sustained extensive damage to the hair cells located at the sensory epithelia of the inner ear after they were exposed to impulsive air gun noise.[2] The damage, described as "blebbing" and "blistering" on the surface of the epithelia, "suggest that hair cells had been 'ripped' from the epithelia (immediate mechanical damage) or, alternatively, had 'exploded' after exposure (physiological damage)."[3] In the context of the DEIS, this study is particularly

019-052

[1] See, e.g., A.N. Popper, Effects of Anthropogenic Sounds on Fishes, 28(10) Fisheries 26-27 (2003); M.C. Hastings & A.N. Popper, Effects of Sound on Fish 19 (2005) (Report to the California Department of Transportation, Contract No. 43A0139) ; D.A. Croll, Marine Vertebrates and Low Frequency Sound—Technical Report for LFA EIS 1-90 (1999).

[2] McCauley et al., High Intensity Anthropogenic Sound Damages Fish Ears, J. Acoust. Soc. Am. 113 (Jan. 2003).

[3] Id. at 640.

significant because the inner ear of the species examined (pink snapper) "is typical" of a number of important fish species found in the Chukchi Sea, including salmon, cod, and haddock.[4] Fish, unlike mammals, are thought to regenerate hair cells, but the pink snapper in those studies did not appear to recover within approximately two months after exposure, leading researchers to conclude that the damage was permanent.[5] As researchers have consistently acknowledged, even a short-term loss in hearing can (let alone the virtually permanent damage seen in snapper) will substantially diminish its chance of survival: "[f]ishes with impaired hearing would have reduced fitness, potentially leaving them vulnerable to predators, possibly unable to locate prey, sense their acoustic environment, or, in the case of vocal fishes, unable to communicate acoustically."[6]

019-052

As with marine mammals, sound has also been shown to induce temporary hearing loss in fish. Even at fairly moderate levels, for example, noise from outboard motor engines is capable of temporarily deafening some species of fish, and other sounds have been shown to affect the short-term hearing of a number of other species, including sunfish and tilapia.[7]

Nor is hearing loss the only effect that ocean noise can have on fish. Numerous studies, for example, have noted that fish display marked "alarm" responses to airguns and other forms of anthropogenic noise.[8] And for years fishermen in various parts of the world have complained about declines in their catch after intense acoustic activities

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[4] Id. at 641

[5] Id. (some fish in the experimental group sacrificed and examined 58 days after exposure).

[6] See McCauley et al., High Intensity Anthropogenic Sound Damages Fish Ears, at 641; Popper, Effects of Anthropogenic Sounds at 29.

[7] A.R. Scholik and H.Y. Yan, Effects of Boat Engine Noise on the Auditory Sensitivity of the Fathead Minnow, *Pimephales promelas*, 63 Environmental Biology of Fishes 203-09 (2002); A.R. Scholik and H.Y. Yan, The Effects of Noise on the Auditory Sensitivity of the Bluegill Sunfish, *Lepomis macrochirus*, 133 Comparative Biochemisty and Physiology Part A at 43-52 (2002); M.E. Smith, A.S. Kane, & A.N. Popper, Noise-Induced Stress Response and Hearing Loss in Goldfish (*Carassius auratus*), 207 Journal of Experimental Biology 427-35 (2003); Popper, Effects of Anthropogenic Sounds at 28.

[8] See F.R. Knudsen, et al., Awareness reactions and avoidence responses to sound in juvinelie Atlantic salmon, *salmo salar L.*, Journal of Fish Biology (1992) **40**, 523-534; Robert D. McCauley, *et al.* Marine Mammal Seismic Surveys: Analysis and Propagation of Air-Gun Signals; and Effects of Air-Gun Exposure on Humpback Whales, Sea Turtles, Fishes and Squid, Curtin University, Centre for Marine Science and Technology (August 1999); C.S. Wardle, *et al.*, Effects of seismic air guns on marine fish, Continental Shelf Research **21**, 1005-1027 (2001).

moved into the area, suggesting that noise is seriously altering the behavior of some commercial species.[9] A group of Norwegian scientists attempted to document these declines in a Barents Sea fishery and found that catch rates of haddock and cod (the latter known for its particular sensitivity to low-frequency sound) plummeted in the vicinity of an airgun survey across a 1600-square-mile area, an area larger than the state of Rhode Island. In another experiment, catch rates of rockfish were similarly shown to decline.[10] Drops in catch rates in these experiments range from 40 to 80 percent.[11]

A number of studies, including one on non-impulsive noise, have also shown that intense sound can kill eggs, larvae, and fry outright or retard their growth in ways that may hinder their survival later.[12] Increased mortality for fish eggs has been shown to

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[9] See "'Noisy' Royal Navy Sonar Blamed for Falling Catches," Western Morning News, Apr. 22, 2002 (sonar off the U.K.); Percy J. Hayne, President of Gulf Nova Scotia Fleet Planning Board, "Coexistence of the Fishery & Petroleum Industries," www.elements.nb.ca/theme/fuels/percy/hayne.htm (accessed May 15, 2005) (airguns off Cape Breton); R.D. McCauley, J. Fewtrell, A.J. Duncan, C. Jenner, M.-N. Jenner, J.D. Penrose, R.I.T. Prince, A. Adhitya, J. Murdoch, and K. McCabe, Marine Seismic Surveys: Analysis and Propagation of Air-Gun Signals, and Effects of Air-Gun Exposure on Humpback Whales, Sea Turtles, Fishes, and Squid 185 (2000) (airguns in general).

[10] See A. Engås, S. Løkkeborg, E. Ona, and A.V. Soldal, Effects of Seismic Shooting on Local Abundance and Catch Rates of Cod (Gadus morhua) and Haddock (Melanogrammus aeglefinus), 53 Canadian Journal of Fisheries and Aquatic Sciences 2238-49 (1996); J.R. Skalski, W.H. Pearson, and C.I. Malme, Effects of Sound from a Geophysical Survey Device on Catch-Per-Unit-Effort in a Hook-and-Line Fishery for Rockfish (Sebastes spp.), 49 Canadian Journal of Fisheries and Aquatic Sciences 1357-65 (1992). See also S. Løkkeborg and A.V. Soldal, The Influence of Seismic Exploration with Airguns on Cod (Gadus morhua) Behaviour and Catch Rates, 196 ICES Marine Science Symposium 62-67 (1993).

[11] Id.

[12] See, e.g., C. Booman, J. Dalen, H. Leivestad, A. Levsen, T. van der Meeren, and K. Toklum, Effecter av luftkanonskyting på egg, larver og yngel (Effects from Airgun Shooting on Eggs, Larvae, and Fry), 3 Fisken og Havet 1-83 (1996) (Norwegian with English summary); J. Dalen and G.M. Knutsen, Scaring Effects on Fish and Harmful Effects on Eggs, Larvae and Fry by Offshore Seismic Explorations, in H.M. Merklinger, Progress in Underwater Acoustics 93-102 (1987); A. Banner and M. Hyatt, Effects of Noise on Eggs and Larvae of Two Estuarine Fishes, 1 Transactions of the American Fisheries Society 134-36 (1973); L.P. Kostyuchenko, Effect of Elastic Waves Generated in Marine Seismic Prospecting on Fish

occur at distances of 5 meters from an airgun source; mortality rates approaching 50 percent affected yolksac larvae at distances of 2 to 3 meters.[13] Also, larvae in at least some species are known to use sound in selecting and orienting toward settlement sites.[14] Acoustic disruption at that stage of development could have significant consequences on effected species.[15]

The DEIS Underestimates Potential Impacts To Fish.

Although the DEIS acknowledges the potential for seismic survey operations to cause significant harm to fish, it contains unsupported assertions that no adverse impacts are expected. MMS, however, fails to provide any support for these assertions, which are sometimes contradicted by MMS's own statements. This calls into question MMS's conclusions. It also suggests that the strong disagreements between MMS's own fish analyst and MMS's managers over the analysis in the 2006 Programmatic Environmental Assessment continue in the DEIS. 019-053

For example, the DEIS notes that the noise from seismic survey airguns can cause significant behavioral changes in fish and fish stocks, particularly when multiple sources are proposed. In such cases, the "[c]oncurrent seismic surveys may facilitate the stranding of some schooling or aggregated arctic fishes onto coastal or insular beaches in the proposed sale area." DEIS at IV-78. Further, the DEIS explains that studies have shown that "[p]elagic fish-catch rates and local abundance were reduced within 33 km of the airgun array for at least 5 days after shooting," indicating that whether and when the fish returned to the area is unknown. *Id*. at IV-76 (emphasis added). 019-054

MMS nonetheless asserts that the effects from such concurrent seismic surveys "most likely would be temporary and localized, and only a moderate level of disturbance or displacement would occur." DEIS at IV-77. This conclusion appears to be based on MMS's assumption that the "3D/2D seismic surveys typically cover a relatively small area and only stay in a particular area for hours, thereby posing somewhat transient disturbances." *Id*. However, the surveys can cover large areas and may last for five months. 019-055

As indicated by this past summer's operations, 2D and 3D surveys in the Chukchi Sea can last 5 months or longer, from July (assuming MMS prohibits operations in June) through November (weather permitting). *See* DEIS at II-4; II-28. The 3D surveys are conducted 24 hours a day, weather permitting. *Id*. at IV-10. Over a 20- to 30-day period, the surveys can cover a 200 square mile area. *Id*. Thus, over 5 five months, they could cover at least 1,000 square miles. The 2D surveys operate in a similar fashion, but they can cover even larger areas. *Id*. at IV-10 to IV-11. This past summer, for example, a 019-056

Eggs on the Black Sea, 9 Hydrobiology Journal 45-48 (1973).

[13] Booman et al., Effecter av luftkanonskyting på egg, larver og yngel at 1-83.

[14] S.D. Simpson, M. Meekan, J. Montgomery, R. McCauley, R., and A. Jeffs, Homeward Sound, 308 Science 221 (2005).

[15] Popper, Effects of Anthropogenic Sounds at 27.

single 2D surveyor expected to survey over 3,000 miles. *See* 71 Fed. Reg. 49,418, 49,419 (Aug. 23, 2006). It thus is not clear how MMS can claim that these the surveys cover "small" areas and are "transient" in nature.

Similarly, MMS dismisses potential fish strandings from concurrent seismic surveys, explaining that "[g]iven that seismic surveys would be operating at least 17 km (10 mi) from shore, it is improbable that this would occur. A mitigation measure to separate concurrent or coincidental seismic survey operations (Sec. II.B.4) would largely alleviate all risk of fish strandings." IV-78. However, as noted above, scientific studies observed that fish catch-rates and abundance were reduced at 33 km from the seismic survey source. Not only is this greater than 17 km, but it should be noted that the studies on which this number is based (Engås et al. (1996); Løkkeborg and Soldal (1993)) did not conclude that a 33 km radius around an air gun array is the outer-most extent of a potential fish displacement area. Rather, these studies simply did not survey catch rates beyond 33 km. It is therefore likely that the distance where displacement would occur is even greater.

019-057

Finally, in a few instances, the DEIS misstates the conclusion of relevant studies or makes unwarranted (and unconservative) extrapolations based upon others. As a result, the DEIS's conclusion that the potential seismic surveys will have only insignificant impacts is dubious, at best.

For example, the DEIS states that "sound sources that have resulted in documented physiological damage and mortality of adult, juvenile, and larval fish have all been at or above 180 dB re 1 μPa (Turnpenny and Nedwell, 1994)." DEIS at IV-75. This conclusion ignores McCauley et al. (2000 and 2003), which found physiological damage (likely permanent) to the hair cells of the inner ears of adult fish. Although McCauley et al. exposed fish to a maximum sound level of 182 dB re 1 mPa2.s (193 dB re 1mPa), the study calculates when potentially damaging displacement of the hair cells began, concluding that "[t]he point at which the maximum displacement begins to rapidly increase lies between 155-160 dB re 1 mPa2.s" or, using McCauley's assumptions, approximately 166 - 171 re 1 μPa for a single pulse (see Figure 1, taken from McCauley et al. (2000)). Thus, the DEIS's implicit conclusion of that physiological damage or mortality to adult or juvenile fish will not be caused at levels below 180 dB re 1 μPa is unwarranted.

019-058

Similarly, when discussing the widespread reductions in catch rates recorded by Engås, et al. (1996) and Løkkeborg and Soldal, (1993), the DEIS states that the local abundance "were reduced within 33 km of the airgun array." DEIS at IV-76. As noted above, this is an unconservative assumption that is not supported by either study. Neither Engås et al. 1996 nor Løkkeborg and Soldal 1993 conclude that a 33 km radius around an air gun array is the outer-most extent of a potential fish displacement area, as the DEIS seems to assume. Given the dramatic reduction in catch rates that resulted from these studies—as high as 80% in one survey—MMS should assume that the use of air gun arrays may exclude fish over greater distances.

019-059

Fish play an important role in the Chukchi Sea ecosystem. They serve as prey for larger marine mammals and subsistence for Native Alaskans. Therefore, impacts to fish may have cascading effects. As the DEIS notes, if "seismic surveys cause pinnipeds' prey to become less accessible, either because they move out of an area or become more difficult to catch, than pinniped distributions and feeding rates are likely to be affected." DEIS at IV-213. Consequently, it is imperative that MMS adequately asses potential impacts on fish and accurately explain the bases for its conclusions to ensure that the potential impacts are not underestimated.

Moreover, MMS has failed to make any attempt to analyze the cumulative impacts on fish from seismic survey operations. MMS baldly asserts that the "cumulative effect of seismic exploration on fish resources probably would be minor," but explains that "the effects of specific seismic proposals will be assessed later." V-21. NEPA requires MMS to consider those impacts now. Once the leases are sold, the lease holders may conduct ancillary activities, including seismic surveys. In addition, it is likely that the oil industry will conduct surveys each year for the next several years. While MMS is preparing another EIS for those activities, NEPA requires MMS to consider them as cumulative impacts in connection with this federal action, *i.e.*, the lease sale.

019-060

D. Threatened and Endangered Species

1. Marine Mammals

Many issues of concern were not adequately addressed in the DEIS. See Marz, S. 2006, Ice dependent marine mammals: A survey of background information and issues of concern regarding: ice seals, Pacific Walrus, polar bears and bowhead whales. Anchorage: Alaska Oceans Program. 127 pp.

Bowhead

The potential impacts to the population of the bowhead are underestimated in the primary conclusions of the draft EIS even though in several places the MMS admits that there are population risks. That the Chuckchi/Beaufort Sea population is the only "robust" and recovering population of bowhead world-wide is acknowledged by the draft EIS. The draft EIS states, "The population that could be exposed tot the Proposed Action is important to the long-term viability of the species as a whole." at IV-117. Yet, the population effects that could and are likely to come with bioaccumulation and biomagnification are seriously minimized or ignored. A conclusion that population effects are "unlikely" cannot be justified or substantiated. Instead, given the reduction of killer whale population in Prince William Sound and in the Puget Sound, the MMS should conclude that population level effects are likely to occur with the aggregate leasing plans proposed in the 5-Year Plan.

019-061

Oil Spills and Bowhead

The draft EIS states, "Effects of a large oil spill in Federal or State waters most likely would result in nonlethal temporary or permanent effects." DEIS at V-63. Not only is there no substantiation for this conclusion, the draft EIS immediately contradicts the conclusion with a subsequent statement asserting that there is not enough information to

019-062

even formulate such a conclusion: "However, we reiterate that due to the limitations of available information and due to the limitations inherent in the study of baleen whales, there is uncertainty about the range of potential effects of a large spill on bowhead whales, especially if a large aggregation of females with calves were to contacted with fresh oil." Id. The lack of the information necessary to make such a conclusion is reiterated elsewhere in the draft EIS, "There are no data on cetaceans adequate to evaluate the probability of such effects [whale mortality]." DEIS at IV-177. The reiteration of faulty conclusions is particularly concerning as they occur repeatedly in the Executive Summary and in the Cumulative Impact Summary in the document - both of which will be relied on by the Secretary of the Interior for his decision on the Chukchi 193 leasing proposal.

019-062

The conclusion that the effects of a large spill would impact bowhead with merely "non-lethal" impacts does not follow the draft EIS's discussion and citation of oil spill impacts. MMS clearly identifies numerous concerns regarding the impact of oil on marine wildlife including whales and summarizes the NMFS' conclusion that while "leasing and exploration are not likely to jeopardize the continued existence of the bowhead whale….potential additive effects of oil and gas activities associated with exploration, production, and transportation throughout the Chukchi and Beaufort seas is of concern." at IV-178.

019-063

The DEIS fails to adequately inform its discussion of potential lethal impacts to cetacean with oil spills by down-playing the studies of environmental impacts to whales with EVOS. The impacts to Orca whales following EVOS is minimized in the draft EIS. In MMS's discussion of potential whale mortality or population level effects on bowhead, the MMS falsely concludes that there are "limitations of available information" and "no data on cetaceans adequate to evaluate the probability of such effects." This conclusion explicitly contradicts findings from EVOS. The statement also contradicts studies cited in the draft EIS regarding oil spills near Santa Barbara. DEIS at IV-228. Post EVOS NOAA findings report that, "After exceptionally high mortality of 20% between September 1988 and spring 1989 and another 20% during the following year in the AB pod of resident (fish-eating) killer whales that had been observed to swim through the spill, losses of adult females from these matriarchially organized family groups led to suppressed reproduction (2). In another pod (AT1) of transient (mammal-eating) killer whales, the 40% loss during the spill is leading to likely disintegration" (Peterson, C., et. al. Science, Vol 302). Matkin also has documented the loss of killer whales following the EVOS. The draft EIS makes minor reference to Matkin's research and under-represents findings from EVOS about cetacean impacts from oil spills. (See Matkin, C. EVOS Restoration Project, Annual Report, 1999).

019-064

In addition, impacts to bowhead whale due to direct contact with oil are seriously underestimated. The draft EIS's conclusion that oil would have non-lethal impacts on bowhead is undermined by the statement elsewhere in the draft EIS that "bowhead whale are, over some of their migratory pathway, relatively fixed in at least part of the 'road' they travel during spring migration." DEIS at IV-117. Thus, the whales would likely not move away from the spilled oil. Nor could it be concluded that oil contact would have

019-065

only minor impacts on bowhead whale. Extensive exposure could cause lethal impacts, particularly due to the epidermal make-up of the bowhead. MMS states that, "Although oil is unlikely to adhere to smooth skin, it may stick to rough areas on the surface [on bowhead] (Henk and Mullan, 1997)." At IV-229. The draft EIS fails to discuss further findings of Henk and Mullan and does not discuss the implications of significant oil contact with the roughened skin of the bowhead. MMS cites an MMS study by Albert (1981) that concludes oil contact "...could irritate the skin, especially the eroded areas, and interfere with information the animal receives through the tactile hairs. Because we do not know how these hairs work, we cannot assess how any damage to them might affect whales." Id.

019-065

The 1994 National Research Center science review found bowhead whales to have "dozens to hundreds of roughened areas . . . of skin surface. . . . The great increase in exposed surface (microrelief) of these roughened areas increases the area to which oil can adhere...it is likely that oil contact would be harmful." NRC at 102. In addition, the bowhead whale eye area is another area that oil can penetrate. "The conjunctival sac associated with the eye is . . . extensive. . . .Thus a large surface exists for an irritant (such as spilled oil) to contact sensitive visual structures." NRC at102. Given the above potential sources for oil adherence to skin and ability to contaminate past the dermal wall, the bowhead may be impacted to a greater degree than estimated by the draft EIS.

019-066

Cumulative Effects on Bowhead

As discussed above, the draft EIS fails to adequately assess the cumulative effects of leasing in the Chukchi by ignoring known future projects that are currently in the planning stages, primarily the extensive leasing proposed for the Beaufort Sea. The DEIS does provide ample evidence that there is particular concern for deleterious impacts to bowhead given their long life-spans. Infrastructure, chronic pollution and noise pose serious risks to an animal that can live up to 100 years. In addition, the bowhead is known to almost exclusively use the Chukchi and Beaufort Seas. They to do not migrate out of the region for any significant period and when they do, it is only to the Bering Sea. Unlike many whales that traverse several oceans, the bowhead would be forced to survive, given proposed leasing plans, in an environment where at least half of its range has extensive offshore development.

019-067

There is substantial research on bioaccumulation, bioconcentration and biomagnification in whales, pinnipeds and other marine wildlife. Much of this research has been performed in the Puget Sound where significant development takes place in a marine environment. See Grant, SCH, et. al., Can. Tech. Rep. Fish. Aquat. Sci., no. 2412, 2002; Hayteas, DL, et. al., Marine Pollution Bulletin, Vol. 40, No. 6 2000; Hall, JE, Paper "Bioconcentration, Bioaccumulation, and Biomagnification in Puget Sound Biota," UofW Tacoma, 2002. Hall's paper summarizes the results of numerous studies regarding bioaccumulation and states, "Research has shown that certain chemicals have the ability to be bioconcentrated in organisms directly from the water, and bioaccumulated and biomagnified within food chains, causing higher trophic organisms to become contaminated with higher concentrations of chemical contaminants than their prey…." World-wide, both toothed and baleen whales are showing bioaccumulation of chemicals.

019-068

This is particularly true in the Arctic. The DEIS fails to integrate the impacts of global chemical pollution with the impacts from the proposed lease sales. Cumulative impact discussion in the DEIS ignores the global nature of pollution and how that will exacerbate with the proposed development. 019-068

Mitigation for Bowhead Impacts

Mitigation proposals are insufficient to prevent long-term impacts to bowhead. The MMS acknowledges significant lack of data on how the bowhead use the Chukchi Sea for feeding, calving and mating. Yet, the whale's presence in the Chukchi for significant parts of the year is well-documented. Without basic data about bowhead use of the Chukchi, mitigation proposals are rendered useless. 019-069

In addition, mitigation measures such as those contained in MMPA incidental take authorizations do nothing to reduce population level effects. Mitigation measures are acknowledged repeatedly to be unpredictable in their effectiveness. In addition, the lack of an enforcement protocol renders these mitigation measures ineffective. 019-070

Humpback, Gray, Minke and Fin Whales

The humpback and fin are endangered species, and the minke is listed as threatened. The Western North Pacific gray whale remains endangered, while the Eastern North Pacific gray whale was delisted in 1994; it is the Eastern stock that utilizes the Chukchi Sea. Although the Eastern Gray is delisted, the importance of its protection should not be underestimated. There is significant lack of data about the distribution of fin, minke and humpback whales in the Chukchi. Yet, there is increased evidence that with climate change, more of these whales are moving into the area. 019-071

The draft EIS incorrectly discounts the potential for offshore developmentl to impact these whales, stating, "we conclude it is unlikely there would be adverse effects from noise and disturbance associated with oil and gas seismic-survey activities in the Chukchi Sea evaluation area on fin or humpback whales because of the distance they are expected to be from such activities." DEIS at IV-150. This conclusion contradicts other findings in the DEIS that identify impacts from noise. Additionally, this conclusion contradicts the 5-Year Plan DEIS and the Chukchi Lease Sale 193 draft EIS as both assume that OCS activity may occur in deeper waters away from the shore. At the COMIDA meetings in November 2006, the Hannah Shoal region was presented as the focus and central area of interest for leasing. Clearly, with the location of humpback and fin whales away from the shorelines it should be assumed that impacts could in fact occur to these whales and substantially more discussion should be included of those impacts. 019-072

The DEIS notes the potential for vessel traffic impacts as it is likely that the whales will leave the Chukchi Sea region once the pack ice begins to move into the region. Vessels associated with development are likely to do the same. Increased traffic impacts are likely particularly in the narrow passage-way of the Bering Straight. The laws cited by the draft EIS are not adequate mitigation measures because they cannot be enforced in a meaningful way. 019-073

The DEIS states, “Neither fin whales nor humpback whales are known to typically inhabit the proposed Chukchi Sea Sale 193 area.” DEIS at IV-180. However, local reports and agency scientists (NSB, COMIDA Meetings, Nov. 2006) document increased sightings of humpback, fin and gray whales. At the Chukchi COMIDA meetings it was noted that a current inventory of whales that utilize the Chukchi Sea is needed.

019-074

The draft EIS’s discussion of oil impacts on fin, humpback and gray whales is problematic due to the vague conclusions asserted. In fact, much of the discussion of impacts contradicts other statements within the DEIS, leading to significant inconsistencies throughout the analysis. For example, while the draft EIS cites observations of whales behaving normally in oiled waters and seems to suggest that whales a relatively unaffected by contact with oil, it also cites research that undermines this conclusion. For example the draft EIS discusses the Santa Barbara spill which killed numerous humpback whales. The draft EIS also cites Matkin et al. (1994) who, “reported that killer whales had the potential to contact or consume oil, because they did not avoid oil or avoid surfacing in slicks.” IV-226. Thus, a correct conclusion by MMS should be that these whales may not be able to detect oil in the water or know how to avoid it. Additionally, because of the lack of study of these whales it would be virtually impossible to know what the effects of that oil contact would be because the animals could not be kept track of to determine their fate. The draft EIS fails to make accurate conclusions about impacts to these whales and lacks enough significant data to be able to establish impacts to fin and humpback whales.

019-075

Gray whales are particularly at risk with the proposed development, yet the draft EIS fails to accurately document those impacts. While the draft EIS provides some information about gray whale use of the area it fails to acknowledge the significance of this habitat and its overlap with seismic, drilling, and other operations.

> Currently, gray whales are believed to congregate along offshore shoals in the northern Bering and Chukchi seas for feeding during the summer months. Larger aggregations of feeding whales have been reported at these shoals. It is likely that shallow coastal and offshore-shoal areas provide habitat rich in gray whale prey, and their association and congregation in larger numbers with offshore shoals in the northern Chukchi Sea may indicate that these are important feeding areas for the expanding population (Moore and DeMaster, 1997).

DEIS at IV-219.

019-076

One of the above cited highly used shoals is the Hannah Shoal in the Northeast corner of the leasing area, just off of the Barrow point. This is also the central location expected to be developed by industry. However, the DEIS fails to mention this fact at all or analyze the impact to gray whales of the loss of this primary feeding area. With Hannah Shoal development, gray whale impacts are bound to occur, particularly given the extensive pipeline infrastructure planned for the area.

Both gray whales and walrus are at great risk from pipeline development in the Hannah Shoal area (COMIDA Meetings, Nov. 2006). Both marine mammals are bottom feeders that rely on benthic species populations. The impact from pipeline infrastructure displacement is greatly minimized by the draft EIS (see Walrus section). The impact to gray whales from infrastructure disturbance to feeding area may result in movement away from the area. If the whales continue to feed in the area, a greater risk is assumed with the impacts of bioaccumulation. For example, "drilling muds probably would not kill benthic organisms, but any heavy metals in them might be accumulated by benthic organisms, adding to the body burden in vertebrate consumers." DEIS at IV-65.

019-077

The Hannah Shoal area is known to have annual ice keels (deep gouges into the sea floor). DEIS at IV-65. The impact of these on pipelines are not discussed in the DEIS. There is mention of the possibility of chronic, undetected oil leaks, but this concept is not integrated into any of the other discussions of impacts from oil spills or discharges. Undetected leaks from underwater pipelines could impact gray whales by contaminating the benthic communities they feed on and subsequently accumulating in the whale. Additionally, if the whales continue to choose to feed in this area, then traffic and other impacts would be realistic.

019-078

North Pacific Right Whale

The right whale is the most endangered whale with a population perhaps as low as 100 individuals. The Chukchi provides potential habitat for this whale. According to NMFS, "The North Pacific right whale (Eubalaena japonica), historically ranging in the North Pacific Ocean from latitudes 70° N to 20° N;" 69 Fed. Reg. 17560 at17561; see Hideo Omura et al., *Black Right Whales in the North Pacific*, 13 SCI. REP. WHALES RES. INST. 1, 44 (1969). Moreover, North Slope Natives have reported seeing right whales in the Chukchi. Testimony was provided on this at the public hearing in Point Hope. Given this species perilous status, an activity that could potentially impact even one individual, or impact current or potential habitat, should have been analyzed in the EIS.

019-079

2. Marine and Coastal Birds

Kittlitz's murrelets

The DEIS, by way of the Biological Evaluation included as Appendix C, briefly addresses potential impacts to Kittlitz's murrelet, a candidate species. Because Kittlitz's murrelets spend much of their time on the water, offshore oil spills may prove devastating to this species. Unless MMS can establish the efficacy of some method to promptly contain and remove spilled oil throughout the year, the EIS should conclude that such spills pose a considerable threat to Kittlitz's murrelets.

019-080

Spectacled eiders and Steller's eiders

Because MMS has concluded that without comprehensive mitigation measures, Lease Sale 193 is likely to adversely affect spectacled eiders and Steller's eiders, and is

019-081

likely to adversely modify the Ledyard Bay Critical Habitat area, Fish and Wildlife Service (FWS) must prepare a Biological Opinion pursuant to Section 7(b) of the ESA. The mitigation measures identified by MMS are wholly inadequate to address the threats posed by Lease Sale 193 and subsequent development. Absent a blanket prohibition on any and all activities within the Ledyard Bay Critical Habitat Area, FWS must find that Lease Sale 193 will adversely modify designated critical habitat. Moreover, without a method for effectively responding to oil spills that occur during the broken-ice period, FWS cannot reasonably find that Lease Sale 193 is not likely to jeopardize the continued existence of threatened populations of either spectacled eiders or Steller's eiders.

019-081

MMS's failure to discuss impacts to spectacled eiders and Steller's eiders in the text of the DEIS itself violates NEPA. MMS cannot satisfy its obligations pursuant to NEPA by preparing a document that purports to serve as both a Biological Assessment, under Section 7(c) of the ESA, and a portion of an EIS. MMS cannot relegate this discussion of important environmental impacts to an appendix where it may escape the scrutiny of the public and the decision maker. Even if we accepted that the Biological Evaluation satisfies, as a matter of form, MMS's obligation, pursuant to NEPA, to evaluate environmental impacts to ESA-listed eiders under NEPA (which we do not), the Biological Evaluation is flawed in several respects. In addition to its many substantive deficiencies, which are described below, the Biological Evaluation does not include three of the figures listed in its table of contents, and important to any critical independent evaluation of the conclusions reached by MMS.

019-082

As proposed, Lease Sale 193 actually encompasses portions of the Ledyard Bay Critical Habitat Area in violation of the ESA.

019-083

<u>Even assuming that it qualifies as a portion of the DEIS, the Biological Evaluation presents an insufficient analysis of cumulative impacts.</u>

The majority of both ESA-listed populations of eiders utilize the Arctic Coastal Plain for nesting, including the National Petroleum Reserve-Alaska (NPR-A). This is the location of the proposed transport pipeline route for Chukchi Sea oil to Trans-Alaska Pipeline Pump Station 1 described in the DEIS. With limited exceptions, the Bureau of Land Management has opened the entire NPR-A to oil and gas leasing. Indeed, winter exploration in the vicinity of Peard Bay is imminent. Onshore activities occurring pursuant to lease sales and existing oil leases in the NPR-A may have considerable impacts to both spectacled eiders and Steller's eiders. Indeed, FWS's biological opinion for the Northwest NPR-A expressed serious concerns about the effects of oil activity on eiders and recommended that the high density nesting areas be put off limits to leasing. BLM rejected this suggestion and many of these areas have been leased. Existing leases and future lease sales in the Beaufort Sea may adversely affect both spectacled eiders and Steller's eiders. Proposed offshore leasing in the Bering Sea may adversely affect Steller's eiders. Notwithstanding any future consultation under the ESA, such impacts must be incorporated into the cumulative impacts analysis for Lease Sale 193. MMS's failure to discuss and substantively evaluate the cumulative impacts of oil and gas leasing and development in adjacent onshore and offshore environments violates NEPA.

019-084

The Biological Evaluation acknowledges that global warming will "likely have significant stochastic impacts on Steller's eiders," but inexplicably declines to evaluate these anticipated impacts in any further detail. DEIS App. C at 59. Global warming has already modified, and will continue to alter, the Arctic landscape utilized by both spectacled eiders and Steller's eiders. The EIS should analyze in detail the anticipated effects of global warming on the molting, staging, foraging, nesting and migration habitats and behavior of both spectacled eiders and Steller's eiders.

019-085

The Biological Evaluation misrepresents the risk of an oil spill and neglects to discuss and evaluate critical aspects of the potential threat that spilled oil poses to eiders.

019-086

In its discussion of the risk of an oil spill having a population-level impact on ESA-listed eiders, the Biological Evaluation impermissibly departs from the fundamental assumption underlying MMS's analysis of the environmental impacts of Lease Sale 193: that the lease sale will result in the development of a single commercially viable field that will produce one billion barrels of oil. After reporting probabilities ranging up to 8% that spilled oil will contaminate spectacled eider critical habitat in Ledyard Bay or any of four Spring Lead Systems, the Biological Evaluation attempts to discount the significance of this risk by suggesting that "the probability of a successful commercial find is in the range of 10%, indicating that production is unlikely." DEIS App. C at 58. MMS may not undercut the assumption on which its entire NEPA analysis rests in order to minimize the considerable risk that spilled oil poses to spectacled eiders and Steller's eiders.

019-087

Moreover, the Biological Evaluation impermissibly segments the risk of spilled oil affecting spectacled eider and Steller's eider populations. The EIS should present, as a single number, the combined probability of spilled oil contacting any one of the four Spring Lead Systems or the Ledyard Bay critical habitat area. The probability of such an outcome would approach 16%. See DEIS App. C at 56 (reporting discrete probabilities of oil contaminating any one important area, the sums of which are as high as 16%). Moreover, the EIS should clearly indicate that oil spilled offshore in the fall or winter could not feasibly be removed or contained but would persist in the marine environment at least through the Spring of the following year and into the summer.

019-088

The Biological Evaluation anticipates 25 "small-volume" oil spills during the life of production, or 750 to 1,000 such spills overall, totaling between 12,906 and 17,210 gallons of spilled oil. DEIS App. C at 57; see also DEIS at IV-14.[16] Sea-ice and inclement weather will preclude effective removal or containment of the large majority of this spilled oil. Yet, the Biological Evaluation avoids analyzing the impacts of these anticipated oil spills in any detail, invoking uncertainty concerning the amount of this oil that will contact spectacled eiders or Steller's eiders. The EIS should analyze the threat

019-089

[16] The Biological Evaluation reports that the production period will last 25 years, while the DEIS indicates that the production period will last between 30 and 40 years. The EIS and oil spill analysis should operate on the same set of assumptions concerning the duration of oil production. Thirty to forty years is a more realistic assumption.

posed by small oil spills. Moreover, the EIS should clearly indicate that if spilled oil migrated into the vicinity of Ledyard Bay, then response activities would adversely affect both spectacled eiders (who occupy this area during the majority of the open water season) and spectacled eider critical habitat. 019-089

The Biological Evaluation fails to discuss or evaluate the possibility that oil spilled from an onshore facility or pipeline will affect the nesting habitat of spectacled eiders and Steller's eiders and contribute to these species' decline. 019-090

Before proceeding with any offshore lease sale in the Chukchi Sea, MMS should establish that an effective method exists for containing and removing oil from marine environments during the broken-ice season. In addition, MMS should restrict leasing and any related activities in proximity to areas that are of greatest importance to spectacled eiders and Steller's eiders, including the Ledyard Bay Critical Habitat area and Peard Bay. 019-091

The Biological Evaluation does not include any alternatives that would avoid impacts to ESA-listed eiders and spectacled eider critical habitat. The EIS should consider such alternatives. 019-092

The Biological Evaluation contains several arbitrary assertions, assumptions and analytical gaps that undermine its evaluation of environmental impacts. 019-093

The Biological Evaluation makes a critical assumption about the location of an onshore facility (i.e., that it will be constructed between Point Belcher and Icy Cape), but it neglects to provide any basis or support for this assumption. DEIS App. C at 8. This industrial facility could just as easily be located between Cape Lisburne and Icy Cape, adjacent to spectacled eider critical habitat, which would then be subjected to frequent over flights and vessel traffic. MMS must justify its assumption about the location of the onshore facility. Regardless of any such justification, however, the EIS should clearly identify those portions of the lease sale that, if developed, would likely lead to construction of an underwater pipeline through the Ledyard Bay Critical Habitat area and an onshore facility abutting it. MMS should complete similar analysis for near shore coastal areas that are important to Steller's eiders, such as Peard Bay. 019-094

In evaluating the impacts to nesting habitat from the construction of an onshore facility and pipeline, MMS erroneously assumes that spectacled eider and Steller's eider nests are evenly distributed throughout the Arctic Coastal Plain. This arbitrary assumption is contradicted by several of the studies referenced by MMS in the Biological Evaluation. The EIS should evaluate the potential range of impact to ESA-listed eiders depending on the location of an onshore facility and pipeline. Moreover, the EIS should evaluate an alternative that specifically restricts the location of any onshore facility and pipeline so as to minimize impacts to the most densely utilized eider nesting areas. 019-095

The Biological Evaluation arbitrarily declines to discuss the indirect impact to spectacled eiders of increased access to their nesting habitat as a result of the construction 019-096

of a road adjacent to an onshore pipeline. Notwithstanding any restrictions on the use of lead shot, increased access for waterfowl hunters could increase spectacled eiders' exposure to lead shot, which has been identified as a major cause of the decline of the species. The EIS and BiOp should address this threat explicitly.

019-096

Although it identifies predation as a principal cause of nesting failure for spectacled eiders, the Biological Evaluation arbitrarily fails to explicitly state that predation is also a principal cause of nesting failure and mortality for Steller's eiders. *See* DEIS App. C at 28. The EIS and BiOp should clarify that predation poses a severe threat to the nesting success and survival of both spectacled eiders and Steller's eiders.

019-097

The Biological Evaluation arbitrarily assumes that future mitigation measures to control predator populations—in the form of best management practices—will completely neutralize the threat to spectacled eiders and Steller's eiders posed by the increases in predator populations that have historically accompanied industrial development on the Arctic Coastal Plain. DEIS App. C at 50. Without knowing what these mitigation measures consist of, or even whether any such measures will ever be implemented, MMS should not assume that they will be completely effective in reducing the threat of predation.

019-098

The Biological Evaluation arbitrarily assumes that prohibitions on seismic activity within the Ledyard Bay Critical Habitat Area will render exploration and development within this area impractical. Rather than make this spurious assumption, MMS should simply prohibit any activities within or immediately adjacent to the Ledyard Bay Critical Habitat Area.

019-099

The Biological Evaluation arbitrarily declines to analyze possible impacts to non-breeding male spectacled eiders that molt in Ledyard Bay, in contravention of NEPA and the ESA.

019-100

The Biological Evaluation asserts that spectacled eiders concentrate in waters from 12 to 30 miles offshore in Ledyard Bay. DEIS App. C at 37. This arbitrary assertion is not supported by the article that MMS cites.

019-101

Similarly, the Biological Evaluation suggests that a 1,500 foot elevation restriction on flights over Ledyard Bay will minimize disturbance to eiders from aircraft, but fails to cite any evidence of the efficacy of such an elevation restriction. DEIS App. C at 39. Even if such over flight restrictions will prove effective, their duration and scope are too restricted. Such restrictions should begin in late May, should extend until spectacled eiders have all left Ledyard Bay, and should apply during all phases of oil and gas development, not simply during seismic exploration.

019-102

The Biological Evaluation's discussion of and conclusions regarding the potential for fatal collisions with aircraft, vessels and structures is fatally flawed. MMS arbitrarily adopts FWS's prior estimate of mortality from collisions with oil and gas structures in the *Beaufort Sea*, and concludes that this estimate proves sufficiently accurate in the *Chukchi*

019-103

Sea. DEIS App. C at 46. These different areas are utilized by eiders with differing frequency and intensity and for different purposes. Migration corridors along the coast of the Chukchi and migration paths that cross the Chukchi to Siberia warrant particular attention. The EIS and Biological Opinion should independently evaluate and estimate the risk of mortality from collisions with industrial aircraft, vessels and structures in the Chukchi Sea. 019-104

The Biological Evaluation arbitrarily assumes that impacts of seismic activities on ESA-listed eiders will be minimal, despite a paucity of dearth of evidence to support this assumption. DEIS App. C at 40-41. While we would prefer that MMS prohibit all seismic activity in the Chukchi Sea, if MMS is going to permit them, it should require that operators who conduct such seismic activities also undertake studies to discover the impacts of seismic air guns to ESA-listed eiders. 019-105

These arbitrary assertions, assumptions and analytical gaps singly and collectively undermine MMS's analysis of the potential impacts to spectacled eiders and Steller's eiders in violation of NEPA, the APA, and the ESA. 019-106

<u>The Biological Evaluation impermissibly relies on deferred, ineffective, non-mandatory or insufficiently extensive mitigation measures to reduce identified impacts.</u> 019-107

The Biological Evaluation suggests that lighting restrictions will reduce fatal collisions with vessels and structures, but the identified stipulations do not make such restrictions mandatory. *See* DEIS App. C at 45. Likewise, the Biological Evaluation identifies several mitigation measures that MMS elects not to impose at this juncture—including altitude restrictions on flights over Ledyard Bay during later phases of development, restrictions on vessel activity within Ledyard Bay during later phases of development, and the use of best management practices to minimize predation, among others. Yet, MMS fails to thoroughly and transparently assess the environmental consequences of post-leasing activities in the absence of such mitigation measures. As previously mentioned, the Biological Evaluation does not establish the efficacy of the limited over flight altitude restriction that it imposes on seismic activities. Even presuming its effectiveness, arbitrary restrictions on the geographic scope and duration of this altitude restriction will limit its ability to reduce impacts to ESA-listed eiders. 019-108

The Biological Evaluation inexplicably declines to impose restrictions on the location of an onshore facility, an underwater pipeline, or an onshore pipeline. MMS should do so in order to protect the habitat of ESA-listed eiders. 019-109

E. <u>Birds</u>

The proposed lease area is within the migratory path of large populations of birds that summer in the Arctic. These birds are threatened by many aspects of the offshore leasing. Oil development can disturb marine birds. Offshore facilities create hazards that will lead to collisions. 019-110

F. Marine Mammals

The lease sale appears to contravene the basic purpose of the MMPA, which is to prevent marine mammal populations from diminishing "below their optimal sustainable population." 16 U.S.C. § 1361(2). Because the affected populations of walrus and polar bears are already declining, any additive impacts to the populations will interfere with subsistence harvest. 019-111

Polar Bears

The Status of Affected Polar Bear Populations:

The Lease Sale 193 Draft EIS describes the Chukchi/Bering Seas ("CBS") polar bear population as being "in peril." DEIS at III-81. The available evidence, including declining subsistence harvests, indicates that the CBS polar bear population is "already in decline" and that existing levels of legal harvest and poaching in Russia alone could halve the CBS population in less than twenty years. See DEIS at IV-240, III-81. 019-112

As the DEIS recognizes, anthropogenic global warming has already begun to fundamentally alter the Arctic environment. Along with over harvest of CBS polar bears, global warming will synergistically interact with the impacts of increasing oil and gas activities in the Arctic marine and coastal environments to adversely affect the CBS and Southern Beaufort Sea ("SBS") polar bear populations into the foreseeable future. Accordingly, the DEIS concludes that "[a]ny bears lost to a large oil spill . . . likely would exceed sustainable levels, affecting both productivity and subsistence use, and potentially causing a decline in the bear population." DEIS at IV-239. This conclusion applies equally to bears lost due to any activity related to oil and gas development. The DEIS should explicitly acknowledge this. 019-113

The DEIS presents incomplete and inaccurate information concerning affected polar bear populations. First, the DEIS overstates both the population estimate and the population growth rate for the SBS polar bear population. Compare DEIS at III-82 with Eric Regehr, et al., Polar bear population status in the southern Beaufort Sea: U.S. Geological Survey Open-File Report 2006-1337, 12 (2006). In addition, the DEIS assumes unrealistic survival rates for polar bear cubs of the year and yearlings, and consequently overstates the rate of recruitment. See DEIS at III-78, IV-240. Researchers recently estimated a survival rate for cubs of the year in the SBS population that is considerably lower than the 50-60% recruitment rate reported by the DEIS. See Eric Regehr, et al., Polar bear population status in the southern Beaufort Sea, 11. This recent report represents the best available scientific data on the population dynamics of polar bear populations in Alaska, and MMS should incorporate the findings of this report into the EIS. Because the CBS polar bear population faces the added threats of over harvest in Russia, the survival and recruitment rates estimated for the SBS should serve as upper limits for these parameters for the CBS population. 019-114

Despite the current precarious status of the CBS and SBS polar bear populations, the DEIS arbitrarily concludes that the impacts from activities undertaken in connection with Lease Sale 193 will be "slight." DEIS at IV-234. Any additive mortality may reduce reproductive rates, diminish the availability of polar bears for subsistence uses and cause the affected population to decline. At present, polar bears in the Chukchi Sea exist relatively free from the harmful effects of industrial activities. Anticipated impacts from industrial activities associated with Lease Sale 193 will add to the variety of stressors that currently deteriorate polar bears' physical health. This in turn may cause additional mortality to a population that is already declining. MMS's conclusion that impacts from Lease Sale 193 will be slight is arbitrary in violation of NEPA.

019-115

Informational gaps and analytical oversights

The DEIS does discuss the potential impacts to the CBS polar bear population caused by changes to the Arctic environment attributable to global warming, but it fails to include the documented impacts to the SBS population caused by global warming, such as reduced recruitment rates and diminishing physical stature of polar bears. *See* Eric Regehr, et al., Polar bear population status in the southern Beaufort Sea. This information is pertinent to a thorough and complete evaluation of the impacts of Lease Sale 193, because individuals from the SBS population spend considerable time in portions of the Chukchi Sea that MMS intends to offer for leasing. See, e.g., Steven Amstrup, Movements, distribution, and population dynamics of polar bears in the Beaufort Sea (PhD Dissertation, University of Alaska-Fairbanks, 1995). The EIS should discuss the documented impacts of global warming on SBS polar bears and should take steps to avoid exacerbating these impacts.

019-116

The DEIS identifies coastal areas along the coast of the Beaufort Sea that have the highest densities of maternal den sites, but does not include similar information for the Chukchi Sea. This information is highly pertinent to the possible impacts that aircraft overflights, an onshore facility, and an onshore pipeline may have on CBS polar bears, and it should be included in the EIS. If MMS is unable to obtain this information, the EIS should provide a detailed summary of the existing credible evidence concerning polar bear denning habitat along the Chukchi coast. See 40 C.F.R. § 1502.22(b).

019-117

MMS fails to assess impacts to the denning, feeding and migratory habitats the U.S. has committed to protect under its international Treaty Obligations for Polar Bears under the Agreement for the Conservation of Polar Bears.

019-118

Mitigation measures

NEPA demands that an agency take a hard look at mitigating measures when discussing the environmental consequences of a proposed project. *See* 40 C.F.R. § 1502.16. Pursuant to this standard, an EIS may not merely list, or only perfunctorily describe mitigation measures. Rather, the EIS should critically evaluate the effectiveness of proposed mitigation measures.

019-119

The DEIS fails to identify or evaluates insufficiently mitigation measures aimed at protecting polar bears. Rather than identify any particular mitigation measures with specificity, the DEIS adopts the approach of referring to mitigation measures in very general terms, grouping them under the following three broad categories: 1) conditions attached to incidental take authorization that Fish and Wildlife Service will issue pursuant to §101(a)(5) of the Marine Mammal Protection Act; 2) oil spill response plans ("OSPRs") that MMS will approve; and 3) information to lessees ("ITL") provisions that have been developed by MMS. DEIS at IV-241–45. This discussion of mitigation measures, identified only in abstract, overly general terms, deprives the public of a meaningful opportunity to comment on the desirability of these measures. Because many of these identified measures have not yet been developed and so cannot be identified with specificity or discussed in any detail (e.g., conditions to incidental take authorization and contents of OSRPs), the public cannot accurately assess MMS's conclusory determination that such measures will prove effective. This approach undermines MMS conclusion that the mitigation measures will prevent a significant impact to polar bears and impermissibly defers analysis of identified mitigation measures in violation of NEPA.

019-120

Ultimately, the DEIS concludes that because of the cumulative impacts of overharvest, global climate change and industrial activities, "continued close attention and effective mitigation practices with respect to polar bears are warranted." DEIS at V-52–53. The DEIS does not identify these mitigation practices with specificity. Nor does the DEIS establish that any previously identified mitigation measures are effective or will continue to be so in the context of a dramatically changing arctic environment. In short, the DEIS fails to evaluate or even identify these necessary mitigation measures, in violation of NEPA.

019-121

The DEIS identifies future increases in polar bear-human conflicts as a concern arising from industrial development along Alaska's arctic coast. DEIS at IV-235, III-79. Such conflicts can prove lethal to polar bears. MMS fails, however, to suggest any mitigation measures to address this anticipated impact.

019-122

To the limited extent that the DEIS actually identifies specific mitigation measures, these prove deficient to adequately address and avoid anticipated impacts to the CBS polar bear population. MMS relies on OSRPs to minimize adverse impacts from oil spills. Any such response plan depends on timely detection of oil spills. MMS indicates that recently, chronic leaks in oil pipelines have gone undetected despite MMS regulations that require monitoring measures. MMS observes that its regulations "are only as effective as their enforcement." DEIS at IV-244. Yet, the DEIS fails to prescribe measures to ensure improved enforcement of MMS monitoring regulations.

019-123

MMS's apparent assumption that lesees will be able to effectively respond to oil spills is not supported by the facts. The DEIS indicates that "effective mitigation measures will be developed" to minimize potential impacts to polar bears "on a case-by-case basis." DEIS at IV-245. MMS identifies two methods of response to an oil spill: mechanical methods and non-mechanical methods. MMS anticipates that mechanical

019-124

methods will be unavailable during broken ice periods (or during the majority of any calendar year), yet the DEIS identifies only in situ burning as a non-mechanical method for containing or eliminating spilled oil. In situ burning will not prove effective if spilled oil is trapped beneath sea ice for any appreciable period of time. Indeed, MMS fails to present any means of effectively responding to oil that is spilled beneath sea ice. If MMS lacks any such means, it should openly acknowledge this. If MMS is aware of an effective method for responding to oil spilled beneath sea ice, the EIS should clearly identify it and establish its effectiveness. Absent identification of an effective method of responding to an underwater oil spill that occurs during the winter, MMS cannot reasonably conclude that the potential impacts to polar bears from an oil spill are not significant.

019-124

The DEIS identifies several ITLs as mitigation measures. Critical provisions of these ITLs, however, contain precatory language rendering them effectively unenforceable. The ITLs cannot, as MMS seems to suggest, moderate the impacts of offshore oil and gas leasing and development in the Chukchi Sea unless lesees voluntarily act in accordance with the ITLs. MMS arbitrarily assumes that lesees will voluntarily abide by the precatory guidance included in the ITLs. MMS likewise assumes that lessees will obtain authorization to incidentally take marine mammals, and subject themselves to the consequent conditions imposed by Fish and Wildlife Service. MMS neglects, however, to establish that such an approach would prove economically rational for all lessees. The DEIS improperly relies on these mitigation measures in violation of NEPA.

019-125

The DEIS suggests that whale carcasses should be removed from the coast to mitigate the potential impacts of an oil spill. DEIS at IV-245. MMS' reliance on this measure to reduce impacts to polar bears is misplaced. Any such action is not within the purview of MMS to effectuate and should not be relied on by the agency as an effective mitigation technique. Furthermore, removal of whale carcasses will likely have the countervailing effect of increasing the mortality of polar bears in the SBS and CBS populations. If accomplished, it will deprive bears of access to a vital food source during the fall, when bears have minimal access to alternate food sources. Preventing bears from utilizing this important food source will diminish the physical condition of individual bears and may lead to increased mortality.

019-126

Oil Spill Analysis

The DEIS erroneously concludes that an oil spill will not result in significant adverse impacts to polar bears. See DEIS at IV-234. Moreover, its discussion of the risk posed by spilled oil is incomplete in several critical respects, in violation of NEPA.

019-127

Although the DEIS identifies chronic small leaks in an underwater pipeline as a potential threat, it fails to analyze the likelihood of detection of such leaks, the efficacy of response to any such persistent leak, nor the potential impact thereof. See id. Nor does the DEIS forecast the likelihood that spilled oil will contact and harm individual polar

019-128

bears apart from contact with large congregations of polar bears. The EIS should take a hard look at these potential impacts.

Leads and Polynyas provide critical habitat to polar bears during the winter and spring, and polar bears may congregate at these features in relatively high concentrations. The draft EIS inexplicably fails to evaluate the potential impacts to polar bears from oil reaching these recurrent features. The draft EIS also neglects to evaluate the potential impacts to polar bears from spilled oil reaching openings, which occur during spring break up and fall freeze up and that are preferentially occupied by polar bears. 019-129

The draft EIS insufficiently discusses impacts to polar bears in coastal areas. The draft EIS reports the probability of oil reaching Barrow in the summer, DEIS at IV-238, despite the fact that polar bears aggregate there during the fall. The DEIS should include the probability of spilled oil contacting Barrow and other high-use coastal areas during both the summer and the fall. 019-130

The discussion of the potential impacts from a large oil spill on polar bears concentrated at different coastal locations improperly segments the CBS polar bear population and fails to present the aggregate probable impact. The draft EIS suggests that there is a 13% probability of a concentration of polar bears on Wrangel Island coming into contact with spilled oil within 60 days of a spill and an 11% probability of a concentration of polar bears at Barrow coming into contact with spilled oil within 60 days of a spill. DEIS at IV-238. The draft EIS then concludes that the probability of an oil spill contacting "a polar bear aggregation within 60 days" is less than 13%. DEIS at IV-245. This is misleading and inaccurate. Rather than simply selecting the higher value as the overall probability, the draft EIS should report the combined likelihood of spilled oil reaching Barrow or Wrangell (somewhere between 13% and 24%). 019-131

Similarly, MMS's segmentation of the potential risk that spilled oil will affect different species understates the potential threat and is misleading. The draft EIS discusses the risk that an oil spill poses to wildlife, species-by-species. Accordingly, it presents discrete probabilities that spilled oil will contact significant concentrations of individual species. See, e.g., DEIS at IV-238, IV-225–26. By segmenting the risk to wildlife populations from an oil spill, the DEIS is able to report relatively low probabilities that any single species will be significantly adversely affected. By doing so, however, the draft EIS fails to accurately report the overall risk that wildlife will be significantly harmed by an oil spill. The draft EIS should supplement its analysis of the risk of an oil spill by reporting a single combined probability that spilled oil will contact one or more sizeable congregations of wildlife. 019-132

Finally, the evaluation of the potential impacts to polar bear populations from spilled oil should clearly state that the anticipated sub-lethal long-term affects do not depend on the particular location of an oil spill. The EIS should explicitly address the likelihood of an oil spill causing sub-lethal, long-term effects to polar bears and Pacific walrus. 019-133

Cumulative Impacts Analysis

The DEIS fails to adequately assess the cumulative impacts of offshore oil spills on polar bears. Though purporting to evaluate the overall likelihood of an offshore oil spill affecting the CBS or SBS polar bear populations, the DEIS merely refers to the truncated discussion of the potential for an oil spill included in the environmental assessment prepared by MMS in connection with Lease Sale 202 in the Beaufort Sea. DEIS at V-49. That document, in turn, fails to rigorously evaluate the likelihood of an oil spill occurring as a result of past or future lease sales, indicating merely that "[d]evelopment of additional offshore production facilities and pipelines will increase the potential for large offshore spills." MMS, Environmental Assessment for Proposed OCS Lease Sale 202, 55 (August 2006). Instead of segmenting the risk of an offshore oil spill by discretely referring to the risk of a spill in the Beaufort Sea, the EIS should combine the probability of a spill in the Chukchi with the probability of a spill in the Beaufort and present an additional figure representing the overall probability of a large offshore oil spill. Moreover, the DEIS should account for all past, present, and reasonably foreseeable future lease sales in the Chukchi and Beaufort Seas when deriving these combined probabilities, including all lease sales provided for by the proposed five year plan for OCS lease sales (2007-2012). See 40 C.F.R. § 1508.27(b)(7). 019-134

The draft EIS overlooks the potential impacts of past, present and reasonably foreseeable future onshore leasing, exploration and development of oil and gas deposits in coastal areas of the National Petroleum Reserve-Alaska in violation of NEPA. Such development has the potential to further exacerbate human-polar bear conflicts during the fall when bears congregate along the coast of the Chukchi Sea, as well as to adversely affect polar bears' terrestrial denning habitat. The EIS should address these cumulative impacts. 019-135

Finally, the draft EIS arbitrarily concludes that the combined impacts to polar bears from global warming and oil-related industrial activities merit only "continued close attention and effective mitigation practices." DEIS at V-53. Global warming induced changes are already evident in polar bear populations in Alaska and elsewhere. See, e.g., Eric Regehr, et al., Polar bear population status in the southern Beaufort Sea. The draft EIS forecasts additional impacts to "virtually every aspect" of polar bears' existence as a result of the synergistic interplay between global warming and industrial activity in the Arctic.[17] DEIS at V-52. The draft EIS overlooks the dramatic changes to the Arctic marine environment that have already adversely affected polar bear populations in Alaska. Consequently, the draft EIS improperly adopts a "wait and see" approach to restricting offshore oil and gas activities that will further harm polar bears. Moreover, the draft EIS relies on "effective mitigation practices" without specifically 019-136

[17] These include: a decline in ringed seals, polar bears' primary prey species and a subsequent decline in polar bears' physical condition, reproductive rate, survival rate, and populations; increased polar bear-human conflicts, especially during the ever-lengthening fall open water season; increasing incidences of polar bears drowning and starving to death; increasing destruction of polar bears' terrestrial denning habitat; and increasing impediments to pregnant females reaching terrestrial denning regions. DEIS at V-49–52.

identifying these measures or critically evaluating them to ensure that they are effective or will remain so in the future. DEIS at V-53. Pursuant to NEPA, the EIS may not rely on these unspecified, unimposed and unproven mitigation measures to reduce identified impacts.

Pacific walrus

The Pacific walrus population is presently in decline. Population declines have contributed to declining subsistence harvest of Pacific walrus. Oil and gas industry activities in the Chukchi Sea, including seismic activities, aircraft and vessel traffic, and the risk of oil spills may inhibit walrus recovery or may cause further decline of the Pacific walrus population. MMS should take steps to stem further declines in walrus populations and the subsistence harvest of walrus. 019-137

The EIS should identify those areas where the edge of sea ice frequently occurs over waters less than 60 m deep. The risk posed to Pacific walrus by spilled oil is especially acute in such areas, see DEIS at III-71, and such areas should be specifically discussed in MMS's evaluation of the potential risk from an oil spill. The EIS should prescribe measures to eliminate such risks. 019-138

The draft EIS arbitrarily concludes that seismic activities will only negligibly affect Pacific walrus. 019-139

Likewise, the draft EIS arbitrarily concludes that Pacific walrus in sea ice habitats will not react to aircraft at elevations above 1,000 feet. It does not indicate any elevation threshold above which Pacific walrus at terrestrial haulouts will not react to aircraft. Any additional displacement of Pacific walrus from forage areas will likely further contribute to declines in the walrus population. Unless MMS can establish that industrial activities will have no effect on Pacific walrus in forage areas, it should conclude that such activities will significantly impact Pacific walrus. 019-140

Walrus seek the shallower waters of the Chukchi and the Hannah Shoal area and northeast corner is a recognized use are for walrus. Similar to impacts to gray whales, walrus could be particularly affected by development in the northeast corner (Hannah Shoal area) in several ways: bioaccumulation of toxins from the mollusks they feed upon; loss of food source due to infrastructure, noise or pollution; traffic impacts; and oil spills. 019-141

The potential for population affects for walrus should be assumed to be high. The population is already in decline and being impacted from climate change. Climate change impacts are not yet well-documented, but are acknowledged in the scientific literature. Walrus impacts from development could be secondary and go undetected due to a lack of study and cooperation with Russia on population abundance studies. As noted in the draft EIS, as loss of ice occurs walrus are forced to use land haulouts creating a host of impacts (trampling of calves, loss of food due to local overconsumption and competition). DEIS at III-72. These impacts would be magnified in the event of an oil spill. With large concentrations of the population in few areas, the risks for a large number of animals to 019-142

be impacted are great. This is not analyzed in the DEIS. Additionally, without baseline abundance numbers there will be little ability to know if the walrus population is being effected by development. As such, mitigation and monitoring would be rendered useless. 019-142

Also problematic is the draft EIS's inaccurate estimation of the seafloor area likely to be impacted by pipeline construction. The MMS provides no substantiation for cutting the estimate for Chukchi seafloor acreage disturbance in half compared to Beaufort Sea development. The draft EIS states:

> The subsea soil in the Chukchi Sea is mostly unconsolidated, as explained in Section III.B.1.b. Twelve-foot deep pipeline trenches in unconsolidated Beaufort Sea soil would have been up to 130 ft wide at the top, as estimated for a development pipeline to the Liberty Prospect (USDOI, MMS, 2002:Sec. III.C.3.e(2)(b)2)b)). If we assume that Chukchi pipeline trenches would be about half that width (70 ft), about 1,000-2,000 acres of Chukchi seafloor might be disturbed during the burial of production pipelines.

There is no reason for MMS to assume there would be less width to pipeline trenches in the Chukchi. This greatly reduced estimation of disturbance to the seafloor renders useless and fundamentally flawed the draft EIS's analysis of impacts for species that depend on the seafloor habitat, particularly walrus.

The DEIS identifies the northeast corner of the proposed lease area as being highly "inhabited by mollusks (clams) and other fauna." It also notes that recolonization is slow and will take up to 9 years, with clams the last to recover – requiring over a decade. The walrus could have serious feeding impacts due to such a disturbance given its reliance on clams and benthic fauna. The likelihood of population effects from just this impact is significant. However, this analysis is not provided in the DEIS nor are population level effects noted for walrus. Rather, the impacts to walrus are greatly minimized. 019-143

It is highly probable that with development the walrus would undergo undetected population level effects. Given that the Pacific walrus is the only healthy population of walrus in the world (with only one small population of Atlantic walrus remaining elsewhere), an entire species of marine mammal is at risk with the proposed leasing plan. 019-144

The draft EIS fails to conduct *any* cumulative impact analysis of Pacific Walrus 019-145

Beluga

There are different impacts to toothed cetaceans, as documented by EVOS, from oil spills. These impacts occur as a result of chronic inputs into the marine environment from either detected or undetected oil leaks or regular permitted discharges. Toothed whales, primarily beluga, in the proposed leasing area are at risk from chronic or oil spill contamination due to the potential bioaccumulation of toxins. The beluga is already experiencing serious health issues that are proving to impair the health of the Inuit in Canada. Toxicity levels are high enough to now require a limit on the number of beluga 019-146

taken in Canada for subsistence. The Alaska beluga are already showing some of these effects.

There are no abundance estimates and little distribution information for beluga. Scientists know very little at all about calving and feeding locations. However, agency scientists recognize that beluga are not ubiquitous and tend to form groups the use particular places on a regular basis. This means that beluga tend to form regional local populations. The draft EIS fails to take this fact into consideration and instead relies on an outdated interpretation that considers only total numbers of animals. This approach could seriously impede subsistence use of the beluga in key areas and potentially eliminate the beluga in the case of a large spill from certain traditional hunting areas. In Pt. Lay this impact could prove devastating as the community relies mainly on beluga for subsistence.

019-147

G. Terrestrial Mammals

Development in the Chukchi would involve construction of a major new onshore pipeline that would transect the entire Northwest Planning Area of the NPR-A and continue on into the Northeast Planning Area. Two caribou herds would be affected by development in the Northwest Planning Area—the Western Arctic Herd (WAH) and Teshekpuk Lake Caribou Herd (TCH). This could interfere with caribou movement and limit access to important habitat and raises serious concerns about the overall long-term cumulative effects of industrial development on both herds. The draft EIS does not adequately evaluate the cumulative effects of industrial development on caribou associated with this new pipeline and development in both the Northwest and Northeast planning areas. It also does not address the potential of rolling back habitat protection for the TCH calving grounds within the Northeast Plan.

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Although the concentrated calving area of the WAH is located largely outside the southwestern border of the Northwest NPR-A planning area, significant summer and transitional use occurs within the area that could be transected by a massive new pipeline. Oil and gas development may have substantial effects on caribou during the summer season—not just during calving. Summer is the season when caribou cows must concentrate on foraging to meet the demands of lactation and gain weight to achieve a threshold that enables conception in the fall (Cameron et al. 1993). Reproductive pauses are known to occur if the necessary weight gain is not achieved during summer (Cameron 1994, Cameron and VerHoef 1994, Gerhart et al. 1997, Cameron et al. 2000), which may lead to decreased productivity in the herd (Cameron et al. 2002). Summer is also the season when caribou are harassed by insects. Oilfield industrial infrastructure may further compound insect harassment during this critical period due to avoidance by caribou of surface development resulting in reduced access to preferred habitats (Curatolo and Murphy 1986, Murphy and Curatolo 1987, Nellemann and Cameron 1998, Cameron et al. 2002).

019-149

This CAH is the largest in Alaska and can be considered an ecological keystone population in northwestern Alaska. Many Native villages throughout northwestern Alaska depend on this population for their subsistence use. Because the Western Arctic

019-150

Herd is so much larger and so many more people depend on it for their subsistence needs, it will be critical to thoroughly evaluate the long-term cumulative effects of oil development and transportation infrastructure on this population. The DEIS did not adequately address the long-term potential impacts of oil and gas development on the WAH. 019-150

Development of a pipeline in the NPR-A is also a concern for the Teshekpuk Lake Caribou Herd, which now numbers about 40,000 animals (ADF&G unpublished data) and is an important subsistence resource for the villages of Barrow, Nuiqsut, Atqasuk, Wainwright, Anaktuvuk Pass and Point Lay (Carroll 2002, Yokel 1992). The northeastern portion of the Northwest Planning Area, between Dease Inlet and Ikpikuk River, has been identified as caribou insect relief habitat (BLM 2003). This is also an area of high oil potential. Thus the potential for impacts to caribou during the summer insect season is high for the reasons cited above in reference to the WAH. 019-151

Carroll (personal communication 2002) has identified several characteristics of the TCH that must be considered in future management, research, and conservation activities. The TCH is significant for subsistence hunting for several of the North Slope villages, including Barrow, Atqasuk, and Wainwright. It is also important periodically for other villages such as Anaktuvuk Pass and Nuiqsut. Because as much as 8-9% of the herd is harvested annually, Carroll suggested that any negative effect on population recruitment could have a strong impact on local hunters. Carroll also reported that the TCH demonstrates strong fidelity to a small calving area around Teshekpuk Lake and that calves born in this area have a higher survival rate than those born during migration. Carroll suggested that because most caribou of the TCH have been exposed to minimal development activity, they may react more strongly to industrial disturbance than caribou that may have become more habituated to such activity. 019-152

H. Subsistence and Cultural Resources

For millennia, the communities of Alaska's North Slope have used the marine and terrestrial resources of the Chukchi region for both subsistence practices and cultural identity. Although MMS recognizes the importance of the region's fragile and bountiful ecology to these communities, the agency has neither adequately addressed the disproportionate impacts of Lease Sale 193 on these communities nor adequately consulted with the tribes as required by the Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and accompanying Presidential memorandum (1994). Furthermore, MMS has failed to achieve substantive Environmental Justice. Indeed, opening the remote Chukchi Sea and shoreline represents yet another milestone in a national oil development strategy that almost seems designed to cause disproportionate impacts on Alaska's remote indigenous communities. 019-153

MMS attempts to downplay the magnitude of impacts to subsistence resources by once again using inappropriate significance thresholds. For example, in order for a 019-154

subsistence resource impact to be considered significant, one or more important subsistence resources must be unavailable for one to two years. Potentially affected communities have repeatedly indicated that this is much too high a hurdle and that MMS must adopt significance thresholds that reflect the true magnitude of lesser disruptions in subsistence resources, which they consider not only essential nourishment, but the basis of cultural identity.

019-154

MMS similarly sets an inappropriate significance threshold for sociocultural impacts. In order to attain significance, an impact must cause chronic disruption of sociocultural systems for two to five years. Again, communities have repeatedly indicated that attaining even a fraction of this level of impact would not only be significant—it could be a virtual death knell for cultures that have existed in the Chukchi region for millennia. To illustrate the capriciousness of these thresholds, consider a scenario whereby a remote Chukchi community loses its main subsistence resources for ten months and is forced into relocation and dependence upon a severely limited non-traditional diet for twenty months. This would not meet the MMS definition of significance.

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Placing an elevated burden on communities for several years before impacts are considered significant is not only arbitrary, but ignores the main intent of the concept of environmental justice, which is to prevent low-income and minority communities from shouldering a disproportionate share of the negative environmental effects of an agency action. MMS clearly must re-define their significance criteria.

019-156

The draft EIS also fails to include serious consideration of potential human health concerns related to industrialization of the Chukchi. This is an area that should not be overlooked. Given the presence of contaminants in the fats of many of the species subsistence users rely upon, further pollution should not be dismissed so lightly. Moreover, there is a need for a multifaceted human health assessment to reveal all of the potential impacts of the proposal. Aaron Wernham, MD, MS conducted a brief health impacts analysis of the proposal to lease areas around Teshekpuk Lake that identifies the multiple issues arising from this type of proposal that need to be addressed. See Wernham, The Final Amended Integrated Activity Plan/Final Environmental Impact Statement for the Northeast NPR-A: A Brief Analysis of the Potential Human Health Impacts. In it, Werham identified the following potential impacts on community health:

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1. Increases in social and psychological pathology, including depression, suicide, domestic violence, and alcohol and substance abuse.
2. Permanent and severe cultural changes as a result of loss of the central, stabilizing role of subsistence practices.
3. Increased incidence of diabetes, obesity, and cardiovascular disease.
4. Increases in pulmonary diseases.
5. Potential increase in cancer related to contaminants.
6. Other contaminant-related effects, including endocrine disruption, reproductive problems, and developmental delay.
7. Changing patterns of infectious disease.

8. Changing patterns of sexually transmitted diseases.
9. Increases in accidental injuries and deaths.

Id. at 5.

MMS also fails to meet their burden to adequately address cumulative impacts on subsistence resources, sociocultural systems, and Environmental Justice. Despite the extensive list of potential impacts to subsistence resources such as bowhead whales and caribou from both this lease sale and ongoing development of the Beaufort Sea and NPR-A, MMS arbitrarily concludes that routine operations will not cause any significant cumulative impacts. MMS further concludes that a large oil spill "could" cause significant impacts to biological resources and sociocultural systems,[18] but concludes that a large oil spill is "unlikely."[19] Yet MMS elsewhere admits that the likelihood of an oil spill, just for the life of this individual lease sale, is 40%. Considered cumulatively with other lease sales in the Beaufort, it is apparent that an oil spill is not only likely, it is a virtual certainty. It is unclear how MMS considers this insignificant.

019-158

These statements also contradict statements in the Draft EIS for the Proposed 5-Year Plan 2007-2012, where MMS states:

1. Significant cumulative effects on subsistence resource use are possible and likely.[20]
2. During the 2007-2012 Leasing Program, the cumulative impact of one or more important subsistence resources becoming unavailable, undesirable for use, or greatly reduced in numbers for a period of 1 or 2 years for one or more Alaska coastal communities is very likely.[21]
3. If present rates of climate change continue . . . rapid and long-term impacts on subsistence resources (availability), subsistence-harvest practices (travel modes and conditions, traditional access routes, traditional seasons and harvest locations), and the traditional diet could be expected.[22]

019-159

It is unclear how MMS reconciles these conclusions with contradictory statements proffered in the Chukchi Lease Sale 193 Draft EIS.

It is clear that Lease Sale 193 will cause significant impacts to both subsistence resources and sociocultural systems. Instead of addressing these issues and seriously confronting this failure to achieve Environmental Justice, MMS inflates significance thresholds, offers contradictory statements designed to justify moving forward with the

019-160

[18] DEIS at V-3.

[19] DEIS at V-3.

[20] 5 Yr. Plan DEIS at IV-442.

[21] 5 Yr. Plan DEIS at IV-442.

[22] 5 Yr. Plan DEIS at IV-442.

Lease Sale, and attempts to obscure unacceptable impacts to Chukchi communities. MMS must cancel the sale, recognize the cumulative significant disproportionate impacts to communities of Alaska's North Slope, and offer a real vision on how to achieve Environmental Justice.

019-160

Inupiat and other local residents have repeatedly opposed oil and gas leasing in the Chukchi Sea and Arctic Ocean and their comments repeatedly ignored. MMS did not visit most of the affected communities during the scoping phase nor during scoping for its Five-Year Plan. MMS has rarely visited Chukchi Sea communities other than Barrow during past lease sale EIS review periods or when past seismic or drilling activities occurred. The public comments submitted on prior Chukchi Sea lease sales, as well as all prior Arctic Ocean lease sales, contain a wealth of traditional knowledge in these hearings testimonies. should be incorporated by reference into this EIS, including:

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Chukchi Public Hearings (http://www.mms.gov/alaska/ref/publichearingsChukchi/PublicHearings.htm);

25 Years of Testimony Related to Proposed Activities on the Arctic Continental Shelf and Related Areas from 1975 to 2002 http://www.mms.gov/alaska/ref/PublicHearingsArctic/PublicHearings.htm.)

"Native Voices" in P.A. Miller, D.A. Smith, and P.K. Miller. 1993. Oil in Arctic Waters: The untold story of offshore drilling in Alaska. Anchorage: Greenpeace. 122 pp.

Sincerely,

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Director
Alaska Coalition

Elise Wolf
Alaska Watch

Cindy Shogun
Executive Director
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Pacific Environment

Eleanor Huffines
Alaska Regional Director
The Wilderness Society

Anne Wilkas
Interim Executive Director
Trustees for Alaska

MMS Responses to Alaska Coalition Comments

AC 019-001

Figure III.B-7 was intended to describe offshore areas important to murres breeding at the Cape Thompson and Cape Thompson colonies and does not reflect land ownership in the region. Land ownership for this area is depicted on Map A.1-3b in Appendix A.2, Volume III.

Section III.B.5.b(1) contains important information regarding murres in the project area. That section mentions declines and increases over time between 1976 and 1995 at the two colonies. We have revised the EIS text to reflect that significant positive trends were evident for murres at Cape Lisburne (+4.7% per annum) (USDOI, FWS, 2002) and additional unpublished information (Roseneau, 2007).

AC 019-002

For the most part, the commenter is correct that there are no reliable estimates of the stocks of ringed seals, spotted seals, ribbon seals, polar bears, Pacific walruses, and minke whales or information on their current feeding, resting, and migration habitats. Therefore, it is not possible to develop accurate maps of gray whale, Pacific walrus, beluga, polar bear, and other marine mammal feeding and migration areas.

Pacific Right whale use of the Chukchi Sea also should be addressed. Current maps of gray whale, Pacific walrus, beluga whale, polar bear, and other marine mammal feeding and migration areas are needed. Recent information should be compared with past information on benthic feeding areas for gray whales and walruses, including important areas for these species in the Chukchi polynya and sea-ice edge (see maps in Phillips, 1986).

The EIS analysis follows CEQ NEPA guidance regarding assessments when information is limited. As stated in Section III.B.4.a of the draft EIS at page III-41:

> Based on the best available information, and on the guidance provided by the NMFS in their letter of September 30, 2005, there are three species of cetaceans that are listed as endangered under the ESA that can occur within or near the Chukchi Sea Planning Area or that could potentially be affected secondarily by activities within the Chukchi Sea Planning Area. The common and scientific names of these species are:
>
> Bowhead whales (*Balaena mysticetus*)
> Fin whales (*Balaenoptera physalus*)
> Humpback whales (*Megaptera novaeangliae*)

The MMS is unaware of any recent information that would contravene NMFS's finding as stated in their letter of September 30, 2005, particularly regarding the Pacific right whale.

When information gaps are identified, MMS works to address them. For example, it is in the process of planning a new study of polar bears. If the commenter knows of specific recent information on benthic feeding areas for gray whales and walruses, including important areas for these species in the Chukchi polynya and sea-ice edge, beyond what is included in the EIS, MMS would be very interested in obtaining that information for future analyses.

AC 019-003

The map of caribou calving areas (Fig. III.B-4) referred to in the text (draft EIS p. III-84) actually shows bowhead whales. Caribou insect relief habitat also is critical, and up to date and historical information should also be shown.

The reference to the map of caribou calving areas (Fig. III.B-4) was removed from the text in Section III.B.7.a(3).

Maps depicting insect relief areas for the Teshekpuk Lake Caribou Herd are provided in the Northwest NPR-A IAP/EIS (USDOI, BLM and MMS, 2003:Maps 49 and 50). References to these maps have been added to the text.

AC 019-004

Discussion of subsistence resources, harvest locations, and harvest practices and accompanying maps for Barrow, Atqasuk, Wainwright, and Point Lay are available in the following documents: the Beaufort Sea Multiple Sale (Barrow and Atqasuk; maps and text) at http://www.mms.gov/alaska/ref/EIS%20EA/2003_001/2003_001vol1.pdf; the Northwest NPR-A IAP/EIS (Barrow, Atqasuk, Wainwright, and Point Lay; maps and text) in hard copy only; Appendix C in the Arctic Seismic PEA (Barrow, Atqasuk, Wainwright, Point Lay, Point Hope, text; Point Hope, maps) at http://www.mms.gov/alaska/ref/EIS%20EA/Final_PEA/App%20C.pdf; the Beaufort Sea Sale 202 EA (Barrow and Atqasuk, text only) at http://www.mms.gov/alaska/ref/EIS%20EA/BeaufortEA_202/EA_202.htm; the Alpine Satellite Development FEIS (Barrow and Atqasuk, maps and text), and the Chukchi Sea Sale 193 DEIS (Barrow, Atqasuk, Wainwright, Point Lay, Point Hope, Kivalina, and Russian Chukotka coastal communities, text; Point Hope and Kivalina, maps) at http://www.mms.gov/alaska/ref/EIS%20EA/Chukchi_DEIS_193/DEIS_193.htm. The discussions in these documents were summarized and incorporated by reference in the Sale 193 draft EIS. Barrow, Wainwright, Point Lay, and Point Hope subsistence harvest area maps are also available at http://www.north-slope.org/nsb/acmp/resource_atlas.htm, and Point Lay, Point Hope, and Kivalina harvest area maps can be found in BLM's Kobuk-Seward Peninsula Draft Resource Management Plan at http://www.blm.gov/ak/ksp/draft/mapindex.html.

The commenter is correct in pointing out that BLM's Northwest NPR-A link is inoperative and, although no longer available over the Internet, the information is still considered to be in the public domain and is available (as are all the other documents mentioned above) from Alaska libraries through interlibrary loan. Barrow, Atqasuk, Wainwright, and Point Lay subsistence maps will be updated and included in future Chukchi Sea EIS's.

AC 019-005

Maps depicting subsistence-harvest areas and subsistence-harvest discussions for Chukchi Sea coastal communities are readily available either online or in hard copy in the documents specified in the response to comment **AC 019-004**. These documents were summarized and incorporated by reference in the EIS.

AC 019-006

This study is designed to provide current information concerning contemporary subsistence-harvest areas in the region and is an example of MMS' commitment to procuring up-to-date information in support of the Bureau's environmental assessments and decisionmaking. While this particular study is still underway, as the information does become available, it will be incorporated into the decisionmaking process and into subsequent NEPA analyses.

AC 019-007

For a discussion on cumulative effects, see response to comment **Barrow 003-012**. Huntington and Mymrin's *Traditional Ecological Knowledge of Beluga Whales: An Indigenous Knowledge Pilot Project in the Chukchi and Northern Bering Seas* was cited in the NW NPR-A IAP/EIS subsistence analysis for Wainwright and has been incorporated by reference. It is our understanding that the 1999 article appearing in *Arctic* is a synthesis of this same research. Both Mymrin and Huntington's *Traditional Knowledge of the*

Ecology of Beluga Whales in the Northern Bering Sea, Chukotka, Russia, and Berger's *Northern Frontier, Northern Homeland: The Report of the Mackenzie Valley Pipeline Inquiry* has been cited in the Sale 193 final EIS cumulative impacts section for subsistence-harvest patterns.

AC 019-008

The climate change discussion has been expanded in the subsistence-harvest patterns cumulative impacts analysis; see Section V.C.12. The climate change citations mentioned by the commenter, as well as many others, have been cited in the analysis.

AC 019-009

The MMS believes that we have adequately described the mitigation measures and their expected effectiveness. As explained in Section II.B.3 of the EIS, mitigation measures for OCS activities take many forms. Many mitigation measures developed during past NEPA evaluations have become regulations. The EIS does not specifically evaluate the effectiveness of the mitigation effect of such measures, because they are assumed to be reflected in the baseline for the Proposed Action and in subsequent activities; in other words, these regulations define some of the parameters for activities subsequent to the sale. Lease-sale mitigation measures are in the form of lease stipulations. The lease stipulations and a summary of the effectiveness of the mitigation provided by the stipulations is provided in Section II.B.3.c(1). Mitigation measures for exploration seismic surveying are discussed in Section II.B.4 and evaluated in Appendix D. Further, the effectiveness of mitigation measures is discussed in the analysis sections (for examples, Sections IV.C.1i(5) and IV.C.1.j(5)).

AC 019-010

The text referenced in the comment was incorrect and has been revised. See also the response to comment **AC 019-009**.

AC 019-011

The MMS does not agree with this statement. Both mechanical and nonmechanical response methods can be employed to respond to an accidental oil spill in the Chukchi Sea. There are a host of spill-response tactics that can be used in broken-ice conditions. Broken ice, while limiting mechanical recovery, also can foster more effective recovery by concentrating oil along ice edges, which increases the oil/skimmer encounter rate thereby increasing skimmer recovery efficiencies. Recent research focused on improving oil skimmers has resulted in a skimmer surface that has improved recovery rates by over 200%, and commercialization of this skimming system has already been undertaken (Broje and Keller, 2006, http://www.mms.gov/tarprojects/528.htm).

In situ burning also is a viable and highly effective tool for responding to spills in broken-ice environments. In situ burning can be an effective, rapid means for reducing the net environmental impact of an oil spill. Burning of the oil would reduce or eliminate the environmental impacts associated with an oil slick, such as oiling of birds, mammals and shorelines, while converting the oil to predominately carbon dioxide and water.

AC 019-012

The text has been modified to clarify that monitoring as a component of MMS mitigation and not a mitigating measure solely on its own. The MMS believes that there is sufficient information to support the analysis for the pending decisions, specifically the decisions by the Secretary of the Interior on proposed Sale 193. Because of the lack of current or detailed information on some resources, MMS would require monitoring to be performed during various aspects of any approved activities. Such monitoring is dual purpose. Monitoring would allow MMS to determine if required mitigation measures are being effective, or if the measures need to be modified (adaptive management). Monitoring also provides additional

information for future analyses, development of mitigation measures, and decisions related to OCS activities.

AC 019-013

Mitigation and monitoring are required by both the OCS Lands Act and NEPA as well as under various regulations and permits. Only passing reference is made to the lease stipulations from the last Chukchi Sea sale, because that sale occurred 16 years ago (August 1991) and there are no current leases to which those stipulations would still apply. The lease stipulations for proposed Sale 193 and a summary of the effectiveness of the mitigation provided by the stipulations is provided in Section II.B.3.c(1). Mitigation measures for exploration seismic surveying are discussed in Section II.B.4 and evaluated in Appendix D. Further, the effectiveness of mitigation measures is discussed in the analysis sections. The only development that has occurred on the Alaska OCS is Northstar. The MMS has had a continuous monitoring study, called ANIMIDA, associated with Northstar. Environmental studies and research monitoring involves a repeated sampling of the environment over time to establish baseline conditions; determine natural variability; and assess changes and trends due to human activities. The MMS either conducts or requires this type of monitoring through its Environmental Studies Program (http://www.mms.gov/eppd/sciences/esp/index.htm) to determine the extent to which activities caused by or permitted by MMS, such as development of offshore oil and gas, sand and gravel, and methane hydrate resources, affect the human, marine, and coastal environments.

AC 019-014

The EIS discusses scientific information related to the 120-dB monitoring zone in Section IV.C.1.f(1) and Appendix D. In Section II.B.5.c, the EIS specifically acknowledges that this issue is pending court decision.

AC 019-015

The amount and detail of information needed for a NEPA analysis depends on the decision it is intended to support. The analysis in this EIS must support decisions on the proposed lease sale and mitigation measures. The NEPA analyses for proposed exploration and development would be prepared at the time that these actions are ripe for decision. This tiered approach to NEPA compliance and decisionmaking is encouraged by NEPA regulations (see 40 CFR 1502.20 and 1508.28). We believe that the best available scientific information is appropriate and adequate to support this EIS for the pending lease-sale decisions.

The workshop referenced in the comment was not intended to develop studies to support this EIS and the leasing decisions it supports. The workshop was intended to support the design of a project to monitor for potential postlease effects.

AC 019-016

As the comment acknowledges, the NMFS open-water meeting was held October 23-25, 2006. This meeting occurred after publication of the draft EIS. The Notice of Availability of the Draft EIS was published in the *Federal Register* on October 16, 2006. Information from this meeting has been incorporated in the final EIS as appropriate.

The NMFS conducts open-water meetings under the Marine Mammal Protect Act. This meeting was not part of the NEPA process for proposed Sale 193.

AC 019-017

The OCS Lands Act is legislation by Congress authorizing the safe exploration and development of offshore energy resources to help meet the future needs of the Nation. This is explained in detail in the programmatic EIS to justify the 5-Year Leasing Program conducted by MMS. Petroleum development

from the Chukchi could represent an important incremental contribution to supplies to the U.S. and help reduce the amount of imported oil. The scenario that we used for purposes of environmental impact analysis assumes that the first new field in this frontier area will produce 1 billion barrels of oil. Should resources be discovered in such large amounts and should challenges to their production be overcome by this first development, then other offshore development may follow. This could lead to the production of higher fractions of the full economic potential. However, it would be misleading to analyze this full economic potential before it is demonstrated that such reserves are present and that these challenges can be overcome. One billion barrels is certainly more than "a drop in the bucket." Because it would represent more oil than will be produced from many oil-producing states, it would be hard to argue that this volume is not significant. The risk of industrial accidents is always present, but the frequency and severity of accidents can be mitigated by proactive regulations and operating procedures.

AC 019-018

Alternative energy will have an increasingly significant role in providing the Nation's energy needs. However, this does not diminish the present need for continued domestic oil production. Because the U.S. imports about 60% of its oil needs, OCS oil and gas resources still will fill a role in the Nation's energy production in the foreseeable future. In recognition of the importance of alternative energy to the Nation's future, MMS is embarking on a program to develop offshore renewable energy (such as wind and tidal), but oil and gas production will continue to be important.

AC 019-019

We believe the EIS fully meets NEPA requirements for cumulative analysis. We believe the scope of the cumulative analysis is appropriate for this lease-sale document and is in accordance with the provisions of NEPA regulations to keep EIS's concise and no longer that necessary (40 CFR 1502.2(c)), to evaluate broad actions generically (40 CFR 1502.4(c)(2)), and to use tiering to focus on the actual issues ripe for decision (40 CFR 1502.20). If and when specific projects are proposed, the treatment of cumulative impacts and mitigation measures will be further defined and addressed in detail.

AC 019-020

We believe the EIS fully meets NEPA requirements for cumulative analysis. We believe the scope and level of detail in the cumulative analysis is appropriate for this lease-sale document. If and when specific projects are proposed, the treatment of cumulative impacts and mitigation measures will be further defined and addressed in detail.

The cumulative case scenario is presented in Section V.B. Our definition of "reasonably foreseeable" and the future Federal and State activities that are considered reasonably foreseeable for the cumulative analysis are presented in Section V.B. The oil-spill scenario for the cumulative case is presented in Section V.C. This section was inadvertently left out of the draft EIS and had been included in the final EIS. The cumulative analyses in the EIS are based on a thorough review of the best available information. In preparing the draft EIS, MMS reviewed, considered, and cited hundreds of sources. Many more sources of information have been reviewed and incorporated as appropriate, and cited in the final EIS. In addition to "scientific evidence," MMS incorporates traditional ecological knowledge in preparing the analyses.

AC 019-021

The cumulative case scenario is presented in Section V.B. Our definition of "reasonably foreseeable" and the future activities that are considered reasonably foreseeable for the cumulative analysis are presented in Section V.B. The analyses of cumulative impacts consider the effects of past, current, and reasonably foreseeable activities.

Both mechanical and nonmechanical response methods can be employed to respond to an accidental oil spill in the Chukchi Sea. There are a host of spill-response tactics that can be used in broken-ice

conditions. Broken ice, while limiting mechanical recovery, can also foster more effective recovery by concentrating oil along ice edges, which increases the oil/skimmer encounter rate thereby increasing skimmer recovery efficiencies. Recent research focused on improving oil skimmers has resulted in a skimmer surface that has improved recovery rates by over 200% and commercialization of this skimming system has already been undertaken (Broje and Keller, 2006, http://www.mms.gov/tarprojects/528.htm).

Mitigation measures required by MMS for OCS activities do not "weaken after initial leasing." Many mitigation measures for OCS activities are enforceable regulations and lease contract stipulations. The MMS develops additional proposal- and site-specific mitigation during technical, engineering, and environmental review of proposed activities.

AC 019-022

The cumulative case scenario is presented in Section V.B. Our definition of "reasonably foreseeable" and the future activities that are considered reasonably foreseeable for the cumulative analysis are presented in Section V.B. For the Chukchi Sea Sale 193 cumulative scenario, only exploration from future leasing in the Beaufort Sea is considered reasonably foreseeable.

The referenced text (draft EIS at IV-1) has been revised to clarify that, under certain conditions, development in the Chukchi Sea might facilitate OCS activities in the Beaufort Sea Planning Area.

AC 019-023

We believe the scope and level of detail in the cumulative analysis is appropriate for this lease-sale document. The oil-spill scenario for the cumulative case is presented in Section V.C. Our definition of reasonably foreseeable and the future activities that are considered reasonably foreseeable for the cumulative analysis are presented in Section V.B.

Any proposed onshore pipeline, whether in support of onshore development, offshore development, or both, would be permitted by other Federal Agencies that would be responsible for ANILCA Section 18 compliance. Compliance with ANILCA Section 18 does not create environmental impacts. Text has been added to the cumulative scenario at Section V.B.9 acknowledging that compliance with Section 18 of ANILCA would be required for any proposed onshore pipeline.

AC 019-024

Cumulative impacts to walruses as a result of climate change are addressed in Section V.C.8.b. There have been no oil and gas developments in the Chukchi Sea. The effects of past exploration activities on walruses are discussed in Section IV.C.1.h, as are the anticipated effects from future oil and gas activities.

AC 019-025

The final EIS for the Proposed OCS Leasing Program 2007-2012 discusses the cumulative effects of global climate change and other impacting agents on subsistence, the community, and the environment. The following is an excerpt from Section IV.J.3.k in that document:

> Because of rapid and long-term impacts from climate change on long-standing traditional hunting and gathering practices that promote health and cultural identity, and considering the limited capacities and choices for adaptation and the ongoing cultural challenges of globalization to indigenous communities, subsistence-based communities could experience significant cultural stresses in addition to major impacts on population, employment, and local infrastructure. If subsistence livelihoods are disrupted, communities could face increased poverty, drug and alcohol abuse, and other social problems.

If the present rates of climate change continue, changes in diversity and abundance to local flora and fauna could be significant. Because marine and terrestrial animal populations would be particularly vulnerable to changes in snow cover and alterations in habitat and food sources brought on by climate change, rapid and long-term impacts on subsistence resources (availability), subsistence-harvest practices (travel modes and conditions, traditional access routes, traditional seasons and harvest locations), and the traditional diet could be expected.

AC 019-026

See response to comment **WWF 018-015**.

AC 019-027

We believe that the significance thresholds are appropriate for the scope of this EIS and the lease-sale decisions it is intended to support. The thresholds that MMS uses have been developed over many years based on analysis of scientific information and with multiple opportunities for input from Federal, State, and local resources agencies, other stakeholders, and the public.

AC 019-028

The draft EIS (Sec. II.B.5.b Issues Considered But Not Analyzed) recognized that potential aquatic invasive species could affect marine resources in the Chukchi Sea, but concluded that existing regulations implemented under the jurisdiction of the U.S. Coast Guard were sufficient to reduce the transfer of aquatic invasive species during routine leasing activities that could be authorized by Lease Sale 193. The fact that the receiving waters are particularly inhospitable to aquatic invasive species from other ecosystems was an additional factor considered to further reduce this risk.

AC 019-029

The scenario involves the discovery and development of a single field containing 1 billion barrels (Bbbl) of oil. There is no accurate way to predict where this field will be located, and it is misleading to speculate on a location. The petroleum-resource potential in the Chukchi Sea is discussed in a series of MMS publications, the most recent can be found at: http://www.mms.gov/alaska/re/reports/2006Asmt/index.HTM. The data in the assessment of undiscovered oil and gas resources is largely from proprietary industry sources, although the data from five exploration wells in the Chukchi has been publicly released. The 1 Bbbl scenario is not tied to a specific oil price but is based on the concept that a very large oil field would have to be discovered to allow initial commercial development in this challenging area. Given the size of mapped prospects in the area (proprietary information), oil prices would have to average above $42 per barrel to support a stand-alone commercial project of this size. If the engineering and economic challenges are overcome by the first large field, additional fields might follow. However, it is premature to assume that large-scale development operations would occur when none has occurred yet in this frontier province.

AC019-030

A map showing the hypothetical location of infrastructure would be misleading, because we have only a general idea of where future facilities would be constructed. The location of seismic surveys is proprietary information, but the location of past leases and exploration wells is shown in several figures in the document.

AC 019-031

The disposal of drilling waste onsite during exploratory drilling is not required under existing NPDES permits for the Chukchi Sea. Normally this option is not available due to the limited knowledge available regarding underground zones that might be suitable for underground injections as well as the lack of

technical ability to inject cuttings during exploratory drill operations. Disposal options for use during development drilling will be evaluated during the review of development plans for the area. This shows the advantages of the Bureau's tiered approach because, as additional knowledge becomes available, disposal options may change.

AC 019-032

Production platforms and other offshore components of development will be designed according to site-specific conditions and best available technology. Although there are no production operations in conditions equivalent to the Chukchi, several areas in the world (Barents Sea) are moving toward development. Technologies can be adapted from other areas to develop the Chukchi sea in the future. Only a decade ago, much of the deepwater areas in the Gulf of Mexico did not have exploration and development operations. Now, operations are routine in these deep-water areas. Commercial discoveries and development in the Chukchi are likely to occur more than 10 years in the future, so new technologies and experience from other areas will be adapted for the Chukchi.

AC 019-033

We do not show the location of future facilities on a map, because it is possible only to predict general locations. We state that the location of a shore base and pipeline landfall likely would be near Point Belcher, north of the village of Wainwright. The offshore fields in the Beaufort Sea are less than 10 miles from existing infrastructure. Likely locations for facilities on the Chukchi coast are more than 300 miles from existing infrastructure. Because of the remote location, it is likely that larger barges and other equipment will be used to construct facilities on the Chukchi coast. Larger barges and aircraft could entail fewer trips to move the same amount of materials.

AC 019-034

Our Proposed Action scenario is presented in Section IV.A.2, and the scenario related specifically to development and production is presented in Sections IV.A.2.c.and IV.A.2.d. As state in the introductory text for the scenario, MMS considers oil production from the Chukchi shelf as reasonably foreseeable *because* there is an existing pipeline transportation infrastructure from the North Slope to distant markets. The MMS believes that tankering of oil produced from the Chukchi OCS is not reasonably foreseeable.

AC 019-035

One explanation of the assumptions for the cumulative scenario was inadvertently left out of the draft EIS and has been added to the final EIS in Section V.C.

Water depths in the Chukchi Sea Planning Area are too great for the formation of bottom-fast ice necessary to support on-ice seismic surveying. Thus, on-ice seismic surveying is not considered reasonably foreseeable in the Chukchi Sea.

Potential impacts of noise in the cumulative case are addressed in appropriate resource analyses (see for example Sec. V.C.6.a(8)).

AC 019-036

See Table V-7c in the Lease Sale 193 draft EIS. Any production that may occur should a commercially viable field (1 Bbbl) be discovered, is accounted for in Table V-7c as speculative production.

AC 019-037

A hypothetical scenario map would be misleading, because the location of commercial-size discoveries and the optimum location for support facilities are unknown at present. The more detail that is supplied on a

conceptual map, the less accurate the map will turn out to be. When a development plan is formulated, the optimum location and mitigation measures will be used to minimize environmental impacts. At the present time, there are no facilities, outside of a few villages and abandoned DEW-line sites, on the Chukchi coast.

AC 019-038

The NEPA does not require that a cost-benefit analysis be done as part of an EIS.

Effects of the Proposed Action on government operations and other institutions are examined in Section IV.C.1.m, particularly Section IV.C.1.m(4), Effects from Development and Production, and the associated Table IV.C-2 in the Institutional Organization portion of the table. We have added information on socioeconomic monitoring and mitigation programs that have addressed effects in other areas adjacent to OCS development.

These costs are not intended to be considered as part of NEPA analysis with the exception of infrastructure. The MMS has oversight responsibility on OCS activity by law and is obligated to conduct baseline and postlease monitoring and development and enforcement of mitigation measures as needed. Those individuals and organizations who volunteer public and community time for public meetings and who comment on and review public agency actions do so out of their own choosing. This is part of the democratic process. Federal and State agencies have human resources in place for necessary permitting actions.

We do not find profit or gross revenue projections to private business in the draft EIS. We do analyze revenues to governments in Section IV.C.1.k, Economy. Potential expense costs (or impact) to the environment forms the body in Section IV of the EIS as required by NEPA. For the most part, this is not measured in dollars and cents but in other measures appropriate to the resource. The draft EIS analyzes subsistence-harvest patterns and sociocultural and economic aspects that we construe as "community" aspects. The draft EIS analyzes the potential impacts of the physical and biological aspects of the environment that we construe as "ecological costs." We think that the commenter means oil-spill cleanup cost when they write "pollution cleanup costs." This is analyzed in terms of employment in Section IV.C.1.k(1)(b), Employment Related to Spills. Employment is a dimension that accrues to the public. Costs of cleaning up a spill in U.S. waters are borne by the party that caused the spill; this is not a consideration under NEPA.

AC 019-039

The purpose of this EIS is to evaluate the leasing and exploratory phase of operations on the OCS. The MMS rules clearly state that all exploratory wells are to be plugged and abandoned upon completion. This includes the cementing of the well to isolate any productive intervals as well as the removal of the well head and casing to a depth of 15 ft. below the mud line and removal of any associated equipment that may have been placed on the seabed. No pipelines or permanent structures are expected to be used during the initial stages of exploration. Any development activities, such as pipelines or permanent structures, will require additional review prior to their approval.

AC 019-040

A Very Large Oil-Spill Event was analyzed in Section J of the Chukchi Sea Oil and Gas Lease Sale 126 Final EIS (USDOI, MMS, 1990a). Stipulation No. 3 Transportation of Hydrocarbons in Section II describes the requirement to transport hydrocarbons by pipeline.

The typical sizes assumed for analysis (1,500 or 4,600 bbl) would not be estimated to persist beyond 30 days. The chance of one or more large spills occurring from the proposed lease sale and contacting any environmental resource area ranges from <0.5-14% within 360 days over the life of the project. The text has been changed in Section IV.A.4.a(2) to reflect the commenter's concern.

AC 019-041

A very large spill was analyzed in Section J of the Chukchi Sea Oil and Gas Lease Sale 126 final EIS. An exploration blowout would be anticipated to have similar impacts to the 166,000-bbl pipeline spill analyzed.

Barge spills of oil may be common when barges are used as tanker vessels. In this case barges would be used to haul supplies and would be towed by a tug vessel and would not be carrying fuel on the barge. Since the enactment of the Oil Pollution Act of 1990, vessel spill rates have been decreasing. In general, vessel spills tend to be small. Approximately 65% of the spills are <0.24 bbl (10 gallons), 90% are <2.4 bbl (100 gallons) (Etkin, 2006). Small refined spills were analyzed in the EIS.

Stipulation No. 3 Transportation of Hydrocarbons in Section II.B.3.c(1) Stipulations describes that pipelines will be required. We do not analyze tankering as part of the reasonable and foreseeable scenario.

The highest priority certainly is pollution prevention. If an accidental oil spill were to occur, there are a host of mechanical and nonmechanical means to respond to an oil spill in this environment. Skimmers and containment boom provide response options in open-water and broken-ice conditions, and in situ burning may be employed in higher broken-ice concentrations when mechanical response is more limited. These could be viable and effective means to address an oil release in the environment.

AC 019-042

Appendix A, Tables A.1-12 through A.1-15a list the ID, Name, Map, General Resource, Specific resource, and the reference citations for the environmental resource areas used in the analysis of oil-spill effects on particular resources of concern. We have included a reference to these tables on the maps. Focusing on a few trajectories would not be representative of the 2,700 trajectories run from each of the 1,002 hypothetical launch points, and it might actually mislead the reader into thinking MMS has run only a few trajectories instead of the 2,705,400 trajectories that were run.

AC 019-043

The MMS acknowledges that Kasegaluk Lagoon meets the criteria for having wilderness values, as noted in USDOI, BLM, 2003. The MMS does address Kasegaluk Lagoon as a sensitive area to be considered in the Oil-Spill-Response Plans (See Sec. II.B.3.c(2)). Should an accidental oil spill occur from OCS leasing activities, appropriate measures would be taken to minimize associated impacts.

The MMS also provides for an extensive regulatory review of planned operations to ensure that the safest and most appropriate technology is used to prevent a spill from occurring in the first place. The MMS reviews an operator's proposal prior to giving any approvals to drill for oil or gas. The MMS also has a Technical Assessment and Research Branch that evaluates new technologies for safety aspects as well as appropriateness for use in the environments they are proposed for. This attention to the details of any proposed operation provides for a safe and pollution-free operation.

AC 019-044

Many of the Alaska North Slope oil spills are from causes we would not anticipate on the OCS, such as truck rollovers. In addition spills of seawater to seawater do not have the same consequences as spills of seawater to the tundra. Appendix A.1 Section E discusses small spills and includes estimates for refined oil. Refined oil includes aviation fuel, diesel fuel, engine lube, fuel oil, gasoline, grease, hydraulic oil, transformer oil, and transmission oil.

AC 019-045

We regret that the tables and text for cumulative case oil spills were inadvertently left out. The tables show we estimate large oil spills from onshore and TAPS. We have included the relevant tables and text in Section V of the final EIS. We apologize for any inconvenience this may have caused.

AC 019-046

The EIS analyzed a pipeline spill of 4,600 bbl. This volume could occur from either a pipeline leak or a rupture. The EIS estimates one-third of a pipeline spill and approximately one-fifth of a platform spill over the production life of Alternative I. For purposes of analysis, we assume one spill occurs, either a 1,500-bbl platform spill or a 4,600-bbl pipeline spill, and analyze the impacts to environmental, social, and economic resources.

Please also note that the fault-tree model for large pipeline spills illustrated in Figure A.1-6 includes ice gouging.

AC 019-047

We believe the commenter is confusing water depth with ice-gouge-incision depth. We have rewritten the text in Section III.A.4.e(2), Ice Gouging, and IV.D.1.c(4)(a)1), Disturbances (Construction), to make it clear that little quantitative data are available about ice-gouge-incision depths in the Chukchi Sea. Linear features have been observed on the seabed indicating ice gouging in water depths up to 50 meters, but no data are available on the gouge-incision depths. Before a pipeline would be permitted, this information would be required to be collected and analyzed.

Installing pipelines in unconsolidated moving sediments is not the problem the commenter suggests. There are many examples of pipelines that have been successfully installed across very dynamic rivers and waterways. The Okha-Sofiysk oil pipeline across Tatar Strait between the Asian mainland and Sakhalin Island that was installed during World War II, the many pipelines in Cook Inlet, Alaska, the numerous pipelines that cross the Mississippi and Missouri Rivers are some examples.

AC 019-048

Issues related to water quality that are addressed and analyzed within the EIS include OCS operational discharges of drilling muds and cuttings, produced waters, domestic wastes, sediment disturbance, oil spills and blowouts, and discharges from vessels. Any discharge that would occur from OCS oil and gas operations within the Chukchi Sea area would have to operate under either the USEPA Authorization to Discharge under the National Pollution Discharged Elimination System (NPDES) for Oil and Gas Exploration Facilities on the Outer Continental Shelf and contiguous State Waters (AKG280000) or an EPA-issued individual NPDES permit. These USEPA permits are based on Ocean Discharge Criteria (40 CFR part 125, Subpart M), which sets forth specific criteria for preventing unreasonable degradation of ocean waters. Unreasonable degradation is defined within 40 CFR 125.121(e); and the determination is based on 10 criteria defined within 40 CFR 125.122. The EIS has presented the existing water quality of the planning Area as well as identified and assessed common discharges and impacts that could be associated with Chukchi Sea OCS Oil and Gas activities. Further action-specific environmental assessments will be performed on any postlease proposed Exploration and/or Development and Production Plan(s) by the MMS, and associated regulatory permit agencies during the permit application and review stage.

The MMS believes that water quality information in the EIS is appropriate, valid, and sufficient.

The effects of the Proposed Action on water quality as a result of Chukchi Sea OCS oil and gas exploration, and development and production is expected to be moderate locally and low regionally.

AC 019-049

The comment summarizes correctly the draft EIS descriptive information on benthos but concludes that benthic effects might be more severe than assessed, because the information on benthos is not precise. Figure III.B-2 illustrates that the quantity of benthic information is quite good. If proposed operations might affect special benthic habitats, MMS can require surveys to determine the extent and composition of the special habitats, per Stipulation No. 1.

AC 019-050

Sec. IV.C.1.d(3)(c), Effects from Platform and Pipeline Construction, states that a pipeline likely would be elevated on a short gravel causeway to protect it against shoreline erosion/iceberg scour. Protecting the pipeline against erosion and scour reduces the potential for the pipeline being damaged and leaking oil. Section IV.C.1.d(3)(c) also describes how the location of a potential pipeline is unknown, but a subsequent NEPA analysis would be needed to ensure any adverse habitat loss or degradation are minimized. The MMS believes it inappropriate to speculate on the possible impacts of a potential pipeline landfall when details regarding the location and design of a causeway are not available. In the event a causeway is proposed, MMS did commit to ensuring it would have the fewest impacts practicable. Significant impacts to fish during construction of a short causeway to protect a pipeline landfall are not expected.

AC 019-051

Section IV.C.1.d.(2)(a) states that fish use sound in behaviors including aggression, defense, territorial advertisement, courtship and mating, and in detecting predators and prey. The potential impacts to these behaviors are described in Section IV.C.1.d(2)(b), Potential Impacts from Airgun Acoustic Emissions.

AC 019-052

We reviewed the McCauley, Fewtrell, and Popper (2003) paper in preparation of the draft EIS and agree with the commenter that the effects described can occur to fish. We also note that the paper describes experiments conducted with fish caged in water averaging 9m deep with an airgun towed over the fish at 5 m deep. This situation does not resemble how seismic surveys would be conducted in the Chukchi Sea. Furthermore, video monitoring indicated that the caged fish would have fled the sound source if they had been able to, avoiding physiological harm.

For the purposes of analysis and minimization of potential impacts, MMS assumed that it would be improbable that fish would remain within 5 m of a moving airgun array (the area where physiological harm is most likely to occur) and that ramping up provides an opportunity for fish in close proximity to the moving vessel to move away before physiological harm occurs. We are unaware of scientific evidence that suggests there are fish species in the Chukchi Sea that would willingly approach and remain in close proximity to a moving active seismic array in such a way or in such numbers that physiological harm or behavioral disruption on the order of significant population-level impact would occur.

AC 019-053

The draft EIS does not state that no adverse impacts to fish from seismic surveys are expected. Section IV.C.1.d(1)(a), Summary, Seismic Surveys, states that there are no empirical data that would lead us to expect that potential impacts from seismic surveys may reach a population-level effect nor does information exist to demonstrate seismic surveys would result in significant impacts to marine fish or related issues. These conclusions are based on the small likelihood that physiological harm or behavioral disruption to fish would occur to certain species of fish or in such numbers that significant impacts would occur.

AC 019-054

The draft EIS does not note that the noise from seismic survey airguns would result in significant behavioral changes in fish and fish stocks. Section IV.C.1.d(2)(b)2), Impacts to Behavior, states that the "most likely impacts to marine fish…would be behavioral disruptions…," and these potential impacts are detailed in subsequent subsections.

Concurrent surveys operating in such a manner that their zone-of-influences (for affecting fish behavior) overlap conceivably could combine to influence fish-use patterns over a larger area. However, this is an unverified concept, and there are two reasons why even this situation is unlikely to arise. First, seismic surveyors prefer to operate at considerable distances from each other so that they do not interfere with each other's data acquisition. Second, a mitigation measure to require at least 15 mi (25 km) between seismic-source vessels from separate simultaneous operation is required. Consequently there is a low potential for concurrent surveys to "herd" fish in open-water areas.

The situation where seismic-survey operations could result in the stranding of fish also is a concept that has never been documented to occur. Moreover, because seismic vessels would be working in areas of the proposed lease-sale area that are typically greater than 18 mi from shore, the likelihood that any fish would get stranded if it were to move away from seismic noise into shallower and shallower waters would be low. The MMS described strandings as a possible impact but concluded it was an improbable event. Despite a history of seismic-survey activities, fish strandings in the Alaskan Arctic have been associated only with large storm events.

Another basic concept used in our analysis is that fish most likely would be affected in a 160- to 200-dB zone-of-influence around the source vessel. McCauley, Fewtrell, and Popper (2003) concluded that airgun signals of the level $\geq$180 dB *re* 1µPa could be expected at ranges <500 m from a large seismic array. This zone could infrequently encounter fish as a source vessel moved through the project area. Consistent with McCauley, Fewtrell, and Popper (2003) and Engås et al. (1996), MMS believes that fish hearing the approach of a seismic-source vessel generally would choose to move away from it. Fish that did not move away would be affected temporarily in a localized area for a short amount of time while the vessel passed. Fish that moved away from the sound source could return to the area after the vessel had passed.

Engås et al. (1996) concluded that pelagic fish-catch rates and local abundance partially were reduced (not eliminated) within an 18-nautical mile (nmi) area following seismic surveys. The largest reductions occurred in areas closest to the path of the source vessel. Larger fish appeared to move greater distances away from seismic activity. The authors did not measure reductions beyond 18 nmi. The MMS did not speculate beyond the conclusions of the experiment. The authors, however, speculated that larger fish moved further from the seismic vessel activity because of their greater swimming ability, and that some fish may have habituated to repeated sound exposure.

AC 019-055

See response to comment **AC 019-054**.

AC 019-056

See response to comment **AC 019-054**.

AC 019-057

See response to comment **AC 019-054**.

AC 019-058

McCauley, Fewtrell, and Popper (2003) stated that "a precise air-gun exposure required to produce the damage observed was not obtained." We believe the different interpretations of precisely where physiological damage to fish occurs (i.e., average of 168 dB *re* 1µPa [per the commenter] compared to 180 dB *re* 1µPa [as previously cited]) are largely immaterial, because prevailing scientific evidence indicates that, if given an opportunity, fish will move away from the sound source before encountering a sound level that damages their hearing.

AC 019-059

As Engås et al. (1996) reported that the distributions of cod and haddock were reasonably uniform prior to seismic-survey exposure, there was no evidence provided to conclude that the movements of fish away from the seismic area necessarily forced them to migrate to lower value habitats. If a uniform fish distribution implies a uniform habitat distribution, fish migrating from one habitat simply move to a similar habitat nearby and could have little conceivable motivation to return. It is unknown if Chukchi Sea fish distributions or habitats are uniformly distributed during the open-water period.

We concur that there are certain operational/weather-related assumptions that would allow one to conceive of seismic surveys covering at least 1,000 square miles during an open-water season; however, MMS did not believe it valid or appropriate to assume that the potential limited effects on fish would render a surveyed area useless to fish for the remainder of the open-water period. Consequently, such collective short-term effects spread over a large area would not reasonably be expected to occur at such magnitude, duration, or frequency as to result in population-level effects.

AC 019-060

We assessed the effects of the seismic surveys for the entire lease-sale area. The statement in Section V.C.4, Fish Resources, mistakenly implied otherwise. The conclusion that the effect of seismic exploration on fish resources probably would be minor remains accurate.

AC 019-061

The MMS believes this issue is adequately evaluated. Research indicates that copepods may passively bioaccumulate aqueous polyaromatic compounds (PAC's) and could thereby serve as a conduit for the transfer of said PAC's to higher trophic levels, including bowhead whales. Refer to Section V.C.6a(7) for discussion relating to accumulation of pollution and contaminants in bowhead whales. Tissue studies by Geraci and St. Aubin (1990) revealed low levels of napthalene in the blubber and livers of baleen whales. The result suggests that prey have low concentrations in their tissues or that baleen whales may be able to metabolize and excrete certain petroleum hydrocarbons. Cytochrome p-450 in cetacean livers is an enzyme that suggests they can metabolize ingested oil (Hansen, 1992). Potential effects to bowheads exposed to PAC's through their food is unknown. The MMS acknowledges that bowhead whales, because of their extreme longevity, are vulnerable to incremental long-term accumulation of pollutants. With increasing development within their range and long-distance transport of other pollutants, individual bowhead whales may experience multiple large and small polluting events in their lifetime. There is little information to suggest population-level effects of oil spills regarding bioaccumulation/biomagnification of oil-related compounds. The MMS also acknowledges the vulnerability of large groups of bowheads exposed to fresh oil in lead systems to serious injury and death, especially through inhalation of highly toxic aromatic fractions and the resultant potential damage to respiratory system (Hansen, 1985; Neff, 1990), neurological disorders, and liver damage (Geraci and St. Aubin, 1982). The link here is circumstantial regarding the mortality of whales post-EVOS. After the EVOS event, Dahlheim and Loughlin (1990) found no effects on the humpback whale. von Ziegesar, Miller, and Dahlheim (1994) found no indication of a change in abundance, calving rates, seasonal residency time of cow/calf pairs, or mortality in humpback whales as result of that spill; however, this study could not have detected long-term physiological effects to whales or the humpback's prey.

AC 019-062

Please refer to Section IV.C.1.f(1)(g)3) of the EIS for a discussion of large-spill-related impacts. The MMS does acknowledge limitations in the information and direct study of bowhead whales and the uncertainties about the range of potential effects of large spills; however, we also acknowledge the value of what existing information that is available that do indicate a known range of effects, as well as recognize high sensitivity situations where exposure could have substantial effects. The MMS feels no modification of this section is needed.

AC 019-063

The MMS and NMFS analyses indicate most whales exposed to spilled oil are expected to experience temporary, nonlethal effects from skin contact with oil, inhalation of hydrocarbon vapors, ingestion of oil-contaminated prey, baleen fouling, reduction in food sources, or temporary displacement from some feeding areas. A few individuals may be killed as a result of exposure to freshly spilled oil. The combined probability of a spill occurring and also contacting bowhead habitat during periods when whales are present is considered to be low, and the percentage of the BCB Stock so affected is expected to be very small. Conservation and monitoring recommendations have been incorporated to improve the understanding of impacts of oil and gas activities on bowhead whales as well as mitigate adverse effects. Incremental reassessment of oil and gas development and production is intended to apply adaptive management and incorporate new understanding and mitigation of effects. The MMS feels the conclusion in the text best represents the analysis and research.

AC 019-064

This comment includes quoted fragments of statements made in the document that appear out of context with qualifying content not included. In Sections IV.C.1.h(3)(b) and IV.C.1.f(1)(g)3), MMS has adequately presented the known studies and respective conclusions relative to large to very large oil-spill events. These results vary and are not directly comparable to evaluate probability of effects either collectively or individually. The information evaluates different species, different data sets, and results of suspected effects. Various study conclusions do not suggest consistency. The MMS recognizes cetacean exposure to large amounts of fresh oil may result in serious injury or death. The evidence linking death, probable death (disappearance of individuals from pods of killer whales, for example) is circumstantial and not definitive. Data on large cetaceans are not adequate to evaluate probability of sublethal effects or population-level effects thereof.

AC 019-065

The MMS repeated recognizes the vulnerability of whales migrating in spring through the polynya/spring lead system (e.g., see Sec. IV.C.1.f(1)(g)4)). The likelihood of whales to move or not move away from spilled oil would depend on event-specific circumstances. Bowhead whales can and do travel under ice cover and may have alternate routes or reversal of movement opportunities available and choose to use them. Oiling effects to bowhead skin related to exposure and effects is inconclusive and hypothetical at this time. It would appear to be speculative to indicate lethal impacts from exposure to oil due to the epidermal makeup of the bowhead. Exposure to oil takes several forms, all of which are discussed at length in the draft EIS. Bowhead epidermal thickness is as much as 7-8 times thicker than that found in most whales (Haldiman et al. (1985). Oil is unlikely to adhere to smooth skin, although it may stick to rough (eroded) areas, tactile hairs, and depressions around hairs. Geraci and St. Aubin (1990) noted transient damage to epithelial cells in whales and only subtle changes at the cell level, and damage healed within a week. Refer to Section IV.C.1.h(3)(b)1) for a discussion relative to skin exposed to oil and oil products. Research to date has not conclusively shown effects of oiled skin in bowhead or other whales to be of substantial impact as to induce mortality or population-level responses. What research exists indicates oiling of eroded or injured skin does induce normal inflammation and immediate site cell

degeneration creating a barrier between oil and living tissue. Healing processes apparently were not impeded or delayed.

AC 019-066

The MMS acknowledges the potential for eye and conjunctive tissue irritation from oil exposure. Histological and ultrastructural studies suggest whale skin, including freshly exposed living tissue that may be encountered on eroded skin areas, suffers only transient damage to epithelial cells. According to Geraci and St Aubin (1990), cetacean skin is an effective barrier to noxious substances in petroleum, forms degenerated cell barriers between oil and living tissue, and heals readily after initial short-term (within 24 hours) inflammation. The MMS agrees that prolonged skin contact with oil could be harmful. The severity of harm is hypothetical; evidence is lacking that would indicate more than irritation, and Bratton et al. (1993) concluded that no published data proved oil fouling of the skin of any free-living whales and that bowhead whales contacting fresh or weathered petroleum are unlikely to suffer harm.

AC 019-067

Please refer to Section V.B, Activities We Considered in this Cumulative Effects Analysis. The activities considered in this section that are deemed reasonably foreseeable future development do not indicate "extensive off shore development " but instead represent a smaller, localized portions of the lease area. Additionally, numerous conservation and mitigation actions are proposed to avoid, minimize, and mitigate effects to bowhead whales. Portions of the Chukchi, Bering, and Beaufort seas are foreign waters in which the BCB bowhead stock range in their annual life cycle. The notation "at least half of its range has extensive offshore development" is excessive in view of the temporal, spatial, and progression of the reasonable foreseeable future development in the region. The term "extensive offshore development" is a relative term depending on what criteria it is measured by. The MMS believes the cumulative effects scenario is a reasonable scenario.

AC 019-068

The MMS believes this issue is adequately evaluated. Research indicates that copepods may passively bioaccumulate aqueous polyaromatic compounds (PAC's) and, thereby, could serve as a conduit for the transfer of said PAC's to higher trophic levels, including bowhead whales. Refer to Section V.C.6a(7) for discussions relating to accumulation of pollution and contaminants in bowhead whales. Tissue studies by Geraci and St. Aubin (1990) revealed low levels of napthalene in the blubber and livers of baleen whales. The result suggests that prey have low concentrations in their tissues or that baleen whales may be able to metabolize and excrete certain petroleum hydrocarbons. Cytochrome p-450 in cetacean livers is an enzyme that suggests they can metabolize ingested oil (Hansen, 1992). Potential effects to bowheads' exposure to (PAC's) through their food is unknown. The MMS acknowledges that bowhead whales, because of their extreme longevity, are vulnerable to incremental long-term accumulation of pollutants. With increasing development within their range and long distance transport of other pollutants, individual bowhead whales may experience multiple large and small polluting events in their lifetime. There is little information to suggest population-level effects of oil spills regarding bioaccumulation/biomagnification of oil-related compounds from the proposed lease activities relative to global circumstances represent a measurable effect.

AC 019-069

Conservation practices, required mitigation, and monitoring recommendations have been incorporated to improve the understanding of impacts of oil and gas activities on bowhead whales as well as mitigate adverse effects. Incremental reassessment of oil and gas development and production is intended to apply adaptive management and incorporate new understanding and mitigation of effects. The MMS uses the best information available and sincerely desires to add to that understanding to better manage oil and gas development in the area.

AC 019-070

Incidental take authorization is subject to mitigation measures to ensure that the actual take of an animal is the last resort and that all other conservation actions have been exhausted before a take is allowed. Incidental take authorizations and associated mitigation actions, individually and cumulatively, are specifically established within limits to prevent attaining population-level effect thresholds. The NMFS and FWS are agencies with the authority by which incidental take authorizations are issued and enforcement protocols applied.

AC 019-071

The MMS appreciates the concern for gray whales as well as the implications of climate change on distribution and abundance of other species of whales in the Chukchi Sea. The MMS has actively monitored not only bowhead whales but all species of marine mammals encountered when conducting the annual bowhead whale counts. These regular surveys provide an index to changes in distribution and number of other species of marine mammals both listed under the ESA and MMPA and allow appropriate actions at the time and place that protective actions are warranted. The MMS is required to consult with NMFS regarding listed species, and NMFS has the responsibility and authority for administering the MMPA. The NMFS can assure you that gray whales and the protection of their use of the Chukchi Sea is being considered, and concerns would be related to MMS for this document.

AC 019-072

The NMFS has determined the only ESA-listed species under its jurisdiction that may occur in the Proposed Action area and is likely to be affected by these proposed lease activities is the Western Stock of the bowhead whale. Data from long-term MMS bowhead whale surveys and historic distribution of fin whales indicate they range within approximately 100 mi of the south and western extremity of the Chukchi Sea Planning Area and do not use nearshore or offshore habitats in the planning area. Fin whales occupy the southwestern Chukchi Sea along the northern coast of Chukotka. Historic distribution and current information indicate humpback whales range into the Bering Strait and some documented use in Chukchi Sea; however, available information does not indicate that humpback whales typically occur or have been documented to occur within or immediately adjacent to the Chukchi Sea Planning Area. It is unlikely impacts could occur to these whale species as result of lease activity in the Chukchi Sea Planning Area, and it is unlikely that current humpback or fin whale use of the Hannah Shoal area is occurring. Ongoing annual surveys focusing on bowhead whales also record all other marine mammals observed, and this effort does provide an index to the trends and distribution of humpback, fin, and gray whales in the survey areas.

AC 019-073

The MMS acknowledges that shipping and vessel traffic may increase in the Arctic as a result of oil and gas leasing activity. Climate warming also could increase vessel traffic and contribute to a longer period in which vessel traffic could occur and overlap with the time periods whales are exiting or entering the Chukchi Sea via the Bering Strait; however the timing of whales exiting and entering the Chukchi Sea may be delayed similarly. Expecting these effects is reasonable, but they remain to be verified. Vessel traffic in the Bering Strait is associated primarily with barging associated with onshore and offshore oil and gas activities. The potential for whale-vessel “congestion” in the Bering Straight in autumn could occur; however most vessel traffic in the Chukchi and Beaufort Seas now is limited primarily to late spring, summer, and early autumn and avoids the peak whale-movement periods in both late fall and early spring. Levels of noise from vessels and physical presence of numerous vessels could reach some hypothetical point of a density that inhibits whales from also moving through the Bering Strait simultaneously. However, the timing of vessel traffic and whale migration does not overlap, and the existence of such vessel noise and density thresholds is speculative. Ice conditions when whales exit the Chukchi are in excess of conditions in which barges can safely operate. The current patterns for oil- and gas-activity-related vessel traffic other than barges currently remain in the Arctic and do not exit the Beaufort and Chukchi seas via the Bering Strait, but rather operate in support of industry until conditions force them to

dock for the winter along the northern coast. Monitoring has indicated relatively low vessel-collision injury to whales to date; possibly because most whales begin to swim rapidly away when vessels approach rapidly and directly (see Richardson and Malme, 1993).

ACI 019-074

The MMS agrees that comprehensive periodic inventories and monitoring of whales using the Chukchi Sea would be of value. The MMS has funded monitoring surveys focused on bowhead whales that do record all marine mammals observed and provide an interim index to whale species, numbers, and distribution in the areas covered by those surveys. At this time, NMFS has determined the only ESA-listed species under its jurisdiction that may occur in the action area and is likely to be affected by these proposed lease activities is the Western Stock of the bowhead whale.

ACI 019-075

The draft EIS discloses the wide variation of research finding to date as well as indicates the lack of direct and indirect cause-effect relationships of oil-spill events on a wide variety of marine mammals, including whales, and indicates considerable speculation relative to circumstantial information. The MMS has adequately disclosed the disparity and inconsistency in known information and has made a reasonable assessment of potential and real risks and effects based on the information available.

AC 019-076

The MMS agrees that gray whale habitat overlaps with potential oil and gas activity, and trends in gray whale population-expansion habitat are factors to be considered. There are substantial hypothetical projections of the importance of and reason why gray whales may be increasing use of areas as the Hannah Shoals. Depletion of prey sources in historical range may be forcing expansion into new or previously little used areas due to declining population/prey-base relationships in the Bering Sea, for example. The MMS recognizes the potential risk. Existing information is insufficient to understand the dynamics of gray whales and offshore Chukchi Sea habitat relationships, quality and quantity dynamics and distribution of prey resources, or the capability of habitat to support (carrying capacity) long- and short-term whale use. Further, understanding of the dynamics of the prey and its habitat productivity capability and maintenance is not well understood in the Chukchi Sea. Proposed mitigation and monitoring for the lease-sale area for bowhead whales and other marine species would become the initial baseline protection of gray whales and habitat during exploration stages. Incremental evaluation of the more intensive development and production stages, if and when they should occur, would incorporate ongoing studies and monitoring data, and analysis would allow for improved understanding of these resources to facilitate adaptive management to protect, enhance, or restore habitat.

AC 019-077

Refer to Sections I.C.7, The Clean Water Act, and I.E.9, Discharge and Pollution Regulations. The USEPA has the authority to issue NDPES permits to regulate discharges into waters of the United States so as not to have environmental consequences. The NPDES discharge is not part of this action, and USEPA must consult with NMFS and FWS on effects of that program on marine mammals. Exploration wells may result in drilling mud and cuttings being discharged into Chukchi Sea waters under the NDPES General Permit and being deposited on the ocean floor in localized sites, becoming assimilated into the ocean floor sediments and ecosystem dynamics within 1-2 years (Hurley and Ellis, 2004). It is unlikely that such microscale and short-term localized events would be of consequence to benthic zooplankton productivity and bioaccumulation of a magnitude to impact gray whale foraging requirements. Background levels of materials that could bioaccumulate are not well documented in the Chukchi Sea, and the degree to which oil and gas related materials from the Chukchi Sea would contribute to bioaccumulation of heavy metals throughout the gray whale annual habitat range and long lifetime is hypothetical. Habitat availability for whale foraging is dynamic. Benthic zooplankton production and distribution depends on localized factors, and the role of ocean floor-disturbance dynamics (natural ice gouging as well as pipeline construction, for

example) on amphipod productivity and maintenance remains unclear. Disturbance of the ocean floor in areas where phytoplankton accumulate does help prevent excessive accumulation and suffocation of benthic clams and amphipod beds. Localized actions affecting an exploratory well waste-discharge zone or a single pipeline appear to be inconsequential in relation to expanses of rich benthic foraging areas available to gray whales in the Chukchi. Oil and gas development and production activities require individual NPDES permits that specifically identify discharge allowances and required operational practices for each facility. Refer to Section IV.A.2.g. Estimates of Drilling Wastes and Their Disposal.

AC 019-078

The MMS also describes the phenomenon in Section III-5 in detail. Ice gouging is a recognized process in the Chukchi Sea and distribution, frequency, and severity have been studied. Permanent or multiyear pipeline and other seafloor facilities consider these factors in design and construction of such facilities to avoid potential disruption or damage to such facilities. Prior to any exploration, development, or production activity, an Exploration or Development and Production Plan and supporting information must be submitted for review and approval. Engineering practices to avoid ice-gouging conflicts would be resolved prior to approval by MMS.

Chronic, undetected oil leaks, should they occur, could result in the array of effects on whales, including gray whales, resulting from potential inhalation, ingestion, baleen fouling, skin and eye membrane oiling, reduced food source and displacement from feeding area. These effects are discussed at length in Section IV.C.1. The MMS acknowledges that chronic, undetected oil leaks may occur. Because of this, MMS requires high-sensitivity leak-detection equipment and maintenance to minimize the potential occurrence of undetected leaks by facilitating rapid detection and correction. The MMS conducts inspections to ensure that these requirements are met.

AC 019-079

The MMS is aware that right whales on occasion could be observed in the southwestern portions of the Chukchi Sea and encourages the immediate reporting of and verification of any right whale sightings to NMFS or MMS. Documented and verified observations and/or reports of North Pacific right whales in or immediately adjacent to the Chukchi Sea Planning Area are lacking at this time. It is important to note that Inupiat hunters have terminology for bowhead whale age-class and body conformation characteristics. This is interpreted as “right whale,” when referring to these characteristics and age-classes of bowhead whale. This terminology used in a public hearing could be mistaken for meaning North Pacific right whales when actually describing a specific age and body conformation of bowhead whale. At this time, NMFS has determined the only ESA-listed species under its jurisdiction that may occur in the action area and is likely to be affected by these proposed lease activities is the Western Stock of the bowhead whale. The MMS recognizes the potential for right whales and, due to the similarity of general ecology, anticipates that mitigation and protection measures proposed for bowhead whales would, for the most part, apply the right whales.

AC 019-080

Candidate species have no legal protection under the ESA, but MMS chose to treat the Kittlitz’s murrelet as if it was listed. The Biological Evaluation concluded that the murrelet exists in the project area in low numbers, because it is at the extreme limit of the murrelet’s distribution, but that a high proportion of the regional murrelet population could be harmed or killed during a large spill event.

AC 019-081

We have provided additional information to FWS regarding voluntary measures MMS would require of lessees to minimize incidental take of listed eiders. These measures would be combined with Reasonable and Prudent Measures and associated Terms and Conditions from the Biological Opinion (dated March 28, 2007) to minimize incidental take to listed eiders during this step of the incremental consultation process.

For proposed Sale 193, MMS specifically requested an incremental Section 7 consultation with FWS. The MMS consulted with FWS on the potential effects of leasing and seismic/exploration activities. As few details are known regarding the specific location/design of a future development, that stage of the process will require further consultation with the FWS. To allow this stepwise approach, FWS found that the leasing and seismic/exploration stage of the project would not result in a jeopardy determination to either the Steller's eider or spectacled eider nor would adverse modification of spectacled eider critical habitat occur.

The FWS also concluded that there "is a reasonable likelihood that the entire action will not violate section 7(a)(2) of the[Endangered Species] Act." Section 7(a)(2) of the ESA requires that Federal Agencies ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species or adversely modify designated critical habitat. Lessees were advised that future development projects arising from Lease Sale 193 are subject to Section 7 consultation with FWS, and a future project would not be authorized by MMS if it resulted in jeopardy or adverse modification of designated critical habitat, as determined by FWS. This information was incorporated into ITL No. 7.

AC 019-082

The ESA allows Federal Agencies to use NEPA documents as consultation documents as long as they contain all pertinent information and a declarative Determination of Effects statement. Due to the complexity of the proposed lease sale, MMS decided to specifically include all of the necessary information in a Biological Evaluation, so that FWS could focus on the issues relevant to the listed species and designated critical habitat. The ESA requires Federal Agencies to meet certain consultation regulations that are independent of and provide more protection than NEPA. For example, significance criteria, as defined by NEPA can, and often do, differ from the Determination of Effects standards identified in the ESA. As FWS is recognized as having jurisdiction over endangered and threatened species, we defer to their expertise and concurrence/Opinions regarding the anticipated effects of the proposed project on listed birds in the project area.

The decision to place the Biological Evaluation in an Appendix was based on its length as well as the anticipated need to couple it with the companion Biological Opinion and other consultation documents. The BE is a stand-alone document that duplicates basic information from the draft EIS, but provides much more comprehensive information on the listed bird species than is typically included in a NEPA document. Ramifications from the BE/BO (i.e., mitigation benefits to other bird species) are incorporated back into the main NEPA document.

We regret that the three figures from the BE were inadvertently missing from the draft EIS document. They are now in the BE. Both the BE and BO are available at http://www.mms.gov/alaska/ref/Biological_opinionsevaluations.htm or from MMS.

AC 019-083

The inclusion of lease blocks in the Ledyard Bay Critical Habitat Area is not a violation of the ESA. Federal Agencies have an affirmative responsibility to ensure their actions do not jeopardize the continued existence of listed species or adversely modify designated critical habitat.

AC 019-084

The MMS is obligated to consult with FWS regarding effects of the proposed project on listed birds. The FWS reviews our BE and renders a Biological Opinion (BO) on the project, determining whether the project would jeopardize the continued existence of a listed species or result in adverse modification of designated critical habitat. If a project would not result in jeopardy or adverse modification of critical habitat, FWS issues an incidental take statement (ITS). The ITS determines that anticipated level of unintentional harm that could arise if the project is completed as described. Another section of the BO includes Reasonable and Prudent Measures (RPM's) is intended to reduce the amount of incidental take to

the maximum extent practicable. Nondiscretionary Terms and Conditions (NTAC's) also are included to implement the RPM's. The FWS makes the determination whether the anticipated cumulative effects on listed bird species, in view of the species baseline status and all the other known or anticipated sources of take/mortality, would jeopardize the continued existence of the species. Concerns regarding the BO should be directed to the FWS.

Certainly there is a point where, if all the incidental takes occur, a listed population could be placed in jeopardy. We defer to the FWS to assess and monitor Federal projects against this threshold, as this is their responsibility and jurisdiction under the ESA. MMS has voluntarily adopted a series of conservation measures to avoid and minimize adverse effects on listed birds and will enforce RPM's/NTAC's as required by the BO.

AC 019-085

We agree there is a growing consensus that the landscape of the Arctic is changing; however, it is extremely difficult for MMS to predict with any certainty which (of many potential effects) could benefit or harm listed bird species.

AC 019-086

We believe the draft EIS, specifically the BE, accurately portrays the risk that an oil spill could affect listed bird species. We acknowledged that a large spill contacting large flocks of molting spectacled eiders could have population-level effects. Similarly, we consistently reiterated the importance of minimizing impacts to birds using the spring lead system. Specific conservation measures (Sec. II) are designed to minimize the risk that a spill would affect listed birds. Furthermore, any future development (the greatest potential source of a large spill) would be required to be designed and constructed, or have other relevant features, so as not to jeopardize the continued existence of listed species or adversely modify designated critical habitat (ITL No. 7, Sec. II), consistent with step-wise consultations under NEPA and the ESA.

AC 019-087

See response to comment **AC 019-086**.

AC 019-088

The spring lead system is an ecological feature that exists during a specific time period (portions of April-June). The lead system is a dynamic area that is constantly undergoing change from ice distributions and wind/ocean current patterns. Portions of the spring lead system overlap with the Ledyard Bay Critical Habitat Area, which was designated to protect a molting area for spectacled eiders. The utility of the critical habitat area for molting eiders is not realized when the spring lead system is present.

The question from the commenter is what is the percent chance of the 2,700 trajectories from a particular launch area contacting ERAs "A," "B," and "C." It is inappropriate to add the conditional probabilities of contact to environmental resource areas, because in the OSRA model, environmental resources are transparent (trajectories pass through them); thus, one trajectory may pass through more than one environmental resource. The model tabulates the percent chance of a large oil spill contacting one particular ERA based on the paths of 2,700 trajectories. The OSRA model does not store data on which specific trajectories, of more than 2,000,000 trajectories, contacts specific groups of ERA's.

AC 019-089

The Biological Evaluation did not anticipate 750-1,000 small volume spills during the production life of the project. Page 57 of the BE defines the project production life to be 25 years, not 30-40 years, as used in the calculations provided in the comment. There is clearly uncertainty surrounding the potential for small spills to contact eiders, because the launch areas (potential spill-origination sites) are unknown, so the

distances to known eider concentrations during specific times of the year also are unknown, and the prevailing wind patterns and ocean currents between the potential launch points and concentration areas are unknown. The MMS used the best available information to model the percent chance that large spills (≥1,000 bbl) would contact certain resource polygons. It is inappropriate to assume that smaller spills would behave in the same manner.

A spill of 48 bbl of diesel fuel originating in the Beaufort Sea recently was calculated to not persist for more than 2 days. Similar calculations would be performed for the Sale 193 project, if a specific platform site/pipeline is proposed. The OSRA model would then recalculate the percent chance that spills would occur and the percent chance they would reach ERA's.

The NMFS has determined the only ESA-listed species under its jurisdiction that may occur in the action area and is likely to be affected by these proposed lease activities is the Western Stock of the bowhead whale. Data from long term MMS bowhead whale surveys and historic distribution of fin whale indicate they range within approximately 100 miles of the southern and western extremity of the Chukchi Sea Planning Area and do not use nearshore or offshore habitats in the planning area. Fin whales occupy the southwestern Chukchi Sea along the northern coast of Chukotka. Historic distribution and current information indicate humpback whales range into the Bering Strait and some documented use in Chukchi Sea; however, available information does not indicate that humpback whales typically occur or have been documented to occur within or immediately adjacent to the Chukchi Sea Planning Area. It is unlikely that impacts could occur to these whale species as result of lease activity in the Chukchi Sea Planning Area, and it is unlikely that current humpback or fin whale use of the Hannah Shoal area is occurring. Ongoing annual surveys focusing on bowhead whales also record all other marine mammals observed, and this effort does provide and index the trends and distribution of humpback, fin, and gray whales in the survey areas.

AC 019-090

The effects of response activities associated with a spill are described on page 56 of the Biological Evaluation.

AC 019-091

The MMS will restrict activities in and near areas important to listed bird species. Please see mitigation measures contained in Sec. II.

AC 019-092

We agree that the BE does not include alternatives from the Proposed Action. A BE identifies the effects of a single action, not a range of actions. To consult on a different alternative could be viewed making a predecisional determination, in obvious contrast with NEPA policy. From our perspective, the Proposed Action involved the greatest amount of potential impacts to listed bird species—the worst-case scenario. Selection of one of the other alternatives (better-case scenarios) would result in fewer effects on listed bird species, and the Section 7 consultation would remain valid.

AC 019-093

This comment does not identify the supposedly arbitrary assertions, assumptions and analytical gaps.

AC 019-094

Section IV.A.2.c, Development Activities, identifies the likely location of the shore base as being between Icy Cape and Point Belcher. The final location of a shore base would be determined by coastal topography, proximity to developable fields, high-value coastal habitats, etc., as well as similar constraints on the associated offshore pipeline. Because the potential production site remains unknown, there is little value in evaluating the potential effect every conceivable pipeline-shore base combination would have on listed bird

species. These effects would be evaluated if a shore base pipeline is proposed. Effects on listed species and critical habitat would be important factors in locating these facilities.

AC 019-095

Page 48 of the BE describes the rationale and basis for calculating the estimated incidental take of eiders during the production phase. This approach was not arbitrary, as it was virtually identical to that used recently by BLM and FWS for a similar ESA Section 7 consultation.

AC 019-096

Page 49 of the BE addresses access issues. It is unclear what, if any, additional use of potential access roads would occur, because access to them may be restricted. Also, lead shot is no longer allowed for waterfowl hunting on the North Slope. The MMS considers it inappropriate to assume or imply that local hunters would use lead shot in violation of current law.

AC 019-097

The FWS does not know the reasons for the decline of the Steller's eider; thus, predation cannot be assumed to be a principal cause of their decline. The BE included predation as a possible contributing factor in the species decline on the Yukon-Kuskokwim Delta. The EIS/BE clearly identifies increased predator populations as a threat to the listed eiders. Specific measures to reduce the potential for future development to increase this risk will be addressed at the appropriate time in the planning/consultation process.

AC 019-098

The EIS and BE clearly identify increased predator populations as a threat to the listed eiders. Specific measures to reduce the potential for future development to increase this risk will be addressed at the appropriate time in the planning/consultation process.

AC 019-099

Page 42 of the BE states: "It is unclear, however, if exploration or development could proceed in the Critical Habitat Area if seismic surveys are not permitted in that area." Exploration was meant to mean exploration or delineation drilling. Seismic surveys are not allowed in this area after July 1 of each year, but companies could survey the area prior to July 1, when spectacled eiders typically are not present. Sea conditions also would need to be suitable, which has not been the case in recent years. It also is unknown if industry already has adequate seismic information from previous work, possibly completed before the critical habitat area was designated, to support exploration drilling.

The mitigation measures have been revised to minimize effects from exploration drilling should those lease blocks overlapping the critical habitat area become part of a proposed exploration plan (see Sec. II).

AC 019-100

The conservation measures for this project are intended to protect spectacled eiders using the Ledyard Bay Critical Habitat Area regardless of their sex or breeding status.

AC 019-101

The correct distances from the cited paper are 31-42 km (19-25 mi). This correction has been made to the draft EIS.

AC 019-102

This is a commonly accepted altitude restriction to minimize collisions with birds. Komenda-Zehnder, Cevallos, and Bruderer (2003) recommended this altitude to minimize impacts to wintering waterbirds birds. The citation has been added to the bibliography.

AC 019-103

The MMS adopted the methodology used in similar Section 7 consultations, because there is conflicting evidence to do otherwise. Calculations were based on empirical data collected for the Beaufort Sea, based on collisions of surrogate eider species on an island-based production platform, because there is no similar dataset involving the deaths of listed eider species. One could make a reasoned argument to increase or decrease the parameters used in collecting the incidental take that could arise from exploration or production for the life of the project. Spectacled eiders use the Ledyard Bay Critical Habitat Area during a molt and, as such, have a lower potential to strike structures when they are flightless. Eiders migrating to the area could be less prone to fly so fast or so low. They also would be less prone to migrate or molt through much of the outer regions of the propose lease-sale area. They do, however, use areas of the Chukchi Sea that are farther offshore than areas used in the Beaufort Sea during broodrearing or molt migration. Spectacled eiders have to fly to/from these areas and could be at some risk to a drilling structure farther offshore. Lacking specific data to make a specific change in the evaluation methodology used in a nearby region of the Arctic, we implemented the existing standard for our calculations of incidental take.

AC 019-104

See response to comment **AC 019-103**.

AC 019-105

We do not understand the phrase “despite a paucity of dearth of evidence” in this comment. We interpret the comment to imply that despite mitigation measures, that there still would be more than minimal impacts to listed eiders. The source of these impacts is not explained in the comment. The BE identified each of several potential impact categories and assessed the anticipated level of effect with mitigation measures in place. We believe impacts from aircraft, seismic-survey vessels, support vessels, etc., have been mitigated to the maximum extent practicable. We believe this should be apparent if the commenter were to review the revision of Sec. II in the final EIS.

The MMS has not directed industry to conduct research on the potential effects of seismic airguns on eiders because, in our view, it is much more prudent and effective to avoid impacts by prohibiting seismic activity from an area when it is actively used by eiders (i.e., the critical habitat area that was designated to protect an important molting site).

AC 019-106

We believe part of the conclusions in this comment arise from two important aspects of the project: Incremental Step Analysis under NEPA and the ESA Section 7 consultation.

The OCS Lands Act of August 7, 1953, Chapter 345, as amended, provides statutory authority to the MMS for implementing a leasing program for the U.S. OCS. This leasing program authorizes exploration for, and development and production of, oil/gas/minerals as described in the Act.

The NEPA directs Federal Agencies, when issuing permits or planning projects, to conduct environmental reviews to consider the potential impacts of their proposed actions on the environment. The MMS, Alaska OCS Region continues to use a tiered EIS process, which streamlines documentation for large, complex projects required under NEPA. Our tiered process involves breaking up a complex, long-term project into

a series of incremental steps to address broad issues first and consider more detailed, location-specific issues in subsequent stages as more specific information becomes available.

The tiered concept assumes that subsequent environmental documents will be required to focus the analysis on site-specific, project-level issues, impacts, and mitigation measures. It also lessens duplication and saves limited government resources.

The incremental step approach may explain why some of the project features and related mitigation measures lack a certain detail—project-specific information does not exist at this time. Without project or site-specific information, it is difficult to design mitigation measures. While it may appear that MMS has deferred mitigation for some parts of a future project, MMS has identified the issues that will need to be addressed and mitigated in the future if and when a project is proposed and the NEPA/ESA processes move onto the next incremental stage.

AC 019-107

See response **AC 019-106**.

AC 019-108

Lighting restrictions are now required when not essential for human health or safety. We recommend the commenter review the revised mitigation measures in Sec. II of the final EIS. Many of these other points in this comment were addressed in previous responses.

AC 019-109

These points have been addressed in previous responses, particularly the responses to **AC 019-107, AC 019-094,** and **AC 019-091**. We recommend the commenter review the revised mitigation measures in Sec. II of the final EIS.

AC 019-110

We believe that mitigation measures to protect listed bird species will provide similar benefits and protection to other marine and coastal birds in the project area. We recommend the commenter review the revised mitigation measures in Sec. II of the final EIS.

AC 019-111

The commenter fails to note that since 1968, there has been only one documented case of a lethal take of a polar bear associated with oil and gas activities in Alaska, which occurred in 1990. As far as is known, there have been no lethal takes of walruses associated with oil and gas activities in Alaska. Furthermore, although there are no current population estimates for either species in the Chukchi Sea, neither the Pacific walrus nor either stock of Alaskan polar bears are listed as "depleted" under the MMPA. To date, MMS is not aware of any research that identifies any instance of interference with the subsistence harvest of polar bears or walruses that has resulted from industrial activities, although MMS acknowledges that the potential for such impacts exists.

AC 019-112

The MMS acknowledges the validity of these comments but would like to correct one misstatement. There are no "existing levels of legal harvest" in Russia. Hunting polar bears in Russia has been banned since 1956. Therefore, any harvest in Russia is, by definition, illegal.

AC 019-113

The opening paragraph of Section IV.C.1.h(4)(a), Conclusion, has been modified.

AC 019-114

The MMS is aware of the report noted. However, it was not available at the time the draft EIS was written. As a result of the new information, new information has been added to and text modified in Section III.B.6.c.

AC 019-115

Again, the commenter fails to note that since 1968, there has been only one documented case of a lethal take of a polar bear associated with oil and gas activities in Alaska, which occurred in 1990. The existing evidence indicates that industrial development in the Alaskan Arctic has proceeded over the last 40 years without apparent impact to polar bear populations.

The commenter is correct to note that any additive mortality may reduce reproductive rates, diminish the availability of polar bears for subsistence uses, and cause the affected population to decline. Furthermore, industrial development of the Chukchi Sea may indeed add to the variety of stressors that currently affect polar bears' physical health that, in turn, may cause additional mortality to polar bears. However, MMS is aware of no studies that establish a direct link between industrial activities and polar bear population dynamics, with the exception of potential impacts to maternal polar bear den sites. However, any proposed activities that potentially might affect maternal den sites will be carefully reviewed and mitigated by both MMS and FWS to greatly reduce any such potential impacts.

If the commenter is aware of any specific data or research that draw a direct correlation between industrial activities and polar bear population dynamics, MMS would be very interested in them and would include this information in its desicionmaking process.

AC 019-116

The MMS is aware of the report noted. While it was not available at the time the draft EIS it has been included in the final EIS. The commenter has slightly misrepresented the findings of Regehr et al., however. Although climate change is implied as the causative agent of the observed changes in the SBS population dynamics, the authors stopped short of stating that climate change was the *definitive* cause of observed changes. Rather, the authors drew parallels between changes that have been observed in the SBS polar bear population and what has occurred in the Western Hudson Bay polar bear population, stating that:

> in Western Hudson Bay, Canada, a significant decline in population size was preceded by observed declines in cub survival and physical stature. The evidence of declining recruitment and body size reported here, therefore, suggests vigilance regarding the future of polar bears in the SBS region.

The authors go on to state that:

> In other parts of the polar bear range, reductions in the spatiotemporal availability of sea ice have been shown to negatively impact polar bear stature, productivity, and survival of juvenile, subadult, and senescent animals (Stirling and other, 1999; Stirling, 2002).

As a result of the new information, however, the text has been added/modified in the final paragraph of Section V.C.8.c(3), Climate Change.

AC 019-117

The text in Section III.B.6.c., Marine Fissipeds – Polar Bear, has been modified, and the same information was added to Section IV.C.1.h(4)(e), Oil-Spill Effects.

AC 019-118

The text in Section III.B.6.c., Marine Fissipeds – Polar Bear, has been modified. The text in Section IV.C.1.h(4)(e), Oil-Spill Effects, also has been modified.

Potential impacts to important feeding areas are analyzed in Section IV.C.1.h(4)(e), Oil-Spill Effects.

As far as MMS knows, no "migratory habitats" for polar bears have been identified. If the commenter is aware of specific information germane to this issue, MMS would be happy to consider it in analysis of effects.

AC 019-119

The MMS uses a tiering approach to analyses for the OCS program. The MMS feels that mitigation measures have been identified and analyzed at an appropriate level of detail for the lease sale analysis.

Ac 019-120

As stated in Section II.B, ITL No. 14, Information on Planning for Protection of Polar Bears, it is not possible or appropriate at this time to craft specific measures to mitigate potential effects of future activities, because:

> Polar bears are part of a dynamic rather than a static system. Changes in their distributions and populations in recent years indicate that adaptive management is required to adequately mitigate potential impacts to their populations (i.e., specific mitigation measures developed today may not be applicable 5, 10, or 20 years from now). The U.S. Fish and Wildlife Service (FWS) is the management agency responsible for polar bear management; as such, they have the most current information about the status of polar bear populations, the issues facing them, and the most recent research findings applicable to them. Therefore, MMS will be implementing increased coordination with FWS for the protection of polar bears.

The MMS believes it is entirely appropriate to rely on close coordination with FWS to track continued changes in the polar bear's distributions and populations to craft project-specific mitigation measures when specific activities are proposed.

Furthermore, MMS believes that FWS's proven track record of effectively mitigating industry activities, via restrictions imposed through their Incidental Take Authorization authority under the MMPA, validates this approach. Again, the commenter is reminded that, since 1968, there has been only one documented case of a lethal take of a polar bear associated with oil and gas activities in Alaska, which occurred in 1990. In essence, what that implies is that, to date, industrial development in the Alaskan Arctic has proceeded over the last 40 years without apparent impact to polar bear populations. Therefore, MMS feels justified in trusting in FWS's ability to manage their trust resources responsibly.

As far as the ability to assess specific potential future mitigation measures and their effectiveness, the public will be allowed to view and comment on any Incidental Take Authorizations that FWS proposes to issue under the MMPA when they are published in the *Federal Register*, prior to the commencement of any actual industry activities.

Finally, the commenter is encouraged to recommend specific mitigation measures to MMS that they feel will mitigate potential future effects to polar bears. The MMS will be happy to consider them when developing appropriate mitigation measures for future activities.

AC 019-121

Specific mitigation measures for polar bears are discussed in Section IV.C.1.h(5), Benefits of the Standard Mitigation.

See response to comment **AC 019-120**.

AC 019-122

The commenter is correct that bear-human conflicts can prove lethal to bears. However, that outcome is extremely unlikely for bears entering industrial areas in Alaska's Arctic, because workers do not carry firearms. Again, the commenter is reminded that since 1968, there has been only one documented case of a lethal take of a polar bear associated with oil and gas activities in Alaska, which occurred in 1990. Furthermore, the MMPA prohibits the arbitrary killing and unauthorized harassment of polar bears. Educating North Slope workers on the issues associated with working in polar bear habitat are adequately covered under Stipulation No. 2 Orientation Program, ITL No. 2 Information on Bird and Marine Mammal Protection, and ITL No. 14 Information on Planning for Protection of Polar Bears.

AC 019-123

The commenter is incorrect in suggesting that the pipeline that leaked on the North Slope was operating under MMS regulations. The MMS regulatory authority for pipelines is limited to the OCS.

However, on September 6, 2006, the Pipeline and Hazardous Materials Safety Administration proposed to extend Federal pipeline safety regulations to rural onshore hazardous-liquid-gathering lines and low-stress lines within a defined buffer of previously defined ''unusually sensitive areas.'' These are nonpopulated areas requiring extra protection because of the presence of sole-source drinking-water resources, endangered species, or other ecological resources. This rule will bring the so called "transit lines" on the North Slope under the Federal pipeline safety regulations. The ADEC also modified their regulations in December 2006 to increase regulations on the North Slope pipelines.

AC 019-124

There are multiple methods to respond to oil spills under ice. In solid-ice conditions, trenches can be cut into the ice surface that will allow oil to rise to the surface, where it can then be collected using oil-recovery skimmers or burned in situ. Oil will become encapsulated in the ice sheet as the ocean surface freezes and when a solid sheet of ice is present. In these instances, if the oil is in a large enough pool, holes can be drilled into the pool and the oil pumped out. Another response method for encapsulated oil is to track the oil throughout the winter using buoys and, once the ice sheet begins to melt, the oil will surface through the brine channels at which time it may be collected using skimmers or may be burned in situ.

AC 019-125

The ITL's are part of the proposed and final Notice of Sale. They provide information to the lessee about MMS's and other agencies' requirements, rules, and regulations that are in place, and they are effective in reducing potential adverse effects from the Proposed Action. All leases issued by the Federal Government require the lessee to comply with all Federal laws and regulations. Compliance with these laws and regulations is enforced by the Federal Agency with jurisdiction for the resource. For example NMFS and FWS are the responsible agencies for enforcing the rules and requirements of the ESA and the MMPA. The ITL's contain measures that, if followed, help ensure compliance with the laws and regulation. If the impact occurs in violation of the law or regulation, the government may bring a range of enforcement

actions against the operators. For example, ITL 2 Bird and Marine Mammal Protection does not create new requirements but does provide awareness to the lessee of practices for avoiding harm to resources that the law and regulations are designed to protect.

The ITL's also contain "benchmarks" or "best practices" that operators may follow to comply with provisions of existing laws such as the MMPA, the Endangered and Threatened Species Act, and the OCS Lands Act, and the implementing regulations of these laws. The ITL information also explicitly state the standards and objectives to which the actual activities proposed in an operator's exploration plan or development and production plan will be evaluated during the NEPA review of those plans. These benchmarks in the ITL clearly illuminate when practices proposed by the operator meet or do not meet the standard, indicating the need for additional mitigation measures, and MMS intent to require those measures. As such, the ITL, along with lease stipulations, are an appropriate mechanism at the lease-sale stage where a general scenario is used to explore potential effects from typical activities.

AC 019-126

The MMS agrees with the commenter's appraisal of this issue; all the points the commenter raises are valid. However, two points need to be clarified. The MMS is not "relying" on this measure as a mitigation measure, but merely suggesting it as one way to reduce polar bear aggregations on the coast during the fall open-water period. Furthermore, MMS is not advocating removing all whale carcasses from the coast, only those that are associated with subsistence harvest around Native villages along the coast, particularly outside of Barrow. The MMS acknowledges in the draft EIS that this action is outside of MMS' purview, and states that "the whale remains are on Native-owned lands; thus, that decision will have to be negotiated with the Native communities themselves." The commenter is correct in pointing out that this is a complex issue and that many factors will have to be considered. However, MMS will rely on the scientific expertise of the FWS, USGS, and the North Slope communities when considering this issue.

It is worth pointing out, however, that whale carcasses outside of Native villages represents a huge attractant to bears during the fall open-water period. Any bears attracted to villages along the coast have an increased chance of coming into conflict with humans in and around the villages, and of being shot as "nuisance" bears. That issue also must be weighed in any future decisions which are made.

AC 019-127

The MMS acknowledges receipt of this comment. There are no specific items in this comment to respond to.

AC 019-128

A small chronic leak can be difficult to detect quickly. The Northstar LEOS system leak-detection capability is about 1 barrel in 24 hours, although its applicability to a much longer pipeline in the Chukchi Sea is unknown. There are several new technologies and techniques that are under development, such as continuous strain measurement, self-healing pipelines, new types of smart pigs, etc. that likely will be available in the future. Before any pipeline is permitted, there will be an environmental review where these and many other issues will be analyzed.

Detection of a small leak during open-water conditions should be fairly rapid because visible sheen will appear on the surface of the water, which could be spotted during transit flights between drilling vessels and shore. Tactics have been developed to contain the spill and allow for recovery by conventional skimmers. In the event of a leak during solid-ice conditions, the oil would be encapsulated into the covering ice sheet. When the ice sheet began to melt, the oil would surface through brine channels and could be detected visually during transit overflights. The oil could be collected using skimmers or burned in situ.

The likelihood that spilled oil will contact and harm individual polar bears is fully covered in Section IV.C.1.h(4)(e), Oil Spill Effects.

AC 019-129

The likelihood that spilled oil will contact and harm polar bears at leads and polynas is fully covered in Section IV.C.1.h(4)(e), Oil Spill Effects.

AC 019-130

The potential impacts to polar bears in coastal areas is fully covered in Section IV.C.1.h(4)(e), Oil Spill Effects.

"Summer" is defined under Appendix A, Section C.1.b. as July through September, and "represents open water or arctic summer." October through June "represents ice cover or arctic winter". Therefore, it is appropriate to include both seasons in the analysis of oil spill effects on polar bears during the fall open-water period. Therefore, the analysis did consider the probability of spilled oil contacting Barrow and other high-use coastal areas during both the summer and the fall.

AC 019-131

The EIS discusses the chance of a large spill contacting coastal land segments where polar bears may occur. Individual land segments are approximately 20 km in length. While it makes sense to aggregate chances of contact for land segments that are proximate to one another, it does not make sense for land segments that are approximately 475 mi apart. Thus, while the commenter is mathematically correct if you added the chance of a spill contacting the Russian coast (LS 95) from individual launch areas after 60 days and the chance of a spill contacting Barrow (LS 85), the chances of contact may increase depending on the launch area. This is not a reasonable approach to OSRA-model results. However, different launch areas have variable chances of contacting the Russian coast and Barrow. Launch areas to the south and northwest have higher chances of contact to the Russian coast and launch areas to the south east and northeast have higher chances of contacting Barrow. For example the chance of contacting the Russian Chukchi Coast (LS 95) and Barrow (LS 85) from P1 is approximately 13% during summer after 60 days. The chance of contacting the Russian Chukchi Coast (LS 95) and Barrow (LS 85) from LA 13 is approximately 11%.

AC 019-132

The EIS is not segmenting the risk to wildlife. Species have different spatial and temporal patterns throughout the study area. There is a breadth of impact factors such as seasons, variety of species present, and species calendars (spawning, migration, nesting, mating). All these factors need to be considered. The various types of freshwater and marine habitats that exist in nature have different sensitivities to the harmful effects of oil contamination, as well as different abilities to recuperate. Each "resource category" includes one or more key species especially vulnerable and/or especially valuable in their analysis of impacts.

AC 019-133

The anticipated sublethal, long-term affects to polar bears are clearly stated in Section IV.C.1.h(4)(e) of the draft EIS.

Text has been added to Section IV.C.1.h(3)(b), Effects from Oil Spills.

AC 019-134

See response to comments **WWF 018-023** and **WWF 018-024**.

AC 019-135

The cumulative case scenario is presented in Section V.B. The scenario for the cumulative analysis includes past, present, and reasonably foreseeable activities. Our definition of "reasonably foreseeable" and the future Federal and State oil and gas activities that are considered reasonably foreseeable for the cumulative analysis are presented in Section V.B. Table V-1 lists development at Alpine and the Barrow gas fields as existing production in the NPR-A, fields in the Colville River Unit adjacent to NPR-A as presently being developed, several pools in NPR-A as reasonably foreseeable. For the Chukchi Sea Sale 193 cumulative scenario, development from as yet undiscovered resources that may be discovered as a result of future leasing in NPR-A is not considered reasonably foreseeable. The existing, present, and reasonably foreseeable developments listed in these tables are used for the cumulative oil spill scenario and as indicators of levels of support activities for the cumulative analyses. Which cumulative impacting factors may affect which environmental resources and are addressed in the cumulative analyses is based on the professional judgment of the subject-matter experts preparing the analyses on a resource-by-resource basis.

AC 019-136

See response to comment **AC 019-116**.

MMS did not overlook the changes to the Arctic marine environment that have already adversely affected polar bear populations in Alaska. That topic was extensively covered in Section V.C.8.c(3), Climate Change.

With respect to "relying on "effective mitigation practices" without specifically identifying these measures or critically evaluating them to ensure that they are effective or will remain so in the future", that is a misrepresentation. For example, as stated in Section II.B, ITL No. 14, Information on Planning for Protection of Polar Bears, it is not possible or appropriate at this time to craft specific measures to mitigate potential effects of future activities. See response to comment **AC 019-120**.

AC 019-137

The commenter misstates the evidence by stating that "the Pacific walrus population is presently in decline." The MMS is not aware of any research that presents firm evidence that the Pacific walrus population is in decline. If the commenter is aware of specific research to the contrary, MMS would be very interested in that information. However, the draft EIS does cite a number of anecdotal reports that suggests that this may be the case. Suspected declines in the Pacific walrus population are discussed in Section III.B.6.a(5).

Furthermore, MMS is not aware of any information that suggests that population declines have contributed to declining subsistence harvest of Pacific walrus. Again, if the commenter has information to the contrary, MMS would be very interested in receiving it for future consideration.

As far as MMS is aware, there have been no lethal takes of walruses associated with oil and gas activities in Alaska. If the commenter is aware of any information which documents lethal takes of walrus as a result of oil and gas activities, MMS would be very interested in including that information in future analysis.

Mitigation measures associated with Lease Sale 193 are specifically designed to avoid impacts to the Pacific walrus population and subsistence harvest of walrus, and are described in Section II.B.3 of the EIS.

AC 019-138

Water depth is identified in the bathymetry map of the lease-sale area, see Figure III.A-1. Sea-ice coverage varies from season to season and from year to year; however, Figure III.A-11 captures a generalized view of the maximum retreat of sea ice in recent years. Habitat used by Pacific walruses varies seasonally and from year to year and is dependent upon the movements and extent of the sea ice, as well as other factors such as prey availability. Pacific walruses occur seasonally throughout much of the central lease-sale area (Jay and Garlich-Miller, pers. commun.). See Section III.B.6.a(5) for further discussion of Pacific walrus movements.

Oil-spill prevention and response are discussed in Section IV.A.5. Specific oil-spill response mitigation measures will be developed at the time that specific exploratory drilling and development activities are proposed. Areas acutely sensitive to disturbance, such as seasonal coastal haulouts, will be addressed at that time. The MMS is the regulatory agency charged with ensuring compliance with provisions of the Oil Pollution Act of 1990 are complied with by the responsible party for OCS operations; MMS requirements can be found in 30 CFR 254. Concerns regarding Pacific walruses would be addressed by MMS in close consultation with FWS at that time.

The operator would be required to identify sensitive environments of concern such as the ice edge or haulouts that may be impacted by a spill from their operations and identify methods to protect those areas. Protection could involve deflection of the oil, placement of exclusion booms, and/or hazing procedures to keep animals from entering a contaminated area. They would be responsible for ensuring their plans are consistent with the Alaska Federal and State Preparedness Plan for Response to Oil and Hazardous Substance Discharges and Releases and the appropriate Alaska Subarea Contingency Plan. the MMS also may impose additional requirements to further protect sensitive environments if the proposed mitigation is insufficient.

AC 019-139

The MMS conclusion is based on the best available science. See Section IV.C.1.h(2). If the commenter has additional specific information regarding the effects of seismic activities on the Pacific walrus, MMS would be very interested to have that information.

AC 019-140

The altitude restrictions contained in the draft EIS were based on close consultations with FWS. The commenter is correct in pointing out that displacing walruses from forage areas ultimately could have population-level effects. However, MMS is unaware of any delineation of walrus habitat precise enough to allow an evaluation of important walrus-feeding areas. Therefore, it is not possible to conclude that there will be significant impacts to Pacific walrus-foraging areas without more specific information on the location of those areas and the effects of disturbance at a population level. If the commenter knows of any research that precisely delineates important walrus-foraging areas in the Chukchi Sea and/or analyzes the effects of disturbance on Pacific walruses, MMS would be very happy to consider that information in future analyses.

Determining a specific height at which Pacific walruses will not react to over flights is difficult. Pacific walrus react differently on icefloes than on terrestrial haulouts, and reactions also depend on the type of aircraft, speed, and direction of the aircraft; the number and age of walrus present; surrounding ambient noise from wind or wave action; and other factors. However, MMS in consultation with FWS has reevaluated this issue and determined that 1,500 ft AGL or ASL and 0.5 mi lateral distance is an adequate buffer in most cases, when walrus are hauled out on ice. This mitigation measure will also ensure that the height restrictions for aircraft flying over hauled out walruses 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 will be updated accordingly.

The danger of trampling events is highest when walruses are hauled out on terrestrial sites. The FWS may impose additional restrictions, through their Incidental Take authority under the MMPA, to protect any seasonal haulouts which may form along the coast.

AC 019-141

Hannah Shoal is recognized as likely being important habitat for both walruses and gray whales. All of these potential impacts are addressed in Section IV.C.1.h.

AC 019-142

The draft EIS does not state that the Pacific walrus population is "already in decline"; rather it says that "available evidence indicates that the population is *likely* in decline."

The commenter is correct in pointing out that without current population estimates, it will be very difficult to evaluate the impacts of development on the Pacific walrus population. However, this does not render mitigation and monitoring "useless."

The commenter is incorrect in pointing out that there has been a lack of cooperative research with Russia. As detailed in Section III.B.6.a(5), the FWS, in collaboration with USGS and Russian scientists, conducted a rangewide survey of the Pacific walrus population in March and April 2006. The primary goal of the survey was to estimate the size of the Pacific walrus population across its spring range, which is the ice-covered continental shelf of the Bering Sea. The U.S. and Russian scientific crews coordinated aerial-survey efforts on their respective sides of the international border. Walruses were counted using a combination of aerial thermal imagery and photography. The final population estimate will be developed cooperatively by U.S. and Russian scientists, and results are expected in late 2007.

The risk to walrus concentrations at terrestrial haulouts from an oil spill is covered in Section IV.C.1.h(3)(b).

AC 019-143

The Chukchi Sea is a dynamic, rather than a static, system. As a result, the biological assemblages on the seafloor are constantly changing as a result of ice gouging, sediment deposition, bioturbation by large mammals such as gray whales and walruses, and other physical and biological disturbances. The MMS acknowledges that there will be disturbance to the seafloor as a result of any developments that take place. However, the Chukchi Sea covers a vast area that can largely all be considered walrus habitat. Development would affect only a small portion of that habitat directly through disturbance of the seafloor. Furthermore, walruses have evolved in this dynamic ecosystem and are well suited to adjusting their foraging areas as a result of changing conditions. Therefore, MMS cannot justify concluding that small scale disturbances would constitute a "significant impact" to the Pacific walrus population.

AC 019-144

The commenter may be overstating the risk to Pacific walruses posed by the proposed lease sale. It is correct to point out that without recent population information, it would be very difficult to assess any population-level effects to the Pacific walrus. However, MMS is unaware of any research or data that demonstrates population-level effects to walruses as a result of oil and gas activities. If the commenter is aware of any such data, MMS would be very interested in them.

AC 019-145

Cumulative effects to walruses are discussed in Section V.C.8.

AC 019-146

The commenter provides valid comments but does not present a specific issue for MMS to address in relation to the draft EIS. The commenter also does not present specific citations for MMS to refer to in relation to the comments provided.

Human health effects from subsistence harvest are addressed in Section IV.C.1.p(2)(d). Extensive analysis of oil spill effects on cetaceans are provided in Section IV.C.1.h(3)(b).

AC 019-147

The commenter is incorrect in suggesting that MMS relies on an outdated interpretation that considers only total numbers of animals. According to the draft EIS Section III.B.6.b(1), Beluga Whale:

> In Alaska there are five recognized stocks: (1) Eastern Chukchi Sea; (2) Beaufort Sea; (3) Cook Inlet; (4) Bristol Bay; and (5) Eastern Bering Sea (O'Corry-Crowe et al., 1997). Within the Proposed Action area, only the Beaufort Sea stock and eastern Chukchi Sea stocks are present. During June, July, and part of August it is likely that the ranges of the two stocks do not overlap much (Suydam et al., 2005). Based on recent telemetry studies on eastern Chukchi belugas, it is likely that members from both stocks occur in similar places and at similar times during the fall migration although the significance of this is unknown (Suydam et al., 2005).

According to NOAA's 2006 Alaska marine mammal stock assessments (p. 60):

> The following information was considered in classifying beluga whale stock structure based on the Dizon et al. (1992) phylogeographic approach: 1) Distributional data: geographic distribution discontinuous in summer (Frost and Lowry 1990), distribution unknown outside of summer; 2) Population response data: possible extirpation of local populations; distinct population trends between regions occupied in summer; 3) Phenotypic data: unknown; and 4) Genotypic data: mitochondrial DNA analyses indicate distinct differences among summering areas (O'Corry-Crowe et al. 1997). Based on this information, 5 stocks of beluga whales are recognized within U. S. waters: 1) Cook Inlet, 2) Bristol Bay, 3) eastern Bering Sea, 4) eastern Chukchi Sea, and 5) Beaufort Sea (Fig. 15).

However, MMS does not see how the scientific interpretation of data on beluga whale populations would negatively impact subsistence use of beluga whales.

The effects of large oil spills on the use of beluga whales for subsistence is addressed in Section IV.C.1.l(2)(c).

AC 019-148

Section IV.C.1.(4)(b), Effects of Pipelines, and Section V.C.9 have been revised to reflect the comment.

The potential of rolling back habitat protection for the TCH calving grounds within the Northeast NPR-A Planning Area is speculative. If the commenter has information regarding plans to the contrary, MMS would be interested in obtaining that information.

AC 019-149

Section IV.C.1.(4)(b), Effects of Pipelines, has been revised.

AC 019-150

Section V.C.9, Terrestrial Mammals, has been revised.

AC 019-151

The text of Section IV.C.1.i(4) has been modified.

AC 019-152

See response to comment **AC 019-151**.

AC 019-153

For a discussion of Environmental Justice and potential disproportionate impacts on Chukchi Sea coastal communities, see response to comment **WWF 018-007**.

AC 019-154

For a discussion on MMS significance thresholds for subsistence-harvest patterns and sociocultural systems, see response to comment **Barrow 003-013**.

AC 019-155

For a discussion on MMS significance thresholds for subsistence-harvest patterns and sociocultural systems, see response to comment **Barrow 003-013**. See also response to comment **WWF 018-008**.

The MMS believes the threshold is quite appropriate. We reject the assertion in the comment that effects must be catastrophic before they reach significance. Table IV.C-1 lists the numerous parameters used describe the three elements that make up sociocultural systems—social organization, cultural values, and institutional organization. Using these indicators, the EIS analyzes potential effects from development activities envisioned in the hypothetical scenario, and concludes that significant effects could occur without ever coming close to the condition described in the comment. The threshold is not capricious, it is quite reasonable. In fact, it is difficult to envision how the conditions described in the comment would not persist well past the 20 months, as they approximate conditions described in Section IV.C.1.m(4)(b), Effects from a Large Oil Spill, which we found would exceed the significance threshold.

AC 019-156

See responses to comments **AC 019-154**, **AC 019-155**, **Barrow 003-013**, and **WWF 018-007**.

We reject the assertion that the threshold is arbitrary and that conditions must persist "for several years before impacts are considered significant." Table IV.C-1 lists the numerous parameters used describe the three elements that make up sociocultural systems—social organization, cultural values, and institutional organization. The three elements have some overlap but have enough difference to allow the analyst to accurately describe the myriad potential effects into a single element. Using these indicators, the EIS analyzes potential effects from development activities envisioned in the hypothetical scenario and concludes that significant effects could occur.

The threshold was developed over time and reflects many years of comments and refinements to establish a reasonable threshold definition. We define the thresholds to be flexible, so they can be applied to diverse resources of the different Alaska OCS Region planning areas. We carefully and rigorously apply these criteria to circumstances within each planning area. That is one of the reasons that our published analyses are so detailed.

The thresholds have been used as the standard threshold in our analyses across the Alaska OCS Region for more than a decade and have stood the test of many exhaustive reviews. We have reviewed our analyses

and the sociocultural literature prepared by other agencies in recent years on proposed activities on the North Slope, in other OCS Regions, and Canada. We find the current definitions to be consistent with the sociological and anthropological literature and other relevant analysis.

AC 019-157

For a discussion on the Sale 193 final EIS updated analysis of Human Health Impacts, see response to comment **Barrow 003-018**.

AC 019-158

The comment confuses the assessment of potential effects of a causal agent (which is used to determine significance of the effects) with the probability of the causal agent occurring (which is not used in the evaluation of significance of effect). That is, a significant effect would not be insignificant because the probability of it occurring is low.

The EIS includes a 'what if" analysis of such spills and whether a spill could cause serious environmental effects. The MMS considers the change of a large spill occurring over the life of the field and entering offshore waters to be low. The MMS uses the term "low" to characterize the relative chance of a large spill occurring based on our familiarity with oil-spill rates and sizes. See Section VI.A.4 and Appendix A of the EIS for oil spill information and assumptions.

For a discussion of cumulative effects and oil spill impacts on subsistence resources, sociocultural systems, and environmental justice, see responses to comments **Barrow 003-012, Barrow 003-013, Barrow 003-018, Barrow 003-030**, and **NSB 006-009**.

AC 019-159

The same statement for climate change is made in the Sale 193 final EIS cumulative effects discussion for subsistence resources.

AC 019-160

See responses to comments **AC 019-154, AC 019-155, Barrow 003-013**, and **WWF 018-007**.

AC 019-161

The MMS did, in fact, visit most of the potentially affected communities in the region; public meetings with Chukchi Sea coastal communities and government-to-government consultation with local tribes in the region are specified and discussed in Section III.B.6. We concur with the suggestion that the two MMS websites containing many years of Chukchi Sea and Beaufort Sea public testimony be cited in the final EIS; in addition, we will cite the "Native Voices" section of Miller, Smith, and Miller's *Oil in Arctic Waters: The Untold Story of Offshore Drilling in Alaska*. It should be noted that the extensive traditional knowledge and public comment used in the Subsistence-Harvest Patterns impacts analysis at IV.C.1.l has used both of the websites mentioned by the commenter.

Letters Without Specific Comments Identified For Response

Elise Wolf
AlaskaWatch
PO Box 15303
Fritz Creek, AK 99603

December 26, 2006

Mr. John Goll
Regional Director
Alaska OCS Region, Minerals Management Service
2801 Centerpoint Drive, #500
Anchorage, AK 99503-5823

RE: Comments on Chukchi Sea Planning Area Oil and Gas Lease Sale 193 and Seismic Surveying Activities Draft Environmental Impact Statement

Dear Mr. Goll:

Please accept these comments on behalf of Elise Wolf and the informal group calling itself "AlaskaWatch." AlaskaWatch is a small group of about 200 people from across the country who have approved of representation by AlaskaWatch for the purpose of commenting on environmental matters regarding certain Alaska issues. AlaskaWatch is not a formal non-profit group, but rather represents friends and family who share common values.

The Chukchi Sea represents one of the world's last pristine Arctic ocean ecosystems. The region hosts a large number of endangered and threatened species, unique Arctic marine mammals, birds and fish, as well as at risk cultural communities. AlaskaWatch requests that the Chukchi Sea be preserved and that Alternative # 2, No Leasing, is chosen for Lease Sale 193.

Chukchi Sea is America's most pristine and productive Arctic ocean, hosting numerous endangered and threatened species and cultural communities already at risk. The decision to open the Chukchi should be made prudently and with a full understanding of impacts, which is not possible due to lack of baseline data. The entire nation should be allowed the opportunity to make an educated decision about opening this wilderness ocean area.

There are several reasons for the request to remove the Chukchi Sea, in addition to substantial and significant problems with the Draft Environmental Impact Statement. AlaskaWatch signed on to the group letter submitted by the Alaska Coalition, AlaskaWatch, Center for Biological Diversity, Greenpeace, EarthJustice, Natural

Resources Defense Council, Northern Alaska Environmental Center, Pacific Environment, the Wilderness Society, and Trustees for Alaska. Please refer to the Alaska Coalition, et. al. group comments for a more thorough listing of the problems with the Chukchi Lease Sale 193 EIS.

AlaskaWatch considers it highly problematic that public comment meetings for what is a federally owned ocean region were only held in Alaska. The MMS fails to respect the nature of the decision to open a completely pristine and wild - and nationally owned - region and to fully involve the public in that decision. At minimum, regional public comment meetings should be held and the public effectively notified. Providing comment hearings only in Alaska ignores the national public and negates the significance of the decision to lease in the Chukchi Sea. MMS must accommodate the nation in their educational and public comment opportunities.

The following comments are a brief listing of additional issues of concern with Lease Sale 193:

1. General problems with the DEIS.

A. The repeated use of the term, “unlikely,” to refer to large spills when the occurrence estimate is to be 40% for a large spill. The term “unlikely” does not represent a 40% chance, but rather a much smaller number. The repeated use of the term “unlikely” appears to be a rhetorical tactic to reduce the true impact of a large spill in the mind of the reader. Such language use is a form of intentional misrepresentation.

B. Executive summary includes false statements and inaccurate conclusions given the analysis provided in the DEIS. These improper conclusions appear to be more misrepresentations.

C. Summary inaccurately indicates that only minimal or no impacts will occur with development. This conclusion does not accurately represent the DEIS’s findings. See IV-211.

D. Extremely problematic logic used in analysis. Repeated conclusions that there will be no or minor impacts, but it is also acknowledged that studies are lacking to make such a conclusion. Lack of studies does not logically result in no impact, but rather a lack of knowledge about what those impacts would be or are.

E. Repeated reliance on assumptions, represented by the use of the term, "assumed." Assumptions are guesses, conjectures, or postulations that cannot be considered solid premises for the construction of conclusions. Assumptions rely on expectations that cannot be either enforced, do not currently exist, or may never be implemented or produced - rendering many DEIS conclusions faulty.

F. Impacts are potentially large enough to require abandonment of plan.

G. Impacts are considered only individually rather than as an aggregate. Individual consideration intentionally misrepresents true impacts and is a rhetorical tactic to reduce such impacts.

H. It is highly problematic that public comment meetings for what is a federally owned ocean region were only held in Alaska. The MMS fails to respect the nature of the decision to open a completely pristine and wild - and nationally owned - region and to fully involve the public in that decision. At minimum, regional public comment meetings should be held and the public effectively notified. Providing comment hearings only in Alaska ignores the national public and negates the significance of the decision to lease in the Chukchi Sea. MMS must accommodate the nation in their educational and public comment opportunities.

2) Substantial lack of baseline date significant enough to render monitoring and mitigation proposals useless.

3) Economic analysis does not integrate significant development costs. In fact, the MMS ignores the substantial amount of outright investment, taxpayer subsidies and industry tax benefits that will be necessary to drill in these regions. Just the cost of baseline research that MMS acknowledges is necessary to create monitoring plans is so large as to make these regions questionable in terms of costs and benefits to the American public. A full benefits analysis by MMS would integrate these costs, such as:

- agency costs in gathering necessary baseline data
- public costs for abandonment plans
- royalty relief
- government research and development grants to industry
- multiple federal and state agency oversight
- pollution and oil spill clean-up
- village costs

4) Economic analysis for need of Chukchi oil seriously faulty

There is insufficient proof of U.S. need for Chukchi oil. First, the oil will remain on the west coast unless the U.S begins to take oil through the Panama Canal. Oil estimates are based on MMS arguments that OCS oil is needed right now are questionable. The argument that the U.S. would be forced to import foreign if Chukchi Sea oil was not development has no substantiation. Alternative energies (both fossil fuel and non-fossil fuels) could very reasonably make up for the minor amount of oil found in the Chukchi. Methods for estimating oil reserves are 30 years old and do not reflect new technologies or methods of calculation (D. Yergin). Thus, the U.S. Energy Information Office's estimates on U.S. oil reserves, as well as reserves elsewhere world-wide, are not accurate. New methodologies are needed for uncontroversial estimates to be made; methods dating back to 1978 are fundamentally questionable (See Daniel Yergin, Wall Street Journal, April 2006).

A. Conservation and alternatives are not being adequately considered as replacements for Alaska OCS oil.

Whether alternatives (non-traditional oil or clean energy) can provide a reasonable and more economical replacement for Alaska OCS for the common taxpayer is not addressed by the DEIS, yet this is a viable question given the extreme costs and environmental risks of oil development in the Chukchi. The MMS underestimates the positive role of conservation and alternatives to U.S. energy production and ignores recent science and technological advances in these newer, cleaner energies. MMS refers readers to go to the 2001 summary, "Energy Alternatives and the Environment." Tidal power, which is a real option for Alaska, is not mentioned at all yet is a new technology with much possibility. Tidal power could possibly take less time (less than the projected 10 years for Chukchi oil) and less money to develop in Alaska than oil development. Change in oil prices has inspired new proposals and investments in alternatives and is completely ignored in the PP analysis. Daniel Yergin argues, "There's … been a tendency to downplay the importance of energy conservation and efficiency. In the last 30 years, the U.S. gross domestic product has grown by about 125 percent but U.S. energy consumption has grown only by 25 percent. Some of that reflects a shift from a high-energy manufacturing economy to a lower-energy high-technology economy. But a significant part of that also is because we have made strides in energy efficiency and could still do much more" (Newsday, April 2006). Conservation and alternatives could readily replace much of the potential Alaska OCS oil contributions estimated by the PP, particularly Chukchi Sea oil.

B. U.S. demand for oil is ignored and subsequently impairs MMS evaluation of importance of Alaska OCS oil contribution.

Yergin states, "World oil demand can also alter the long-term dynamics of the market -- and it's another unknown factor. After the 1979 spike in oil prices, energy use fell much more than conventional wisdom thought possible" (Washington Post, Oct. 2006). The positive contribution to our energy needs by demand is completely ignored by the DEIS analysis and instead demand is estimated to continue to increase. Yet, over the last 30 years demand has made a huge impact on energy consumption in the U.S. Again, Yergin states, "In the last 30 years, the U.S. gross domestic product has grown by about 125 percent but U.S. energy consumption has grown only by 25 percent. Some of that reflects a shift from a high-energy manufacturing economy to a lower-energy high-technology economy." Thus, the MMS overestimates the contribution Alaska OCS oil will have for U.S. and fails to integrate a viable discussion or analysis of demand. Instead, the DEIS makes unsubstantiated and inflated estimates for the contribution of Chukchi oil.

C. MMS argument that oil from the Chukchi would be used for transportation is erroneous and cannot be substantiated.

The type of oil that would come out of the Chukchi Sea has not been established.

5. Oil spill analysis is flawed and fails to provide an accurate accounting of full impact of a large spill. The Executive summary ignores the findings the DEIS does make for large spills.

The impacts from Katrina are absent in the DEIS, although it is the most recent example of offshore pipeline impact consequences. Ice keels are not given adequate treatment.

A. Pipeline impact estimates for the Hannah Shoal area are reduced compared to Beaufort Sea for no reason. Area impact should be 2,000-4,000 acres.

B. No discussion of ocean currents and how a large or small oil spill would follow those currents and which populations of animals would most likely be affected.

6. Mitigation plans are faulty, cannot be enforced, and are not adequate.

Mitigation plans frequently rely on knowledge (part baseline data) that does not exist: example, requiring industry to avoid areas that are not currently identified. Repeated references to mitigating severe impacts on whales, seals, and walrus from flights (airplane and helicopter) by requiring flights be above 1000 feet, but not acknowledging that given predominate fog in summer and clouds and storms in winter, this may not be possible most of the time.

The failure of the state and federal governments to adequately monitor and mitigate impacts is made clear in the recent pipeline corrosion events, which are cited in the DEIS:

> Between 1977 and 1999, an average of 70 oil and 234 waste-product spills occurred annually on the North Slope oil fields; and between 1985 and 1998, five large terrestrial spills occurred on the North Slope (71 *FR* 14,456). In March 2006, more than 200,000 gal of oil (4,790 bbl) leaked onto the tundra as a result of an undetected leak in a corroded pipeline and, in August 2006, more than half of the Prudhoe Bay oilfield was shut down due to corroded and leaking pipelines.

The above events should have been significant enough for MMS to not only reconsider development in a pristine, ocean resource but at minimum to vastly rewrite their mitigation and monitoring plans. However, MMS relies on the same approaches that lead to the above impact, the extent of which the public will likely never know.

Most problematic is that except for this minor reference, MMS fails to fully integrate this enforcement inability anywhere else in the DEIS as they discuss mitigation plans. Instead, the MMS assumes an almost omnipotent ability in its optimistic forecast of mitigation measures. Yet, the history of oil development in Alaska has shown the opposite, as stated in the DEIS, "…Fish and wildlife habitat losses resulting from construction and operation of the Pipeline System and Prudhoe Bay oilfields were greatly

underestimated in the [USDOI's 1972 Final] EIS [on the Trans-Alaska Pipeline]. DEIS at V-69.

MMS should fully disclose the inability of MMS or other agencies to adequately mitigation or monitor industry impacts. Mitigation measures could then be produced that would balance that inability. Such balance would likely require far more restrictions in the beginning and the preventing of rubber-stamping takings permits and discharge permits. Given that MMS will likely not undertake such a responsibility, the Chukchi Sea should be removed from the 5-Year Plan and Alternative II should be selected by the Secretary of the Interior for Lease Sale 193.

7. Development of Chukchi would essentially constitute the privatization of federal waters off of NW Alaska. Provided the same development scenario is in place as that in Prudhoe Bay, a significant portion of the Chukchi would be rendered private in terms of use. Several villages rely on the area for subsistence and are a new eco-tourism location with increasing use of the region for expedition and other types of tourism.

8. Beluga and walrus, and other critical subsistence species, are inadequately dealt with in DEIS, particularly in terms of cumulative impacts.

9. Onshore oil pipeline impacts not adequately discussed though mentioned as part of the plan.

10. Impacts from chronic oil leaks are neglected.

11. DEIS fails to assess full impact on Alaska Native communities.

MMS states, "given resiliency of social systems...chronic disruption can be successfully accommodated." No discussion of the wealth of psychological and social science studies on loss of cultural systems on indigenous identity. In fact, EIS fails to discuss psychological health at all. Overwhelming research shows that loss of culture or severe disruption can prove dire for native communities. Complete neglect of vast research in many fields including anthropology, psychology, sociology, and other fields. Notable negation of the wealth of studies within the state of Alaska, for example, D.C. Mitchell and T.R. Berger. The MMS undermines its own integrity and shows a lack of respect for full disclosure to the public or the Secretary with its minimization of impacts to Alaska Natives.

No discussion of EVOS (Exxon Valdez Oil Spill) impacts on native villages and communities. Post EVOS, Chenega village was virtually abandoned.

12. Invasive species not adequately dealt with.

The MMS has not fully considered invasive species; particularly species that current research shows can withstand the minor temperature changes when moving from

different northern regions. NEPA requires that potential impacts be analyzed, and the loopholes in the USCG regulations above that facilitate the introduction of non-native species to Alaska's marine ecosystems deserve a careful and critical analysis and reporting in the Chukchi DEIS. There is no provisions for these rules discussed in the DEIS. Gollasch (2002) shows qualitative probabilities of colonization of non-native species according to matching climate (temperature) in donor and recipient regions. It indicates that areas in Alaska have a high to medium probability of colonization of non-native species from certain donor regions.

The need to bring seismic vessels, drilling rigs, platforms, etc. to support offshore oil and gas leasing activities in Alaska from the Outside poses problems, namely that if such vessels anchor or visit other Alaskan ports, they may introduce non-native species if the vessels are contaminated with non-native species. Offshore support vessels, drilling rigs, platforms, etc can come from a variety of places from around the world. An offshore support vessel or drilling rig coming to Alaska from the Outside may temporarily make port somewhere in Cook Inlet, Kodiak, or the Aleutians and introduce non-native species there. These species can be further transported into the Chukchi when they are finally brought into the region.

Another concern is that vessels visiting south Alaska first may pickup south Alaska species or non-native species introduced to the area from another vessel and transport them to the Bering, Chukchi, and/or Beaufort seas. The longer a vessel persists in port or at anchor, the greater the potential for biologics to foul the hull. Many species occurring in Cook Inlet do not occur in the Chukchi or Beaufort seas, but that does not preclude them from thriving if introduced into these ecosystems. As an analogy, this would be like moving a native Gulf of Mexico species to Virginia where it is a non-native.

USCG Regulations (33CFR151) may be effective for reducing the introduction of invasive species in the contiguous U.S. via the ballast water vector, however, some serious 'loopholes' in the regulations facilitate the introduction of Aquatic Invasive Species (AIS) to Alaska for the following reasons:

1. Section 151.2035 (a)(5) requires the rinsing of anchors and anchor chains when retrieving the anchor to remove organisms and sediment at their place of origin. There is no requirement to rinse or clean other equipment, such as Ocean Bottom Cables placed on the seafloor. This is also applicable to drilling rigs brought in from outside of Alaska.

2. Section 151.2035 (a)(6) requires removal of fouling organisms from hull, piping, and tanks on a regular basis and dispose of any removed substances in accordance with local, State, and Federal regulations. 'Regular' is undefined and may be interpreted to mean every few months, every year, every 5 years, and so on. This is a critical deficiency in the regulations with respect to the potential introduction of hull fouling organisms. Also, there is no reporting requirement (to the USCG) for when hulls, etc. were cleaned. Therefore, there is no way of knowing what the vessel 'regular basis' of hull cleaning involves. (see Gollasch 2002; Godwin 2004; for more on the hull fouling vector)

3. Section 151.2035 (b) and Section 151.2036 together appear to form a problematic loophole; specifically coastwise (non-tanker) vessels operating and taking on ballast water within 200 nm of the U.S. Coast (e.g., departing Los Angeles (LA); a very contaminated port) may transit to Alaska with ballast water picked up from LA without a ballast water exchange being required so long as it stays within 200 nm of any shore, and that it does not exchange ballast water in the Canadian EEZ. The vessel may then perform a ballast water exchange in coastal or marine waters of Alaska, i.e., releasing the ballast water transported from LA to Alaska, and thereby subsequently introducing one or more AIS.

The USCG regulations are not well devised to prevent introductions to Alaska, except in the case of foreign oil tanker traffic associated with the Valdez TAPS terminal (Section 151.2040). In fact, they may facilitate introductions of non-native species that subsequently become invasive. Nonetheless, the MMS is relying on the USCG regulations to prevent introductions of non-native species to Alaska that may become invasive species after their introduction. See also L.S. Godwin 2004.

13. The summary of environmental impacts to marine mammals, particularly endangered and threatened species, is seriously minimized in the conclusions and executive summary.

See Comment Responses to Letter 019
Alaska Coalition, Alaska Watch, Alaska Wilderness League, Center for Biological Diversity, Greenpeace, EarthJustice, Natural Resources Defense Council, Northern Alaska Environmental Center, Pacific Environment, The Wilderness Society, Trustees for Alaska

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December 21, 2006

Minerals Management Service
3801 Centerpoint Drive
Suite 500
Anchorage, Alaska 99503

Re Chukchi Sea Planning Area Oil and Gas Lease Sale 193 and Seismic Activities in the Chukchi Sea

Via email at AKEIS@mms.gov and via fax at 907/334-5202

Dear Minerals Management Service:

The Alaska Wilderness League (AWL) thanks you for the opportunity to comment on the Chukchi Sea Planning Area Oil and Gas Lease Sale 193 and Seismic Activities in the Chukchi Sea. AWL is a nation-wide coalition of concerned citizens, environmental leaders, businesspeople, Native Americans, and others who believe that Alaska's incomparable natural resources should be protected and sustained for today's, and tomorrow's, generations.

Along with the specific comments that follow below, AWL would like to incorporate by reference the comments prepared on behalf of a number of other citizen organizations to which AWL is also a signatory (*see* Comments on behalf of Earthjustice, et al.) These detailed group comments clearly demonstrate that Outer Continental Shelf (OCS) exploration and development activities in the Chukchi Sea pose risks that are insupportable. Spills and routine operating emissions, along with noise, habitat disturbance, pollution and other impacts would spell disaster for this area of the Arctic, which is pristine and biologically vibrant. The proposed Lease Sale and Seismic Activities are seriously flawed and should be cancelled.

In our specific comments, AWL does not seek to duplicate the information ably conveyed in the group comments, but to focus instead on a few specific considerations. We believe that OCS exploration and development activities in the Chukchi Sea are unnecessary and unwarranted, and threaten incomparable ecological resources. Moreover, we believe that initiating energy exploration and development in the Chukchi Sea will not contribute to America's energy independence. On the contrary, we believe that OCS development in the Chukchi Sea will contribute to energy *instability* by perpetuating a cycle of drill-and-burn that does nothing to move this country toward a future of true energy stability. OCS development in the Chukchi Sea would also

contribute to global warming, which in turn threatens the Arctic environment – and indeed, the global environment – in disastrous ways.

Our comments focus on the following ways in which MMS's proposed Lease Sale 193 and Seismic Activities are inconsistent with prudent policy-making, energy independence, and responsibility to future generations. OCS development in the Chukchi Sea would:

1. be inconsistent with calls by business executives and senior military officers to greatly reduce American dependency on oil;
2. be out-of-step with public policy on the state and national levels;
3. lead to increased energy *instability* for the United States; and,
4. contribute to global warming and its destructive impacts on the Arctic and global environment and economies.

1. OCS development in the Chukchi Sea flies in the face of recent calls by business executives and military leaders to reduce oil-dependency.

Initiating new OCS oil and gas development in ecologically sensitive Alaskan waters would fly directly in the face of new calls by top corporate and military leaders to move away from oil dependency. On December 13, 2006, a group of leading U.S. business executives and senior military officers presented a report to the White House and Congress that urged Administration and Congressional leaders to reduce America's dependence on oil (*The Financial Times*, "Bush urged to break US oil dependence," December 16, 2006.) The bipartisan group, called the Energy Security Leadership Council, includes the chief executives of FedEx, UPS, Dow Chemicals and some of America's "best known" retired generals. The Council's report "urged President Bush and the new Democrat-controlled Congress to set up a plan to halve the American economy's oil-intensity by 2030."

The group argues that oil-dependency should be reduced over all, not just dependence on foreign oil. In particular, the business and military leaders noted that:

> "Events affecting supply or demand anywhere will affect consumers everywhere. Exposure to price shocks is a function of how much oil a nation consumes and is not significantly affected by the ratio of 'domestic oil' to so-called 'foreign oil.'"

Consequently, the report urges that President Bush and Congress create a plan for halving oil use by 2030 – *not increasing* domestic production in pristine waters, as MMS's plan would do.

When industrial chieftains and senior military officers come together to call for a reduction in oil use, the Administration should listen and act upon the request. The Lease Sale 193 should be cancelled.

2. OCS development in the Chukchi Sea is out-of-step with developing and established public policy on the state and national levels.

a. MMS is out of step with state leadership

Republican Governor Arnold Schwarzenegger of California signed a new law into effect in September 2006 that requires all California industries to reduce their greenhouse gas emissions by about 25 percent by the year 2020. Reducing the combustion of fossil fuels is integral to reducing greenhouse gases. California is working to support the development of alternative technologies that would not depend on oil and gas combustion. (Platts *Inside Energy,* "With California law as her model, Boxer asserts intent to pass warming bill," December 11, 2006)

This sort of prudent leadership should be supported by the federal government. Instead, MMS is proposing new offshore oil and gas development that does nothing to support and partner with state efforts to break the cycle of oil dependency.

b. MMS is out of step with Congress

The new Democratic majority in the Senate has released the "Senate Democrats' Energy Independence 2020 Plan," which calls for concrete steps in reducing oil and gas use in the United States. The Plan calls for increased research, development and production of alternative energy sources. It also calls for more fuel-efficient vehicle choices, and proposes updating efficiency standards for appliances and small engines. (*Washington Post,* " Donkeys Who Like Horsepower," December 17, 2006.) Initiating OCS development in the Chukchi Sea has no place in plans to increase, foster and support true energy independence.

Key leaders in the House of Representatives are also calling on the Administration to halt its destructive offshore oil and gas proposals. The new chairman of the House Resources Committee, Rep. Rahall (D-WV), announced on December 8, 2006, that he will concentrate on making sure that current laws governing energy development on federal lands "are enforced rather than attempt to expand opportunities for production." (Platts *Inside Energy,* "Rahall opposed to opening more lands for drilling," December 11, 2006.) Chairman Rahall said that he has no intention of continuing the attempts made by the former committee chairman – former-Representative Pombo (R-CA) – to open more onshore and offshore areas to oil and gas development. Chairman Rahall said that, "it's not on our agenda to consider any expansion" of drilling on the Outer Continental Shelf, adding that he would focus instead on overseeing, "our current programs and their implementation."

Chairman Rahall further noted that he might support making permanent the current federal bans on drilling on most of the Outer Continental Shelf.

Congress is moving in step with key corporate and military leaders in urging that America's dependence on oil be greatly reduced. MMS's proposal to initiate new drilling in one of the most biologically productive, and hazardous, stretches of American waters is completely out of step with what bipartisan leaders of industry, the military and Congress are calling for.

b. MMS is out of step with President Bush's own blue-ribbon panel on the oceans.

In 2004, the U.S. Commission on Ocean Policy – whose members were primarily appointees of the Bush Administration and Republican leadership in the House and Senate – concluded that:

> "The importance of our oceans, coasts and Great Lakes cannot be overstated; they are critical to the very existence and well-being of the nation and its people. Yet, as the 21st century dawns, it is clear that these invaluable and life-sustaining assets are vulnerable to the activities of humans." (U.S. Commission on Ocean Policy. *An Ocean Blueprint for the 21st Century.* September 2004.)

Led by Admiral Watkins, U.S. Navy (retired), the Commission recommended to President Bush, Congress and the American people that we "alter our course and set sail for a new vision for America, one in which the oceans . . . are healthy and productive . . ."

MMS's Proposed Lease Sale and Seismic Activities disregard the warnings contained in the President's Commission, and its call for a new way of approaching the oceans. Instead, MMS proposes to develop pristine Alaska waters that support a breathtaking variety of wildlife and commercially important species. MMS is out of step with the President's own advisors on the oceans. Lease Sale 193 and Seismic Activities run counter to the recommendations made by the Bush-appointed U.S. Commission on Ocean Policy.

c. ***MMS is out of step with the independent Pew Oceans Commission recommendations to the nation.***

In its *Report to the Nation* in May 2003, the independent Pew Oceans Commission concluded that "America's oceans are in crisis and the stakes could not be higher." (Pew Oceans Commission. *America's Living Oceans: Charting A Course For Sea Change.* May 2003.) The Commission pointed out that "the oceans are part of our common heritage and our common responsibility." To protect this common trust, the Commission recommended actions that would protect and restore fisheries and clean water quality, and the human and animal communities that depend on them. MMS's proposed lease sale runs directly counter to protecting the common good. Instead of being stewards of resources for this generation and generations to come, the MMS proposal would squander pristine resources, and threaten species that are already struggling or are at the brink of survival. The MMS vision is not the one that most Americans hold when it comes to being stewards of the land and water.

3. <u>Opening up new areas to oil and gas development increases America's vulnerability to foreign fuel producers.</u>

Opening-up new offshore areas to oil and gas development would not increase our nation's energy independence. This is becoming increasingly clear to military leaders, captains of industry and key Congressional leaders who have authority over resource use.

On December 13, 2006, General P.X. Kelley, a retired Marine Corps general, warned President Bush that America's oil dependence "makes it acutely vulnerable to terrorist attacks." The General joined chief executives of FedEx, UPS, Dow Chemicals and others in calling on

President Bush and Congress to act to halve America's use of oil within 25 years. The General noted that, "America's transport system is 97 percent dependent on oil." This dependency should be cut in half not by increasing domestic production, but by decreasing use across-the-board, according to the Energy Security Leadership Council, on which the General serves. (*The Financial Times*, "Bush urged to break US oil dependence," December 13, 2006.)

The incoming chairman of the House Resources Committee – Rep. Rahall (D-WV) – sounded a similar note in his "Agenda of American Values," which was recently released. The agenda also notes America's over-dependence on oil. It calls for the elimination of excessive federal support for the oil and gas industry. The agenda states:

> "Today, the nation's federal lands are providing nearly one-third of total U.S. energy production, up from just over 10% in 1970. This growth in energy production on public lands has been driven largely by America's over-dependence on oil. Unfortunately, this increased production has done little to decrease our foreign oil consumption. **In truth, this single-minded approach to meet our energy needs by opening up more federal lands to extraction of nonrenewable energy ultimately places future generations at greater risk to the whims of foreign fuel producers."** (emphasis added) (Platts *Inside Energy*, "Rahall opposed to opening more lands for drilling," December 11, 2006.)

4. <u>Opening up new areas of the ocean for oil and gas development is the wrong approach to an issue of growing international importance: global warming.</u>

In its proposed lease sale in the Chukchi Sea, MMS suggests that exposing one of America's most pristine waterbodies to polluting oil and gas development is somehow a rational response to America's energy needs. This places MMS out of step with mainstream American values. MMS is refusing to respond to an overwhelming body of evidence that shows that global warming – fed by an insatiable and haphazard use of oil and gas – is threatening not only environmental resources, but huge sectors of the national and global economy. Plundering biologically rich ocean areas to produce more oil and gas only exacerbates the problem of global warming. In an ironic twist, the environment that is experiencing some of the worst impacts from global warming is the Arctic itself. If the proposed lease sale goes through, valuable Arctic habitat would be destroyed and wildlife threatened from the removal of oil and gas whose combustion, in turn, would further destroy, threaten and irreparably harm this same wildlife and habitat.

a. The President's own back yard is changing.

Startling new reports show that global warming is already changing the face of the President's own backyard. A front page story in the December 20, 2006, *Washington Post* reported that vegetation in the Washington, D.C. area has now been reclassified in the same zone as North Carolina, Tennessee, Virginia and parts of Arkansas and Oklahoma. The climate in the nation's capitol has become that of a southern state's, according to the National Arbor Day Foundation (*Washington Post*, "Washington Warming to Southern Plants," December 20, 2006.)

Elsewhere in America the news is just as unsettling. The Foundation found that parts of Michigan have warmed enough to accommodate southern magnolia trees. Arizona cypress trees can now thrive in parts of New Jersey.

b. Europe experiences its warmest years.

Meanwhile, in another front-page story in the December 20, 2006 *Washington Post,* the British national weather service reports that 2006 has been the warmest year in Britain since record-keeping concerning weather conditions began in central England ***in 1659*** (*Washington Post,* "In Balmy Europe, Feverish Choruses of 'Let It Snow'," December 20, 2006.) Nearly 450 years of record-keeping shows that global warming is not a hypothetical, future problem but is happening here and now.

The article cites another recent report, this by the Paris-based Organization for Economic Cooperation and Development, that warns that "climate change poses serious risks to the snow reliability of Alpine ski areas, and consequently to the regional economies that depend upon winter tourism." Those economies are nothing to sneeze at: up to 80 million people visit Alpine resorts each year, making them a key contributor to the local economies. The report notes that "The Alps are particularly sensitive to climate change and recent warming there has been roughly three times the global average."

The article notes that in Moscow, the streets are bare of snow. One of Russia's highest ranking meteorologists reports that, "We have been monitoring weather for 150 years in Moscow, and we haven't seen anything like this." He suggests that the temperature norms be changed "because the climate is changing and the last decade was very warm, much warmer than all previous decades."

c. Global warming could lead to global economic upheaval like the Great Depression.

Just a few months ago, on October 30, 2006, Great Britain's chief government economist reported that ignoring climate change could lead to economic upheaval on the scale of the 1930s Depression, underlining the need for urgent action to combat global warming. The report suggests that global warming could shrink the global economy by 20 percent. Taking action now would cost just 1 percent of global gross domestic product, concluded the report's author, Sir Nicholas Stern. Sir Stern is a former chief economist of the World Bank. (*Reuters*, "No climate action may spark economic crisis: report," October 28, 2006, and *BBC News*, "Climate change fight 'can't wait,'" October 30, 2006.)

In response to the report, Prime Minister Tony Blair said the consequences for the planet of inaction were "literally disastrous." A leader of the European Commission said that it "clearly makes a case for action." European business leaders agreed that, "Provided we act with sufficient speed, we will not have to make a choice between averting climate change and promoting growth and investment."

Yet at the same time that eminent economists and political leaders are calling for a reduction in greenhouse gases, MMS is approaching the issue in a way that is analogous to the

"flat earth" philosophers who argued with the scientific experts and leaders of their day that global sea-based exploration was impossible because one would fall off the face of the earth if one sailed too far.

d. Global warming goes to court.

Joining World Bank chief economists and international business leaders in the campaign to curb the globe's consumption of oil and gas are attorneys from across the United States, who are suing oil, electric power, auto and other companies whose emissions are linked to global warming (*BusinessWeek* online, "Global Warming: Here Come The Lawyers," October 30, 2006.) At least 16 separate cases are pending in federal or state court, including litigation brought by a coalition of **Texas** cities to require cleaner plants than 17 that are now proposed by utilities. The chief attorney representing the Texas cities is one of the nation's top trial lawyers, indicating that the lawsuit is being pursued in deadly earnest.

The litigation is stemming, in large part, from frustration with Congress and the federal agencies charged with managing natural resources, such as MMS. Opening up enormous tracts of pristine ocean and coastal waters to drill for more oil in the absence of any rational national energy plan, and in the presence of an overwhelming awareness by citizens and leaders alike that global warming is a real danger, is short-sighted policy-making with potentially disastrous consequences. Rather than spending huge sums of money to drill off Alaska, investing in renewable energy would provide both short-term and long-term gains for the environment and citizens alike.

In fact, Senator Barbara Boxer (D-CA), who will chair the Senate's Environment and Public Works Committee beginning in January 2007, points to the economic gains to be made from cracking down on harmful emissions caused by burning oil and gas. She notes that "capping emissions would spur the development of 'exportable green technologies' and create jobs. (Platt's *Inside Energy*, "With California law as her model, Boxer asserts intent to pass warming bill," December 11, 2006.)

Conclusion

Opening up the Chukchi Sea – an area renowned for its astonishing variety and abundance of wildlife – to oil and gas exploration and drilling would be completely out-of-step with what a wide variety of eminent leaders in America and abroad are calling for. Top military brass, captains of industry, leading scientists, economists, and policy-makers on the state, national and international level are urging the U.S. to act now to reduce its use of oil and gas – for the sake of the planet *and* for the sake of long-term political stability, economic health and the safety of America's own citizens.

While experts at home and abroad clamor for a reduction in oil and gas use, MMS releases proposal after proposal for drilling in untouched, pristine Alaskan waters. During the recent comment period on MMS's proposed 5-Year OCS Plan, the World Bank's former chief economist predicted global economic depression if global warming were not addressed by

reducing the amount of oil and gas that is burned. Yet what does MMS propose? Opening up huge tracts of Alaska's oceans to wholesale oil and gas development.

During this comment period on Lease Sale 193 in the Chukchi Sea, international meteorologists announce that the 2006 winter occurring under Queen Elizabeth II is the warmest since 1659, when Queen Elizabeth I was only 50 years in the grave. Yet what does MMS propose? Opening up huge tracts of Alaska's oceans to wholesale oil and gas development.

Taking steps now to put America on the path of **true** energy independence could protect and grow our economy while cherishing the diversity of life that makes this country so unique. For example, every year 140 billion gallons of gasoline are burned in the United States. If we used 5 percent less through increased automobile fuel efficiency, we'd save 7 billion gallons of gasoline alone. 5% increased fuel efficiency = 7 billion gallons of gasoline: a formula less polluting and destructive than the drilling formula that MMS is proposing.

The federal government should be joining the state leaders, Members of Congress, international economists, titans of industry, military experts, seasoned scientists and an increasing number of everyday Americans who are calling for a significant reduction in the use of oil and gas, not a new era of wholesale hydrocarbon exploitation. These leaders are calling for change not for the sake of ideology or politics, but for the sake of the planet, our economy and our future security. Heading to the Chukchi Sea to drill in an Arctic wonderland is simply out of step with what scores of prudent, thoughtful and experienced leaders are recommending. MMS should cancel Lease Sale 193 and the Seismic Activities. To do otherwise is to face backwards when national and international leaders are calling on us to move forward.

Sincerely,

Cindy Shogan

Cindy Shogan
Executive Director
Alaska Wilderness League

See Comment Responses to Letter 019
Alaska Coalition, Alaska Watch, Alaska Wilderness League, Center for Biological Diversity, Greenpeace, EarthJustice, Natural Resources Defense Council, Northern Alaska Environmental Center, Pacific Environment, The Wilderness Society, Trustees for Alaska

Consumer Energy Alliance

Board of Advisors

Cathy Barnette
Alabama Coastal Foundation

Jack Belcher
Shell Exploration & Production

George Bialecki
Alternative Energy Living Foundation

David Blackmon
Shell Exploration & Production

Andrew C. Browning
Methanex

Greg Cohen
American Highway Users Alliance

Bill Connors
National Business Travel Association

Milton R. Copulos (USA Ret.)
National Defense Security Foundation

Heather McTavish Doucet
International Foodservice Distributors Association

Mary Davis Holt
Time-Life, Inc.

Tommy Foltz
Patriot BioFuels, Inc.

Dr. Michelle Michot Foss
Bureau of Economic Geology
Center for Energy Economics
University of Texas

Christine A. Hansen
Interstate Oil & Gas Compact Commission

Don Juckett
Geoscience and Energy Office
American Association of Petroleum Geologists

Glenn Kramer
Hess Corporation

Jim Martin
60 Plus Association

Jan-Oddvar Sørnes, Ph.D.
Bodø Graduate School of Business, Norway

Todd Thorner
Foresight Wind Energy, LLC

The Honorable Frank W. Wagner
Virginia State Senate

Thomas E. Williams
Noble Corporation

December 21, 2006

Minerals Management Service
3801 Centerpoint Drive
Suite 500
Anchorage, AK 99503

Dear MMS:

Please find enclosed 43 comment letters generated by the Consumer Energy Alliance and other interested stakeholders.

Each of these letters highlights support for the 2007 Chukchi Lease Sale.

Please let me know if you have any questions.

Sincerely,

Melissa Taldykin
Director of External Affairs

2440 South Boulevard, Suite 108 Houston, Texas 77098 • 713.524.2622 • www.consumerenergyalliance.org

Inbox: AK - eFORM MMS Comments consumerenergyalliance.org (3910 of 3916)

Date: 25 Nov 2006 18:48:01 -0500 [11/25/06 18:48:01 EST]
From: comments@consumerenergyalliance.org
To: comments@consumerenergyalliance.org
Subject: AK - eFORM MMS Comments consumerenergyalliance.org
Headers: Show All Headers

Name - Tim Cowan
Address - 1045 Bogie Ct
City - Soldotna
State - AK
Email - birdycircle@acsalaska.net
Comments - November 2006

Ms. Renee Orr

5-Year Program Manager

Mr. James F. Bennett

5-Year DEIS

Minerals Management Service (MS-4010), Room 3120

381 Elden Street

Herndon, Virginia 20170

RE: In Support of Expanded Offshore Access in Alaska

Dear Ms. Orr and Mr. Bennett:

I am writing to express my strong support for expanded offshore leasing during the 5-year period 2007 - 2012. As someone who lives and works in Alaska, I am particularly interested in allowing expanded access offshore Alaska, including continued leasing in the Chukchi Sea, Beaufort Sea and Cook Inlet, as well as new leasing in Bristol Bay. The Minerals Management Service (MMS) should also include additional acreage for lease in the offshore waters of the lower 48 states to insure adequate supplies of oil and natural gas are available to US consumers.

According to MMS, Alaskas offshore waters contain US reserves estimated at 27 billion barrels of oil and 132 trillion cubic feet of natural gas (31 percent of all US offshore waters). The MMS estimates that the Chukchi Sea is the most promising and materially undeveloped US offshore petroleum basin. Lease sales are already occurring in the Beaufort Sea, and MMS estimates that there are approximately 23 trillion cubic feet of natural gas reserves in Bristol Bay.

Domestic oil and gas development in Alaska will have a positive impact on the regional economy and spur strong economic growth because it will create jobs, provide a significant tax source for local communities and support Alaskas business community. In fact, according to the Anchorage Economic Development Corporation, 34,000 jobs are created each year in Alaska by the oil and gas industry. With todays technology, this development can be conducted in an environmentally friendly manner.

Additionally, I strongly urge the Administration and Congress to move quickly to approve policies that provide for Alaska and other coastal states to share in the revenues gained from offshore oil and gas production. Such production revenue could provide multiple benefits to state and local communities by improving infrastructure and addressing other important local needs.

I support the conclusions contained in the Draft Environmental Impact Statement (DEIS), and request that the MMS properly consider all of the environmental impacts involved in Alaskas offshore development.

Finally, I support the DEIS Statement MMS has issued for a 2007 Chukchi Lease Sale and for associated seismic surveying activities. It is important that the federal government hold a lease sale next year in this promising basin.

Sincerely,

Tim Cowan
2006-11-25 18:48:00

Inbox: Alaska eFORM MMS Comments consumerenergyalliance.org (2761 of 3937)

Date: 7 Nov 2006 20:33:48 -0500 [11/07/06 20:33:48 EST]
From: comments@consumerenergyalliance.org
To: comments@consumerenergyalliance.org
Subject: Alaska eFORM MMS Comments consumerenergyalliance.org
Headers: Show All Headers

Name - Tess Hopkin

Address - 19750 Driftwood Bay Drive

City - Eagle River

State - AK

Email - porcaro@gci.net

Comments -

November 2006

Ms. Renee Orr

5-Year Program Manager

Mr. James F. Bennett

5-Year DEIS

Minerals Management Service (MS-4010), Room 3120

381 Elden Street

Herndon, Virginia 20170

RE: In Support of Expanded Offshore Access in Alaska

Dear Ms. Orr and Mr. Bennett:

I am writing to express my strong support for expanded offshore leasing during the 5-year period 2007 - 2012, especially in Alaska\'s Chukchi and Beaufort Seas, and Bristol Bay. As a young Alaskan, I believe that it\'s very important for Alaska and for America, both for our economy and our security.

Sincerely,

Tess Hopkin

Submit_Comments_x - 85

Submit_Comments_y - 24

Submit_Comments - cmd

Salyer, Michael

From: Cynthia Domaruk [groovycyn@hotmail.com]
Sent: Thursday, December 07, 2006 1:51 PM
To: AKEIS
Subject: No Drilling in the Chuckchi Sea

Cynthia Domaruk
PO Box 347
Denali Park, AK 99755-0347

December 7, 2006

MMS Alaska Regional Office

Dear MMS Alaska Regional Office:

I strongly oppose any offshore drilling in the Chukchi Sea. I believe any drilling will have serious short term and long term effects on the environment. Drilling will not only negatively impact the immediate area, the repercussions will be global. This is not only an environmental issue however, it is just as importantly a human rights issue. It is time we put our time, money, and resources into alternative sustainable energy sources. The environmental impact statement clearly states the following negative effects of offshore drilling: decreased water and air quality, increased low level aircraft and seismic noise, redistribution of both land and sea animals, and of course the ever present possibility of an oil spill that we all know will wreak havoc on every aspect of the affected area. The Inupiat people who live on the coast will take the brunt of this. Amazingly, after a detailed account of all of these possibilities, the the preferred alternative in the EIS states that drilling should commence with caution. I find it appalling and extremely frustrating that the Department of the Interior, via the MMS, has become a pawn in the name of profit for the oil companies. I am well aware of the power the oil companies have over the US government through campaign financing and a very well funded lobby. I believe the majority of Americans are against this offshore drilling. In conclusion, I ask that you reject any legislation that moves toward drilling in the Chukchi Sea. Whether one believes we are the most influential beings on earth due to evolution or intelligent design, we have a responsibility to take care of each other and our home. How do you want to be remembered in the history books?

Sincerely,

Cynthia Domaruk

13 Pinyon Pine Road
Littleton, CO 80127

RECEIVED
DEC 14 2006
REGIONAL DIRECTOR, ALASKA
Minerals Management Service
ANCHORAGE, ALASKA

To: MMS
3801 Centerpoint Drive, Suite 500
Anchorage, Alaska 99503

Subject: The Chukchi Sea - Do Not plunder.

Dear MMS,

The Chukchi Sea, located off Wainwright on the northern coast of Alaska, provides food and habitat to an amazing array of wildlife. Its waters wash up against wildlife refuges and national preserves, and Native communities depend on its rich waters for survival. Unfortunately, while the Chukchi is currently free from large-scale oil and gas activities, its pristine ecosystem could be seriously compromised if the federal government has its way.

The Interior Department wants to start selling leases for oil and gas development in the Chukchi Sea next year. Impacts from oil and gas development, including noise disturbance, pollution, and other industrial activities, could threaten the Alaska Maritime National Wildlife Refuge – which provides habitat for migrating seabirds – and the Cape Krusenstern National Preserve, which provides important subsistence resources.

Please do not plunder the Alaskan waters of more oil and gas. This will do nothing to help move our nation toward reducing greenhouse gases.

Greenhouse gases are contributing the 'Global Heating' cycle that scientists have acknowledged. The 'Global Heating' cycle will be more encouraged rather than less. Please do not sell leases for oil and gas development of this pristine ecosystem for more hydrocarbons in the atmosphere that encourage this 'Global Heating'.

Sincerely,

John Fredrickson

RECEIV
DEC 14 2006
REGIONAL DIRECTOR,
Minerals Management S
ANCHORAGE, ALASK

Dr. Judith Schmidt
777 Old County Road
Washington ME 04574

judithschmidt@principia.edu

Please do not mail - paper waste, rely

6 December 2006

Dear MMS Staff,

As I wildlife biologist and active defender of our natural environment, and understand about the urgent need to protect the incredible diversity of wildlife in the Chukchi Sea that would be seriously threatened by oil and gas development there.

I am not going to take my time, or yours, with a long letter, but through my work for many decades, and visits to Alaska, I do understand the situation there.

I also live unconnected to any state production of energy, by using only solar and wind for my electricity, domestic hot water, and house heat. We have no choice today. WE HAVE TO PUT OUR TIME, MONEY AND INGENUITY INTO SUSTAINABLE ENERGY SOLUTIONS AND STOP THE COSTS TO THE NATURAL ENVRITONMENTAL CAUSED BY COAL AND OIL AND GAS. THESE PRODUCTS HAVE DONE, AND ARE CAUSING ENORMOUS LOSS OF LIFE IN OTHER NATIONS THROUGH WARS AND OTHER STRIFE.

I urge you not to permit any further exploration for oil or gas in the coastal waters of Alaska.

Sincerely,

Judith Schmidt PhD

Judith Schmidt

P.O. Box 919
Republic, WA 99166
December 13, 2006

MMS
3801 Centerpoint Drive, Ste. 500
Anchorage, AK 99503

RE: Chukchi Sea

Oil and gas development will threaten many wildlife species inhabiting the Chukchi Sea. Bowhead and beluga whales, gray whales and numerous migratory birds depend on a healthy, clean environment for survival.

Commercial and subsistence fishers also need clean, healthy water and seafood.

The Interior Department's EIS states that there is a 33-51% chance of a large oil spill occurring in the Chukchi Sea if drilling is permitted. This is not acceptable.

We should be developing alternatives to oil and gas that will help to reduce global warming. Alternative energies, conservation and increased fuel efficiency in automobiles are the only sensible solutions to our increasing energy demands.

Sincerely,

Nancy McCambridge

Nancy McCambridge

Huffaker, Christine

From: Rosemary Ahtuangaruak [rahtuangaruak@astacalaska.net]
Sent: Friday, December 08, 2006 12:36 PM
To: AKEIS
Subject: Chukchi Sea Lease Opposition

Rosemary Ahtuangaruak
P.O. Box 89130
Nuiqsut, AK 99789-0130

December 8, 2006

MMS Alaska Regional Office

Dear MMS Alaska Regional Office:

I live in Nuiqsut and our subsistence animals migrate through these areas. We are very concerned for the health of these foods that we eat. We depend on the foods from the land and seas around us to feed our families.

We are concerned about changes that have already happened with existing leases and proposed developments. We are very concerned to the lack of the ability to clean up a spill in the waters of the Arctic. We know that the demonstrated capacity of the clean up potential in the Arctic is 0%. We know how hard it is to run the spill response drills and many are cancelled due to weather What will happen is that the spill will spread and damage the foods we need to feed our families.

Our lifestyle is rich in traditions that where carried for thousands of years. The changes that are already occurring is changing our community. We change as healthy people when we don't have our traditional foods increasing with health problems such as hypertension and heart disease and diabetes. What will we do to help our people if we can not eat our foods because of changes.

We are causing changes to the health of our foods with the fish having increases to parisites and disease as well as the caribou. People in Nuiqsut have gotten asthma with the emissions already occurring. We had three elders put on ventilators this year. How will we help our people with serious health problems coming. We want to continue the traditional and cultural uses inspite of what they bring to us. We want to continue our traditional foods that are what we need to survive in our environment.

Please prevent the problems that we have seen happen in our village from continuing to cause harm to us and other northern communities. We need to make sure it is not done as they try to do it around us because we have hard times to hunt and feed our families and other communities should not face the difficulties we have faced.

Industry needs to incorporate alternative renewable energy uses in their projects to decrease our consumption of the resource that is rapidly depleting. We need them to do it more safely with out putting our people at risk with health problems because they are cutting costs. We deserve clean air that was once around our village but is not now.

Prevent damages to this area by making them do it with modern technology that reduces the emissions that hurt our village. Use the modern science from the gulf vets health assessments and the Prince William Sound science

that is not incorporated in the documents used to plan these leases. We now know there are long term effects from developing and worse effects if there is a spill.

The Chukchi Sea is home to an amazing diversity of wildlife that would be threatened by oil and gas development.

Bowhead and beluga whales migrate through in the fall and spring, and gray whales depend upon it for a feeding area.

Migratory birds nest and feed in the area, which is also critical habitat for spectacled eider.

The people whose lives depend upon a healthy, clean environment would be severely impacted by oil and gas development and exploration. Commercial and sport fishers, and Alaska Natives, depend upon clean waters and healthy seafood.

Impacts from oil and gas development, including noise disturbance, pollution, and other industrial activities, could threaten the Alaska Maritime National Wildlife Refuge - which provides habitat for migrating seabirds - and the Cape Krusenstern National Preserve, which provides important subsistence resources.

The Interior Department admits in its draft Environmental Impact Statement that there's a 33-51% chance of a large spill occurring in the Chukchi Sea if drilling goes forward. But industry can't clean up a spill in waters as rugged as the Chukchi, which is covered in ice for much of the year.

Plundering pristine Alaskan waters for more oil and gas would do nothing to help move our nation toward reducing greenhouse gases that are warming the planet and threatening devastating consequences.

Sincerely,

Rosemary Ahtuangaruak

Salyer, Michael

From: Ryan Fitzgerald [ryanlion78@aol.com]
Sent: Thursday, December 07, 2006 2:45 PM
To: AKEIS
Subject: Chukchi Sea

Ryan Fitzgerald
4 house lane
ulster park, NY 12487-5417

December 7, 2006

MMS Alaska Regional Office

Dear MMS Alaska Regional Office:

The Chukchi Sea is home to an amazing diversity of wildlife that would be threatened by oil and gas development.

Bowhead and beluga whales migrate through in the fall and spring, and gray whales depend upon it for a feeding area.

Migratory birds nest and feed in the area, which is also critical habitat for spectacled eider.

The people whose lives depend upon a healthy, clean environment would be severely impacted by oil and gas development and exploration. Commercial and sport fishers, and Alaska Natives, depend upon clean waters and healthy seafood.

The Interior Department admits in its draft Environmental Impact Statement that there's a 33-51% chance of a large spill occurring in the Chukchi Sea if drilling goes forward. But industry can't clean up a spill in waters as rugged as the Chukchi, which is covered in ice for much of the year.

Plundering pristine Alaskan waters for more oil and gas would do nothing to help move our nation toward reducing greenhouse gases that are warming
the planet and threatening devastating consequences.

Now is the time for our country to stop In our desructive ways towards the enviorment.I urge you to plesase set an example for the rest of our country and the world buy helping to protect the Chukchi Sea

Sincerely,

Ryan Fitzgerald

Stephan Donovan
4851 North Bernard Street
Chicago, IL 60625-5107

December 6, 2006

RECEIVED
DEC 14 2006
REGIONAL DIRECTOR, ALASKA
Minerals Management Service
ANCHORAGE, ALASKA

MMS Alaska Regional Office

Re: Please save the Chukchi Sea

Dear MMS Alaska Regional Office:

The Chukchi Sea is home to an amazing diversity of wildlife that would be threatened by oil and gas development.

Bowhead and beluga whales migrate through in the fall and spring, and gray whales depend upon it for a feeding area and migratory birds nest and feed in the area, which is also critical habitat for spectacled eider.

The people whose lives depend upon a healthy, clean environment would be severely impacted by oil and gas development and exploration. Commercial and sport fishers, and Alaska Natives, depend upon clean waters and healthy seafood.

Impacts from oil and gas development, including noise disturbance, pollution, and other industrial activities, could threaten the Alaska Maritime National Wildlife Refuge - which provides habitat for migrating seabirds - and the Cape Krusenstern National Preserve, which provides important subsistence resources.

The Interior Department admits in its draft Environmental Impact Statement that there's a 33-51% chance of a large spill occurring in the Chukchi Sea if drilling goes forward. But industry can't clean up a spill in waters as rugged as the Chukchi, which is covered in ice for much of the year.

Plundering pristine Alaskan waters for more oil and gas would do nothing to help move our nation toward reducing greenhouse gases that are warming the planet and threatening devastating consequences.

Sincerely,

Stephan Donovan

Pacific Environment Letter

Alaska Regional Director J. Goll

Dear Alaska Regional Supervisor Goll,

Thank you for this opportunity to comment on the proposed Chukchi Sea Lease Sale 193 and the associated Environmental Impact Statement. This plan for drilling and exploration in the Chukchi Sea threatens Americas last unspoiled marine ecosystems and will cause disproportionate impacts upon communities exercising the nations oldest subsistence traditions. As such, it is imperative that this Lease Sale is cancelled and permanent protections are enacted for Americas Arctic.

Opening the Chukchi Sea, which already faces ecological stress due to global warming, in order to obtain more fossil fuels, is socially irresponsible. Furthermore, the ecology of the region is largely undocumented, and the Minerals Management Service has provided little baseline data upon which to justify the impacts of seismic exploration and oil and gas development. We do know, however, that the impact will likely be quite severe, and I have a number of specific concerns. These include:

The impacts of oil and gas exploration and development upon marine mammals, including bowhead and beluga whales, walrus, seals, and polar bears.
The impacts to critical habitat for spectacled eiders and migratory seabirds nesting in the cliffs of the Alaska Maritime National Wildlife Refuge.
The demonstrated inability of industry to clean up oil spills, which are inevitable, in broken ice conditions.
The failure to adequately consider the cause and consequences of climate change when planning for future development in the Arctic.
The disproportionate impacts of the lease sale on subsistence cultures and the failure of the Minerals Management Service to achieve Environmental Justice.
The failure to develop a responsible national energy policy based upon solar, wind, geothermal, tidal, and other renewable sources of energy.

In conclusion, it is my belief that Lease Sale 193 and the accompanying Environmental Impact Statement are inadequate to protect the ecosystems of the Chukchi Sea for future generations. It is time for the U.S. to adopt a responsible energy policy that does not rely upon destroying Americas Arctic as a short-term fix to our oil addiction. Cancel this lease sale, reduce our consumption of fossil fuels, and enact permanent protections for Americas Arctic ecosystems.

Sincerely,

Pam Wilkinson
523 E M 43 Hwy
Hastings, MI 49058

P.O. Box 766
Talkeetna, AK 99676
December 22, 2006

Mr. John Goll
Minerals Management Service
3801 Centerpoint Dr. Suite 500
Anchorage, Alaska 99503

Dear Mr. Goll:

These are my comments on Chukchi Sea Lease Sale 193 Environmental Impact Statement (EIS), project ID LEA-AK-0005.

I urge you to select Alternative II (No Lease Sale).

First, offshore oil leasing in the icy Chukchi Sea is fraught with enormous environmental risk and should not go forward. Second, the EIS, because of its clear bias in favor of oil development, does not represent an adequate basis to support any leasing alternative.

The environmental risk of oil exploration and development in ice bound or broken ice waters is enormous. Risk to the marine ecosystems is why, years ago, the Bristol Bay leases were bought back, and it is bewildering to me that MMS can turn around and recommend offering leases in an even more risky area. The EIS states that there is a 40% chance of a large spill,[1] yet throughout the document, this probability as labeled "unlikely." [2] A 40% probability cannot legitimately be described as "unlikely." This is but one indication of the inherent bias of this EIS in favor of oil development. It is as if MMS has, from the beginning, made the decision to offer leases and that the EIS process is designed solely to support that predetermined decision.

Page II-24 states: "Other concerns were fate and behavior of oil spills, availability and adequacy of oil-spill-containment, oil spill cleanup technologies and strategies, impacts of cleanup methods, effects of winds and currents, weathering, toxicological effects of fresh and weathered oil, and ability to effectively clean up oil spills in broken-ice conditions." These are very real and very alarming concerns. But they are not addressed in the EIS. The Chukchi and western Beaufort (which would be affected by a spill) are noted for their harsh climates and weather, and are covered in ice for much of the year. There have been no successful oil spill response drills in the Beaufort Sea. The

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[1] Page IV-63, "The Oil-Spill-Risk Analysis (OSRA) model estimates a 40% chance of one or more large spills ≥1,000 bbl during the production life of the fields...."

[2] Page V-3, "In the unlikely event of a large offshore oil spill, some significant adverse impacts could occur...."

inescapable fact is that in these harsh ice and weather conditions, coupled with its remoteness, mean that industry, federal government, and state government would be helpless in the likely (40% according to your EIS) event of a large spill. The capacity to contain and clean up a spill in these circumstances does not exist. This EIS is turning a blind eye to this very real and serious, and potentially catastrophic, problem.

The seriousness of this point is only compounded by the recent events at Prudhoe Bay, when the Alaska Pipeline was shut down this past summer due to oil leaks and corroded pipes. Industry is negligent; state and federal oversight is lax and careless. That's the way it is, and that's the way it will be in the future. In these circumstances, how can the EIS possibly consider the likelihood of an oil spill to be "unlikely"?

As with oil spills, the EIS downplays every other environmental risk. The EIS mentions water quality, air quality, lower trophic-level organisms, fishes, essential fish habitat, endangered and threatened species: bowhead whale and spectacled and steller's eiders, but the impacts are always "potential", "temporary", "short duration", "localized", "could be affected", etc. Furthermore, the EIS's so-called 'assessment' typically is so vague as to be meaningless, as: "Adverse effects to the migration, spawning, and hatchling survival of fish most likely would be temporary and localized, and only a moderate level of disturbance or displacement would occur." (IV-77) Your failure to adequately assess the environmental risk is irresponsible and inexcusable.

Along with risk, one, of course, also looks at reward (i.e., the amount of oil produced). But, it appears that, as you have understated the risk, you have also overstated the reward. On page ES-iii, you state "these models assume that leasing, exploration, and development are unrestricted by regulations or industry funding." So, what the EIS is really talking about is the amount of oil that is technically recoverable. The amount of oil that is technically recoverable is irrelevant. The only models that are relevant are those based on the amount of oil that is economically recoverable, which the EIS models do not address. In reality, there are regulations and the industry does incur development costs, and there is a significant difference between what oil may be technically recoverable in the lease area and what may be economically recoverable. If MMS were to make a good faith effort to determine whether leasing is in the best interests of the American public, it would have to look at the amount of oil that realistically and economically would be expected to be produced.

I also find it quite troubling that MMS has chosen December 26th as the comment deadline date. December 26 is the day after Christmas. Most people participate in Christmas and holiday festivities. No agency that is seriously interested in hearing from the public would establish a deadline that in the midst of this major distraction. Clearly, MMS views the public as an obstacle to overcome rather

than as a legitimate participant in the EIS process. I believe this contempt for the public illegitimatizes this EIS process.

In its zeal to develop off shore, MMS has lost sight of the environmental risk and the right of the public to meaningfully participate in the process. MMS has understated the environmental risk (i.e., cost) and has overstated the expected benefits. The bias of this document is stunning, and I cannot believe that it complies with NEPA.

I, again, urge the **no lease sale** alternative.

Sincerely,

John Strasenburgh

Federal and State Agency Comment Letters

Document 13

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

December 27, 2006

Reply to
Attn. of: ETPA-088

Ref: 05-049-MMS

John Goll
Regional Director, Alaska OCS Region
Minerals Management Service
3801 Centerpoint Drive, Suite 500
Anchorage, AK 99503-5823

Re: Draft Environmental Impact Statement: Chukchi Sea Planning Area, Oil and Gas Lease Sale 193 and Seismic Surveying Activities in the Chukchi Sea

Dear Mr. Stang,

The U.S. Environmental Protection Agency (EPA) has reviewed the draft Environmental Impact Statement (EIS) for the **Chukchi Sea Planning Area, Oil and Gas Lease Sale 193 and Seismic Surveying Activities in the Chukchi Sea** (CEQ No. 20060423). Our review has been conducted in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

The Chukchi Sea Lease Sale 193 and Seismic Surveying Activities Draft EIS (Sale 193 Draft EIS) was prepared to analyze the effects of a lease sale within the Chukchi Sea Outer Continental Shelf. The document is also intended to provide NEPA evaluation for exploration activities in the Chukchi Sea, including seismic survey geophysical permitting and NEPA documentation for National Marine Fisheries Service (NMFS) potential issuance of Incidental Harassment Authorizations. The NMFS is a cooperating agency for the Draft EIS.

The Draft EIS evaluates three action alternatives and a no-action alternative:

- Alternative I: Offer for lease approximately 6,155 whole and partial blocks (about 34 million acres), excluding the 15- to 50-mile wide polynya or spring lead system corridor along the coast (Proposed Action).
- Alternative II: No Lease Sale (No Action Alternative).
- Alternative III: Includes the Proposed Action, excluding an area of approximately 1,649 whole or partial blocks; this alternative would attempt to reduce potential impacts to subsistence hunting and various wildlife species and habitats (Corridor I Deferral).
- Alternative IV: Includes the Proposed Action, excluding approximately 795 whole or partial blocks; this alternative was developed as a result of a 1987 Biological Opinion for the Chukchi Sea (Corridor II Deferral).

General Comments

EPA recognizes the challenges that MMS faced in preparing this Draft EIS, primarily due to the lack of scientific data and the high levels of uncertainty associated with baseline geophysical and biological features in the frontier area of the Chukchi Sea. The Draft EIS acknowledges uncertainties regarding existing environmental conditions, environmental affects of alternatives (including cumulative effects) and mitigation measures to reduce adverse impacts. The lack of data regarding the distribution, abundance and habitat use of important biological and subsistence resources in the area such as the endangered bowhead whale is significant, and creates additional uncertainty regarding Draft EIS conclusions. In addition, the use of the "Opportunity Index" and the hypothetical development scenario that is used in the document add additional layers of uncertainty regarding the probabilities of exploration, production and development activities and the risks associated with those activities.

Although the Draft EIS makes a credible attempt to remind readers of the data gaps and uncertainties in the alternatives analyses, EPA is concerned that, overall, the depth and diversity of uncertainties presented in the document resulted in the lack of adequate support for many of the document's conclusions. EPA has assigned a rating of **EC-2 (Environmental Concerns-Insufficient Information)** to this Draft EIS. Please find enclosed a copy of the EPA rating system used in conducting our environmental review. This rating and a summary of our comments will be published in the *Federal Register*. EPA's primary concerns regarding the Draft EIS and our corresponding recommendations for the Final EIS are summarized below.

Draft EIS Alternatives

EPA scoping comments for the Draft EIS recommended that in addition to information that identifies how the lease sale responds to the current Administration's goal to expedite exploration of domestic energy resources (as stated in the Notice of Intent), the MMS also provide information about what alternatives, alone or in combination, including those other than off-shore oil and gas development, may supply that need. Such alternatives were not analyzed in the Draft EIS. Information regarding the potential roles that energy conservation and use of renewable resources may play in helping to meet increasing energy demands in this country has merit in the evaluation of alternatives for a Chukchi Sea lease sale. The information is particularly relevant given the technical challenges of oil and gas development in the remote area, risks from spills and the inability to ensure adequate cleanups, lack of existing infrastructure, data gaps in critical environmental baseline information, and increasing concerns regarding use of fossil fuels and contributions to global climate change.

013-001

On the basis of information presented in the Draft EIS, EPA believes there is merit in providing for the maximum protection of biological and subsistence resources in the Planning Area, primarily due to the lack of available baseline data on the resources in the area, challenges with monitoring for adverse changes in biological resources, and uncertainties regarding the effectiveness of mitigation measures to avoid or reduce adverse impacts to resources. Alternatives to the Proposed Action that are presented in the Draft EIS include two variations of exclusion areas along the coastward side of the Planning Area. However, it is unclear how the boundaries of the excluded areas in the two alternatives (Alternatives III and IV) were determined. Due to the lack of information about the Planning Area, the use of the "Opportunity

013-002

Index" and other assumptions regarding the potential level of exploration, development and production activity as a result of a lease sale, it is unclear if the two alternatives, together with the Proposed Action and a No Action Alternative, represent a range of reasonable alternatives in the Draft EIS. The Final EIS should present a more thorough discussion of the decision criteria and the geophysical, biological and subsistence information that was used to develop the alternatives in order to demonstrate that a range of reasonable alternatives was considered. 013-002

According to the Draft EIS the U. S. Fish and Wildlife Service (USFWS) Endangered Species Act (ESA) consultation regarding endangered spectacled and Steller's eiders had not been completed prior to publication of the document; therefore, the action alternatives may not include an option for avoiding unacceptable adverse impact to those species. The Final EIS should document the results from the most up-to-date ESA consultation with USFWS and clearly explain how the selection and analyses of the Proposed Action and the alternatives considered the information. 013-003

Coordination with Other NEPA Activities

The Lease Sale 193 EIS is being developed concurrently with two separate but relevant NEPA efforts by MMS and NMFS. During this Draft EIS public comment period, MMS is also evaluating public comments that were submitted on a Draft EIS for the Outer Continental Shelf (OCS) 5-Year Program (2007-2012) and public scoping comments that were submitted for a Programmatic EIS that will be prepared by MMS and NMFS for permits and authorizations associated with seismic survey activities for oil and gas exploration in the Beaufort and Chukchi Seas. EPA is concerned that the overlapping schedules of the different NEPA documents, and the relatively short timelines assigned to developing and finalizing the documents, will make it very difficult for the sponsor agencies to obtain, evaluate and incorporate the most up-to-date information in each document. 013-004 In addition, information regarding potential exploration, development, and production scenarios, and oil spill risk analyses does not appear consistent between the OCS 5-Year Program Draft EIS and this Draft EIS. EPA recommends that the MMS carefully review both documents, and the information that is currently being collected for use in the Programmatic Draft EIS, and provide consistency in information that should be common to all the documents. 013-005 EPA also recommends that the MMS coordinate the schedules, and allow for ample time for public review and input, for the three ongoing NEPA efforts in order to provide for public participation and maximize the use and effectiveness of new, updated information and input from agencies, tribes and the public into each document. 013-006 EPA also recommends that MMS describe in the Lease Sale 193 Final EIS how the comments that were received have been considered for each document, as applicable.

Throughout the Draft EIS, references are made to information available in the *Programmatic Environmental Assessment (PEA), Arctic Ocean Outer Continental Shelf Seismic Surveys – 2006*. The MMS relied heavily on this document in the evaluation of potential environmental effects of pre-lease seismic survey geophysical permitting. As the PEA is currently being updated by a Programmatic EIS, EPA recommends that MMS review references to the PEA that are in the Lease Sale 193 Draft EIS, update as appropriate with information that is available during development of the Draft Programmatic EIS, and incorporate the information into the Final EIS for Lease Sale 193. This is particularly important as the documents should include robust and comprehensive evaluations of the potential impacts to bowhead whales due to 013-007

noise associated with seismic activities. Again, EPA recommends that the schedules for these documents be synchronized in order to take full advantage of updated information that is obtained during the concurrent NEPA processes.

The Draft EIS discusses the polynya exclusion zone that is applicable to all of the action alternatives, and also notes that the proposed OCS 5-Year Program for 2007-2012 Draft EIS includes different alternatives for this currently protected area, including elimination of the current polynya zone (as defined in the 2002-2007 OCS 5-Year Program) or establishing an arbitrary 25-mile wide corridor. EPA recommends that the Final EIS present a clear description of the boundaries of an excluded polynya zone that would be applicable to a Lease Sale 193 in 2007, which takes into consideration the exclusion zone under the current 2002-2007 OCS 5-Year Program, and the additive features of whichever alternative is selected in the Final EIS for the 2007-2012 OCS 5-Year Program. EPA recommends that that any lease sale area in the Chukchi Sea exclude a polynya zone that provides for maximum protection of sensitive biological and subsistence resources, which is developed and supported with the best available scientific data and traditional ecological knowledge about the area. **013-008**

Endangered Species Act

EPA is concerned that relevant information regarding risks to threatened and endangered species [e.g., the spectacle eider (threatened) and the Steller's eider (threatened)] from oil and gas development has not been adequately considered in the Draft EIS. In the case of eiders, and on the basis of information in the Draft EIS, the high probability of a large spill in the planning area combined with the presence of these threatened species during vulnerable life cycle stages indicate a significant risk to their populations. The Final EIS should include a more comprehensive analysis of the probability of significant adverse impacts to these species as a result of spills, including worst case scenarios, and potential implications for survivability of the species. **013-009**

EPA is also concerned with data gaps regarding the three species of endangered cetaceans that occur within or near the Chukchi Sea Planning Area. These species include the bowhead whale, fin whale, and humpback whale. Of particular concern is the lack of data regarding the bowhead whale, given its endangered status and the critical role it plays in the subsistence lifestyle of Alaska Natives. Recent data on the bowhead distribution, abundance, or habitat use in the Chukchi Sea Planning area are not available, according to the Draft EIS. The significance of feeding in particular areas to the overall food requirements of the bowhead population or segments of the population is not clear, and both MMS and NMFS believe that there are major questions about bowhead whale feeding that remain to be answered. The Draft EIS also describes significant uncertainties about the details of many cumulative effects on the bowhead population in the area. The Final EIS needs to provide additional information to support conclusions regarding potential adverse impacts to the bowhead whale as a result of oil and gas exploration, development and production in the Planning Area and the effectiveness of mitigation measures to avoid or minimize adverse impacts. The Final EIS should also provide additional explanation of how input from local residents and affected tribes regarding bowhead whale distribution and behavior (with and without industrial activities in the area) was evaluated and used during the NEPA process and how the input was factored into the selection of a final alternative. **013-010**

As noted in the Draft EIS, in 2005 the U.S. Fish and Wildlife Service was petitioned to list the polar bear as threatened under the Endangered Species Act, and the agency is currently conducting a status review for a potential listing. A decision regarding listing the polar bear as threatened is expected to occur during preparation of the Final EIS. EPA recommends that the Final EIS incorporate the best available updated information on the regulatory status of the polar bear, including potential designation of any new critical habitat areas, and the implications for a lease sale in the Chukchi Sea. 013-011

Oil Spill Probabilities and Risk

In the Draft EIS, MMS used a combination of oil spill risk analysis and probability assumptions to determine the likelihood of various spill scenarios. EPA is concerned that throughout the document, the reference to an "unlikely" large oil spill causes confusion to the reader, and in general does not accurately reflect the potential for large oil spills to occur and cause significant adverse, and potentially irreversible, impacts to environmental and subsistence resources. According to the oil spill risk analyses presented in the Draft EIS, the chance of a large oil spill greater than or equal to 1,000 barrels (bbls) occurring and entering offshore waters is within a range of 31-51%, which represents a significant risk. For purposes of analyses, MMS models one large spill event of either 1,500 bbl (platform spill) or 4,600 bbl (pipeline spill), and concludes that the low probability of such as event, combined with the characteristics of the resources inhabiting the area, make it "unlikely" that a large oil spill would occur and contact these resources. 013-012

EPA is very concerned that the risk to environmental resources, based on the above simplified risk analysis and probability assumptions, from a large oil spill is understated in the Draft EIS. On the basis of information presented in the document regarding the calculated (statistical) risks of oil spills from OCS development, data gaps regarding sensitive environmental resources in the area, and the proven inability to clean up oil spills in broken ice and other hazardous conditions in the Chukchi Sea that exist for much of the year, the actual likelihood that a large oil spill would occur and significantly impact high-value resources should be considered much greater. EPA recommends that the MMS incorporate a more comprehensive approach to oil spill risk and the adverse impacts that could result from leasing, exploration, development and production of oil and gas resources in the Chukchi Sea. The Draft EIS lacks sufficient justification to conclude that while a large oil spill could cause adverse effects, including significant adverse effects, the low probability for such a spill combined with an assumption that the area affected by the spill would not likely contact biological resources indicate it is "unlikely" that a large oil spill would occur.

Environmental Justice

EPA's primary concerns with the treatment of environmental justice during the Lease Sale 193 NEPA process and in discussions in the Draft EIS focus on the effects of multiple, overlapping and fast-tracked planning processes that have occurred over the past several months, and increasing concerns from local residents regarding human health impacts from proposed oil and gas exploration, development and production activities in the area. 013-013

EPA recognizes that the voluminous amount of information that has been prepared in various NEPA documents for oil and gas activities in the Alaska Arctic, both onshore and offshore, throughout 2006 has put a strain on local communities' abilities to adequately review and respond to proposed activities that directly affect their quality of life and, in particular, their subsistence way of life. In recent weeks public input has been solicited for the Beaufort Sea Oil and Gas Lease Sale 202 EA and Finding of No Significant Impact, the MMS OCS 5-Year Program for 2007-2012 and the accompanying 5-Year Program Draft EIS, the NOI for a Programmatic EIS for seismic activities in the Chukchi and Beaufort Seas, an NOI for a Supplemental EIS for the Northeast National Petroleum Reserve-Alaska (NPR-A) Integrated Activity Plan, and this Lease Sale 193 Draft EIS. The public review and comment periods have at times occurred during critical whaling and other subsistence activity seasons when many of the key individuals in the communities were likely unavailable, and they have all occurred in such rapid succession that thoughtful and meaningful reviews, which the agencies ask for and expect, have undoubtedly been constrained. More importantly, it is understandable that the pressure to review, comment on and ultimately live with the rapid pace of industrial activities creates stress and other adverse impacts to individuals living in the area. The Draft EIS does not present adequate information to support the statements about the urgency to conduct Lease Sale 193 at this time. EPA recommends that the MMS reconsider the proposed schedule for the lease sale, the accompanying NEPA process requirements, and the myriad of other overlapping resource development planning processes that are currently underway in the area and strive to achieve more balance in the both the planning schedules and in the impacts to residents' daily lives.

013-014

A second concern relative to environmental justice results from EPA's review of the Draft EIS and also from our understanding of the recurring comments from local residents and North Slope Borough officials about recognized and potential human health impacts from onshore and offshore oil and gas activities on the North Slope. It is our understanding that on several occasions MMS and other federal agencies have been asked by North Slope Borough officials to engage in meaningful discussions and consultation about environmental health concerns of local residents. EPA understands the challenges associated with studies of impacts from oil and gas development on community and individual human health and the evaluation of potential mitigation for impacts. However, EPA encourages MMS to foster and participate in focused dialogue with local residents in order to better understand the types of concerns regarding human health that are in the communities and work with communities to explore potential ways to analyze and mitigate adverse impacts. EPA considers the analysis of human heath impacts from proposed oil and gas leasing, exploration, development and production part of the NEPA process, and we would be interested in assisting MMS in their efforts.

013-015

Cumulative Impacts

EPA is concerned that the Draft EIS does not adequately analyze potential cumulative impacts on Alaska's onshore and offshore ecosystem and the local communities who depend on healthy ecosystems for their social, cultural and subsistence way of life. An expanded analysis and discussion regarding potential cumulative effects from past, present and reasonably foreseeable future OCS and non-OCS related activities within the planning area should be included in the Final EIS. In particular, an expanded discussion of present and reasonably foreseeable future non-OCS activities, which include the expected significant increase in

013-016

nonenergy related minerals exploration and development in northern Alaska, and their potential impacts should be included for the cumulative case in the Final EIS. Mineral exploration and development activities that are currently underway and expected to increase in northwestern Alaska over the next several years are relevant to the cumulative analysis (e.g., expansions to the Red Dog Mine, coal extraction on Arctic Slope Regional Corporation land and hard rock mining activities in South NPR-A). Additional discussion regarding increased marine vessel traffic, including large-volume cargo vessels, and land use alterations that are likely to result from onshore hard rock mining activity and future development of oil and gas resources in the NPR-A should be included in the Final EIS.

EPA appreciates the opportunity to review and provide comments on the Chukchi Sea Planning Area Lease Sale 193 Draft EIS. If you have any questions or comments concerning this review, please contact me at (206) 553-1601. Please also feel free to contact Colleen Burgh in our Alaska Operations Office at (907) 271-1481.

Sincerely,

/s/
Christine B. Reichgott, Manager
NEPA Review Unit

Enclosure

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

Responses to EPA Comments.

EPA 013-001

The MMS agrees that analyzing information regarding the potential roles that energy conservation and use of renewable resources may play in helping meet increasing energy demands in this country has merit. The MMS has analyzed alternative energy at the programmatic level. The MMS evaluated alternative energy as the No Action Alternative in the 2007-2012 OCS 5-Year Program EIS (USDOI, MMS, 2006c:Sec. IV.I).

EPA 013-002

The Polynya Deferral Area identified in the 2002-2007 5-Year Program is not available for leasing in proposed Sale 193. If some of this area is made available to offer for lease in the 2007-2012 5-Year Program, it still would not be available to offer in Sale 193. If additional area is deferred from leasing in the 2007-2012 5-Year Program (e,g,, the proposed 25-mile coastal buffer), the additional area would then be excluded from the Sale 193 Proposed Action. The Sale 193 Proposed Action area would be defined as the boundary farthest from shore under either the 2002-2007 or 2007-2012 5-Year Program. This has been made clear in the final EIS.

The size of the areas offered under the 5-Year Programs and the alternatives developed for specific leases sales are based on consideration of the best available scientific information and traditional ecological knowledge about the area.

EPA 013-003

We have integrated the results of the Section 7 consultation on threatened eiders into the final EIS. We do not anticipate substantial changes to the alternatives.

EPA 013-004

We have not had any problem in obtaining, evaluating, and incorporating the most up-to-date information in all three NEPA documents in preparation by MMS and NMFS (2007-2012 5-Year Program final EIS, Chukchi Sea Sale 193 final EIS, and Arctic Ocean Seismic Surveying draft Programmatic EIS). The same subject-matter-experts from MMS have worked on all three documents. The NMFS is a cooperating agency on the Sale 193 EIS and the Seismic Surveying PEIS. The MMS Region, MMS Headquarters, and NMFS team leads and specialists worked closely together to ensure that the most current information was available and was considered for all three documents.

EPA 013-005

We agree with the comment and have clarified the differences between conditional and risked analysis. The probability that a commercial oil field will be leased, discovered, developed, and produced as a result of holding the lease sale is a separate issue from the potential risk and effects of an oil spill assuming that development occurs.

The chance that a commercial oil development will occur is broadly implied by the so-called “Opportunity Index,” which defines the relative oil potential in various portions of the area. Although it is more likely that a commercial discovery will be made if more area is offered for leasing, the Opportunity Index is not the same as the chance of success for exploration and development. In a high-cost area with unproven petroleum resources, the chance of commercial success is probably lower than 10%. This means that if 10 prospects are tested, one could hold potentially commercial oil volumes.

We checked the entire document for errors in oil-spill language and revised sections for clarity. 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 large

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 chance of one or more large spills occurring is derived from two components: (1) the spill rate and (2) the resource volume estimates. The spill rate is multiplied by the resource volume to estimate the mean number of spills. Oil spills are treated statistically as a Poisson process, meaning that they occur independently of one another. If we constructed a histogram of the chance of exactly 0 spills occurring during some period, the chance of exactly 1 spill, 2 spills, and so on, the histogram would have a shape known as a Poisson distribution. An important and interesting feature of this distribution is that it is entirely described by a single parameter, the mean number of spills. Given its value, you can calculate the entire histogram and estimate the chance of one or more large spills occurring. The percent chance of one or more large spill occurring for Alternative I is 40% over the life of the project and is derived from adding the mean number of platform and pipeline spills together. That mean number of spills over the production life of the project is used as the mean in a Poisson distribution. There is a 60% chance of no spills occurring over the life of the Proposed Action, and the most likely number of spills is zero.

Regarding the oil-spill trajectories, we modeled more than two spills. Please see Appendix A.1, Section C.1.e, which states that a total of 2,700 trajectories (1,575 in winter; 1,125 in summer) were launched from each of the 1,002 launch points for a total of 2,705,400 trajectories.

We acknowledge that there is considerable uncertainty with regard to the location, timing, and density of biological resources in the Chukchi Sea. As in the past, we intend to continue to improve the resource information in the model as it becomes available.

Please see Appendix A.1 Section D. Oil-Spill-Risk Analysis, for a description of how combined probabilities are estimated. The combined probabilities estimate the chance of one or more spills occurring and contacting a social, economic, environmental, or geographic resource of concern. They are estimated from the chance of one or more large spills occurring, the chance of a large spill contacting (conditional probability), and the transportation assumptions.

EPA 013-006

The MMS has made every effort to stagger the schedules of the three NEPA documents in preparation (2007-2012 5-Year Program final EIS, Chukchi Sea Sale 193 final EIS, and Arctic Ocean Seismic Surveying draft Programmatic EIS), to keep our stakeholders informed of the NEPA process schedules, and to provide multiple opportunities for public and stakeholder input. Both the Final EIS's for the 2007-2012 5-Year Program and proposed Chukchi Sea Sale 193 will be published in spring 2007; both will have a 30-day period for additional public comment. The draft EIS on Arctic Ocean Seismic Surveying has just been published, and public hearings are scheduled for late April and early May. As appropriate, each document discussed consideration of comments received during scoping, during public review of the draft EIS, and on the final EIS. Comments received on any one document are considered as scoping or additional information for the other documents as appropriate for the timing in the NEPA process.

EPA 013-007

The final EIS for Lease Sale 193 has been updated as appropriate with any new information available since publication of the PEA and being incorporated in the Arctic Seismic Surveying Programmatic EIS. As explained in the response to comment **EPA 013-004**, the same subject-matter-experts from MMS and NMFS are working on both EIS's. Please see the response to comment **EPA 013-006** for our response to scheduling these NEPA processes.

EPA 013-008

See the response to comment **EPA 013-002**.

EPA 013-009

The suggested topics are evaluated during the Section 7 consultation process.

EPA 013-010

As required under the CEQ regulations at 1502.22, the EIS makes clear what information is incomplete or lacking. As the comment acknowledges, the EIS states that recent information on the bowhead distribution, abundance, and habitat use in the Chukchi Sea Planning Area are not available. The analysis in the EIS uses the best scientific information available and professional judgment to evaluate the reasonably foreseeable effects resulting from the proposed lease sale and the activities that may result from leasing. We believe that the conclusions in the EIS regarding potential adverse impacts to bowhead whale as a result of oil and gas exploration, development, and production in the planning area are appropriately supported by the analysis of the best available scientific information. The effectiveness of known mitigation and the process for the development of project specific mitigation during NEPA review of specific proposed activities are also fully discussed in the EIS (see specifically Sec. I.E.).

The MMS incorporates traditional ecological knowledge in the description of the environment and impact analysis for each resource and further incorporates that information in the subsistence and sociocultural evaluations. The MMS holds public scoping meeting and public hearings on the draft EIS in the potentially affected communities. The MMS conducts government-to-government meetings with potentially affected tribes at several stages during the prelease, NEPA, and decision processes. This information is used in identifying the issues, alternatives, and mitigation measures included in the EIS. This information is provided to MMS decisionmakers for their consideration in various forms including scoping reports, the draft EIS, summaries of public hearings, comments on the draft EIS and MMS responses to comments, decision documents, and various verbal and written briefings. How input from the local subsistence communities was used in defining the alternatives evaluated in this EIS is explained in the response to comment **EPA 013-002**.

EPA 013-011

The MMS has carefully reviewed and addressed all of the substantial FWS comments on the draft EIS. The MMS will continue to work closely with FWS to incorporate updated information as it becomes available, including information on any designated critical habitat. The decision regarding the listing of polar bears is expected in December 2007 (or January 2008) after publication of the final EIS, which is due out in June 2007.

EPA 013-012

The OSRA model has been developed by the DOI as a tool to evaluate the risk of potential oil spills on the OCS. The OSRA model addresses the following independent factors:

1. the chance of one or more large spills occurring as a function of the quantity of oil to be produced and handled at individual production sites, pipelines, and tanker routes;
2. the probabilities of various spill trajectories from production sites and transportation routes as a function of wind, current, and ice circulation for the area; and
3. the location in space and time of vulnerable resources defined according to the same coordinate system used in the spill-trajectory simulation.

The results of these individual parts of the analysis are combined to estimate the total oil-spill risk associated with production and transportation at locations within a proposed lease area. The information from each component is used separately and together in the risk analysis that is present in the EIS.

The chance of one or more large spills ranges from 28% for Alternative III to 40% for Alternative I over the production life. The numbers cited by EPA in their comment are the estimated mean number of spills

and are generally not cited as percentages. Those estimated mean numbers of spills range from 0.33 for Alternative III to 0.51 for Alternative I; we estimate approximately one-third to one-half of a large spill. For purposes of analysis, we assume one large spill over the life of the field.

Please see comment **EPA 013-005** for the sentence regarding modeling one spill of either 1,500 or 4,600 bbl.

The combined probabilities in Appendix A, Tables A.2-73 through A.2-90 represent the chance of one or more spills greater than or equal to 1,000 barrels, and the estimated number of spills (mean), occurring and contacting a certain environmental resource area, land segment or group of land segments within 3, 10, 30, 60, 180, or 360 days. The MMS does not agree with the commenter that this is a simplified analysis. The MMS uses the three components listed above to derive the combined probabilities. The MMS estimates the chance of one or more spills occurring over the production life of the Alternative. The information from more than 2 million trajectories is used to tabulate the likelihood of whether a resource is contacted within 3, 10, 30, 60, 180, or 360 days. These two components are combined through matrix multiplication to derive the combined probabilities in Appendix A, Tables A.2-73 through A.2-90. The analysis of large oil spills assumes no cleanup. Oil-spill cleanup is analyzed separately. This assumption is listed in Section IV.A.4.a, Large Oil Spills.

EPA 013-013

A discussion of the MMS outreach process that dealt with environmental justice concerns can be found in Section III.B.6., Environmental Justice. For comments on the planning and leasing schedule and human health impacts, see responses to comments **NSB 006-010**, **Point Lay 001-008**, Barrow **003-017**, **NSB 006-005**, and **NSB 006-011**.

EPA 013-014

For a discussion of the MMS leasing and planning schedule, see response to comment **NSB 006-010**.

EPA 013-015

The MMS welcomes any assistance the EPA could offer on advancing the human health impacts-analysis process. For a discussion of MMS's recent dialogue with the NSB and the Alaska Inter-Tribal Council on human health impacts, see responses to comments **Point Lay 001-008**, **Barrow 003-017**, **NSB 006-005**, and **NSB 006-011**.

EPA 013-016

We believe that the scope of the cumulative analysis is appropriate for this EIS and is in accordance with the provisions of NEPA regulations to keep EIS's concise and no longer than absolutely necessary (40 CFR 1502.2(c)), to evaluate actions at a level of detail appropriate to focus issues relevant to the decisionmaking process. While the level of detail for this cumulative impact analysis is less broad than that of the 5-year Program, it is considerably more focused for the level of detail necessary for an individual lease sale. This approach is in keeping with NEPA (40 CFR 1502.20), involving the use of a tiered approach of analyses.

Past and present activities associated with the South, Northeast, and Northwest NPR-A Planning Areas have been considered in a cursory way within this analysis. However, MMS acknowledges and includes present NPR-A activities and infrastructure into the Lease Sale 193 cumulative impact analyses but does not include a particular scenario for the various planning units of the NPR-A. The selection of possible scenarios associated with the future of NPR-A development is far too speculative for MMS to include into the cumulative impact analysis for this lease sale.

The MMS has included Nikaitchuq prospect in the Beaufort Sea in the cumulative analysis for Lease Sale 193 (see Sec. V.B.3 and Table V-1). The drillship Kulluk purchased by Shell was not specifically

mentioned in this document, because MMS does not keep track of industry capital. However, exploration activities associated with the Beaufort Sea prospects were considered in this analysis, and it is likely that the drillship Kulluk could be used for exploration within these areas. Description of the Kulluk and associated operations (including potential impacts) would be analyzed in detail within Shell's Exploration Plan Environmental Assessment stage of analyses.

The Red Dog Zinc Mine was considered in the cumulative case for the Lease Sale 193 as well as within the EIS for the 2007-2012 5-Year Program. The MMS recognizes that Northwest Alaska has extensive bodies of ore that might be developed if world metal prices were favorable and extensive coal deposits could someday be mined economically. The MMS information indicates that no firm plans to develop any new mines for ore or coal, although those resources generally are considered in long-term regional planning for Northwest Alaska (U.S. Army Corps of Engineers. 2005). As a result, any long-term plans for the development of coal mines within the geographic vicinity of the Chukchi Sea are considered outside the scope of cumulative impacts for Lease Sale 193.

The MMS considered the OCS activities in the Canadian Beaufort at the programmatic stage of analysis during the 2007-2012 5-Year Program. At present, no process is in place to acquire meaningful information regarding Russian commercialization and industrialization in the high arctic. While MMS acknowledges the existence of various industrial activities, these activities are not well understood and, as a result, fall into the speculative category of activity as defined in Section V of the Lease Sale 193 EIS.

Lease Sale 193
Draft EIS
Comments

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. Tudor Rd.
Anchorage, Alaska 99503-6199

IN REPLY REFER TO:

Document 17

FWS/AFES

DEC 19 2006

Memorandum

To: Regional Director – Minerals Management Service

From: Regional Director - Region 7 Thomas O. Melius

Subject: Comments on the Draft Environmental Impact Statement for the Chukchi Sea Planning Area Oil and Gas Lease Sale 193 and Seismic Surveying Activities in the Chukchi Sea

The U.S. Fish and Wildlife Service have reviewed the Draft Environmental Impact Statement prepared by the MMS for Lease Sale 193 in the Chukchi Sea Planning Area of the Alaska Outer Continental Shelf. The DEIS evaluates four alternatives for conducting oil and gas leasing in the 34 million-acre planning area, including the Proposed Action (Alternative I) to make the entire planning area available for leasing. We are providing general comments and recommendations that address broad issues or issues applicable to several of the analyzed alternatives, as well as specific comments referenced to the applicable text in the DEIS (see Attachment). Our responsibilities, resource concerns and principle recommendations are summarized below.

Fish and Wildlife Resources at Risk

The Service has management responsibility for a number of public trust resources that could be affected by oil exploration and eventual development associated with the proposed lease sale. The DEIS recognizes the importance of the planning area and adjacent habitats to these resources, particularly migratory waterfowl, seabirds, polar bears and Pacific walrus. Near the southern part of the planning area, the Service also manages the Cape Thompson and Cape Lisburne units of the Alaska Maritime National Wildlife Refuge, which support some of the most important seabird nesting colonies in northern Alaska. The Service recognizes the tremendous effort the MMS has expended in compiling information and public comment, and we commend the MMS for soliciting and assimilating Service data pertaining to our trust resources.

The remoteness of the planning area and its distance from existing infrastructure make it difficult to predict the ultimate level of development, if any, that may follow leasing and exploration. The Service concurs with the MMS that if development occurs the potential for oil spills exists, and that under some circumstances spills could significantly impact fish, wildlife, habitats and

subsistence harvest. The lack of effective spill containment, recovery and clean-up technologies for the conditions that often prevail in the Chukchi Sea heightens our concerns that spills could reach important habitats and that biological resources could be adversely affected.

Threatened and Endangered Species and Candidate Species

The Chukchi Sea Planning Area and adjacent nearshore waters are within the ranges of the spectacled eider (*Somateria fisheri*) and the Alaska-breeding population of Steller's eider (*Polysticta stelleri*), both listed as threatened under the Endangered Species Act. Both species use nearshore and offshore waters along the Chukchi Sea coast as they migrate to and from Arctic Coastal Plain breeding areas. Open-water leads are thought to be important to spring migrating eiders, while post-breeding and fall migrating eiders use nearshore waters and lagoons as foraging and staging areas. Ledyard Bay is an important molting area at which spectacled eiders congregate each year; it has been designated as critical habitat for this species.

The Fairbanks Fish and Wildlife Field Office's Endangered Species Branch is currently working with MMS staff on the Section 7 consultation for listed eiders, which will be completed prior to issuance of the Final EIS and ROD. The consultation will evaluate whether the direct, indirect and cumulative effects of the proposed action will jeopardize the survival and recovery of either species.

No other listed species occur in the project area; however, Kittlitz's murrelet (*Brachyramphus brevirostris*), a candidate species for listing, has been recorded as nesting on the Lisburne Peninsula. The status of this species within the planning area and the potential impacts of the proposed lease sale are being evaluated through the Section 7 consultation. Additionally, the Service has been petitioned to list the yellow-billed loon (*Gavia adamsi*) and polar bear (*Ursus maritimus*), both of which occur in or immediately adjacent to the planning area. Under Section 7 of the Act, species petitioned for listing are not assessed as part of the consultation; however, if these or any other species are listed in the future, it will be necessary to reinitiate consultation.

Summary Comments and Recommendations

Based on our review of the action alternatives presented in the DEIS, we recommend the MMS:

Adopt Alternative III (Corridor I Deferral) as the preferred alternative in the Final EIS to reduce the likelihood of impacts to important coastal and nearshore habitats and the numerous species that concentrate there.

> The Service concurs with the analyses presented in the *Alternatives* and *Environmental Consequences* sections of the DEIS that deferring lease blocks closest to the coast would benefit a variety of resources by moving sources of potential adverse impact further from important coastal and nearshore habitats. Under Alternative III, the likelihood of a large spill is reduced by 30 percent, and the chance of spilled oil reaching some high-value habitats is reduced by 50 percent or more, compared to the Proposed Action. Alternative III would make most of the planning area available for leasing while reducing

the risk of a spill reaching sensitive coastal, nearshore and spring-lead habitats that support the most important seasonal concentrations of fish, wildlife and subsistence resources (e.g., Ledyard Bay, Kasegaluk Lagoon and some spring-lead systems). Of the action alternatives evaluated in the DEIS, we support Alternative III as the best reflection of a balanced approach that would provide access to high-potential energy areas and conserve important fish and wildlife resources.

Conducts an analysis of changes in conditional probabilities (the percent chance that a large spill would reach coastal habitats) associated with each action alternative and include the results of this analysis in the Final EIS.

We believe this analysis would further clarify the differences in risk to trust resources associated with each of the action alternatives.

Promote additional analyses of pipeline design, focusing on the need for pipeline integrity and monitoring, secondary containment and highly reliable and sensitive leak-detection systems.

Development in the Chukchi Sea would require subsea pipelines many times longer than anything used in the Arctic to date. Due to the importance of the fish, wildlife and subsistence resources in the area combined with difficulties in responding to spills, should they occur, we recommend the highest standards and state-of-the-art technologies for well control, spill prevention, leak detection, pipeline integrity, spill modeling and response.

Continue to support and conduct research addressing resource concerns on Alaska's Outer Continental Shelf.

The Service commends the MMS's efforts in this area and we look forward to the continued opportunity to collaborate on research needed to fill information gaps, determine appropriate facility construction requirements, and develop and evaluate measures to mitigate potential impacts of oil and gas activities on fish and wildlife in the Chukchi Sea Planning Area. Specific recommendations regarding studies and mitigation measures are included in the Attachment.

We appreciate this opportunity to review and comment on the DEIS, as well as the MMS's earlier invitations to provide resource data, maps and other technical information, and to participate in planning meetings throughout this process. We look forward to working closely with your agency as you proceed to the Final EIS and ROD. If you have questions concerning our comments, or if we can be of further assistance with regard to resource information, please contact Mr. Larry Bright of the Fairbanks Fish and Wildlife Field Office at (907) 456-0324.

Attachment

ATTACHMENT

U.S. Fish and Wildlife Service Comments on the Draft Environmental Impact Statement for the Chukchi Sea Planning Area Oil and Gas Lease Sale 193 and Seismic Surveying Activities in the Chukchi Sea

Our comments are limited to a discussion of potential impacts to Service trust resources including migratory birds, marine mammals, anadromous fish, subsistence resources, species listed under the Endangered Species Act, and National Wildlife Refuge conservation units. General comments and recommendations address broad issues or issues applicable to several of the analyzed alternatives. Specific comments reference text in the DEIS.

GENERAL COMMENTS

Potential Impacts to Service Trust Resources

The Service is responsible for conserving a number of public trust resources that could be impacted by oil and gas leasing, exploration and development in the Chukchi Sea OCS Planning Area. These include species listed as threatened under the Endangered Species Act, migratory birds, anadromous fish, certain marine mammals, and the habitats on which these depend. The Service is also responsible for stewardship of the Cape Thompson and Cape Lisburne units of the Alaska Maritime National Wildlife Refuge.

Of particular concern are potential impacts to threatened spectacled eiders and Alaska-breeding Steller's eiders, other waterfowl species thought to be suffering declines, including king and common eiders and Pacific brant, as well as seabirds, shorebirds, loons, polar bears and Pacific walrus. Many of these spend substantial amounts of time in the Chukchi Sea Planning Area or in adjacent nearshore and coastal habitats. Ledyard Bay, Kasegaluk Lagoon, Peard Bay, capes Lisburne and Thompson, Spring Lead systems, and seasonal ice-edge areas all support seasonal concentrations of wildlife, often during physiologically stressful or otherwise vulnerable life history stages, including nesting, brood-rearing, molting, staging, denning, and calving. Some of these concentrations may represent a significant portion of a species' entire population, increasing the chance that oil spills and other potential effects of oil exploration and development could result in significant impacts. Many species that could be impacted by oil and gas activities also are important subsistence resources for communities in western Alaska.

The DEIS thoroughly summarizes available information regarding these resources while recognizing that important information for some species, including distribution and habitat use, is dated or lacking entirely. It also recognizes the greatest threat to these resources related to oil and gas activities in the Chukchi Sea is the potential for large oil spills. Although the MMS considers the probability of a large spill resulting from Lease Sale 193 to be low, this seems to be based on the assumption that leasing is unlikely to result in subsequent development. Regardless of the likelihood of development, the Service agrees with the MMS's conclusion that oil spills could occur should leasing lead to offshore development; that spills could be difficult or

impossible to effectively contain and clean up; and that they could, depending on size, location and timing, result in significant impacts to fish, wildlife, habitats and subsistence harvest.

Other aspects of offshore oil activities could affect Service trust resources. For example, the likelihood of smaller spills or chronic releases is much greater than that of large spills, and these could impact birds, fish, marine mammals and their prey. Seismic surveys, exploration drilling, production activities, and boat and air traffic also could disturb or displace wildlife, and offshore exploration and production facilities could pose a collision risk to migrating birds. If climate trends continue, pipeline land-fall and other onshore facilities may be threatened by eroding shorelines and more severe Arctic storms; these may present additional spill hazards.

Much remains to be learned about the locations and importance of specific coastal and offshore areas to polar bears and walrus, and to foraging, molting and staging waterfowl, seabirds and shorebirds. Nonetheless, it is clear that the Chukchi Sea Planning Area and adjacent nearshore and coastal waters provide important habitat for a number of species that may be impacted by offshore oil development. We believe the surest way to reduce the likelihood of impacts to fish, wildlife and their habitats, as well as to subsistence resources and hunters, is to: 1) keep potential sources of impacts (particularly oil spills) as far as possible from important habitats and subsistence use areas; and 2) prevent the release of oil to the environment by requiring state-of the art technologies for well control, pipeline design and integrity, leak detection, monitoring, and spill response. With regard to oil spills, we concur with the MMS's conclusion that keeping development further from important habitats would reduce the chance of spilled oil contacting seasonal concentrations of wildlife, increase the time for weathering of spilled oil prior to contact, and increase the amount of time available for spill response to potentially minimize the impact to wildlife. Below we provide specific information on some Service trust resources that we hope will assist in preparation of the Final EIS for Lease Sale 193.

Threatened and Endangered Species

The Chukchi Sea Planning Area and adjacent nearshore waters are within the ranges of the spectacled eider (*Somateria fisheri*) and the Alaska-breeding population of Steller's eider (*Polysticta stelleri*), both listed as threatened under the Endangered Species Act (Act). Both species use nearshore and offshore waters along the Chukchi Sea coast as they migrate to and from Arctic Coastal Plain breeding areas. Open-water leads are thought to be important to spring migrating eiders, while post-breeding and fall migrating eiders use nearshore waters and lagoons as foraging and staging areas.

Satellite telemetry data indicate that after nesting near Barrow, Steller's eiders use nearshore coastal waters of both Alaska and Russia prior to arriving at molting areas in the southern Bering Sea (Martin et al. *In prep.*). Birds that departed Barrow enroute to the Chukotka Peninsula in Russia used sites along the Chukchi Sea coast of Alaska briefly ($\leq$ 3 days), while birds that did not continue to Russia used these sites for 12-23 days. The majority of stopover use-days occurred in nearshore marine waters within 5 km of the coastline; however, offshore migration tracks also were documented.

Male spectacled eiders depart the nesting grounds for the marine environment by mid- to late June (Troy 2003). Females that fail to nest successfully leave breeding areas from mid-July to early August; successful females and their broods depart from late August to early September (Petersen et al. 1999, Troy 2003). During late summer, spectacled eiders congregate to molt and stage in large flocks along coastal areas in three principal molting areas: Ledyard Bay in the northeastern Chukchi Sea, Norton Sound in the northeastern Bering Sea and Mechigmenskiy Bay in Russia. Males that breed in northern Alaska appear to use these three molting areas in roughly equal numbers. Although a few females marked on the North Slope molted at Mechigmenskiy Bay, Russia, and off of St. Lawrence Island (Petersen et al. 1999), the vast majority of North Slope-nesting females are thought to molt at Ledyard Bay (USFWS 2001), adjacent to the southern part of the lease sale area. The summer distribution of non-breeding eiders is not known, but these birds are believed to congregate in small flocks in coastal waters throughout their range.

Over 33,000 spectacled eiders were recorded in Ledyard Bay during aerial surveys in September 1995 (USFWS 2001). The large numbers of birds that congregate there for considerable periods during energetically demanding life history stages indicate the importance of the habitat in this area. Because of its importance to large numbers of migrating and molting eiders, Ledyard Bay has been designated as critical habitat under the Act. As such, the area receives protection under Section 7 of the Act through the prohibition against destruction or adverse modification with regard to actions carried out, funded, or authorized by a Federal agency. The Service believes perturbations in this area may have significant consequences for this species.

Given the uncertainty regarding future levels of development, how development would be managed, and how listed eiders may be affected, it is difficult to evaluate potential impacts of the action alternatives on these species. Clearly, if an oil spill were to reach Ledyard Bay when large numbers of spectacled eiders are molting there, the potential for population-level impacts exists. A spill occurring when molting eiders are not present could adversely impact this area through contamination of benthic habitats and damage to eider food resources. Other activities associated with exploration and development, including seismic testing, exploration drilling, facility and pipeline construction and increased boat and air traffic, could also adversely affect listed eiders.

The Fairbanks Fish and Wildlife Field Office's Endangered Species Branch is currently working with MMS staff, and we believe Section 7 consultation will be completed prior to issuance of the Final EIS and ROD. The consultation will evaluate whether the direct, indirect and cumulative effects of the proposed action will jeopardize the species' survival and recovery.

No other threatened or endangered species occur in the Chukchi Sea Planning Area; however, Kittlitz's murrelet (*Brachyramphus brevirostris*), a candidate species for listing, has been recorded as nesting on the Lisburne Peninsula, adjacent to the southern portion of the planning area (USFWS 2005). Nesting records for this species are exceptionally rare, and information is lacking on the number of birds that nest in the vicinity or use the planning area or adjacent marine waters. Although Kittlitz's murrelets that breed in northwest Alaska are thought to be at the limit of their range, concentrations were observed near the Lisburne Peninsula in the 1970s (Day et al. 1999). Although assessment of impacts to candidate species is not required under

Section 7 of the Act, we understand the MMS has decided to include evaluation of this species in the Section 7 consultation.

Additionally, the Service has been petitioned to list yellow-billed loons (*Gavia adamsi*) and polar bears (*Ursus maritimus*), both of which occur in or immediately adjacent to the Planning Area, under the Act. Under Section 7 of the Act, species petitioned for listing are not assessed as part of the consultation; however, if these or any other species are listed in the future, it will be necessary to reinitiate consultation. Additional information on yellow-billed loons and polar bears is provided below.

Migratory Birds

Although our knowledge of bird use and important habitats within and adjacent to the Chukchi Sea Planning Area is imperfect, the importance of the area to a number of species has been well documented. The planning area and adjacent nearshore waters, lagoon systems and coastal tidelands are used by large numbers of waterfowl, seabirds and loons, and adjacent coastal areas provide important breeding, brood-rearing, molting and pre-migration staging habitats for these and for shorebirds. In addition to listed eiders, other waterfowl that breed in northern Alaska congregate in open leads and nearshore waters during spring and fall migrations, particularly king and common eiders, Pacific brant and long-tailed ducks. Pacific, red-throated and yellow-billed loons also use these areas. Hundreds of thousands of seabirds, primarily common and thick-billed murres, breed within Alaska Maritime National Wildlife Refuge lands at Cape Lisburne and Cape Thompson; these birds forage, molt and raise their young in offshore waters in and adjacent to the planning area. Recent research focused on shorebirds suggests that coastal areas in the vicinity of Kasegaluk Lagoon provide important pre-migration staging habitat for a number of species, particularly phalaropes.

Increased oil activities in the Chukchi Sea Planning Area could result in impacts to migratory birds and the habitats that support them, and to the subsistence communities that depend on them. Seismic testing, construction activities, human disturbance, boat and air traffic, and construction of subsurface pipelines all have potential to negatively affect marine birds. As with listed eiders, however, the principal threat to the conservation of other migratory birds is the potential for large oil spills. Both direct effects of oiling, through fouling of feathers, and indirect effects from contamination and depletion of food sources, could significantly influence the continued and long term value of this region to migratory birds.

The Service has been petitioned to list yellow-billed loons as threatened under the Endangered Species Act. Our understanding of how and to what extent this species uses the planning area is incomplete; however, it is a regular migrant along the coastlines of northern Alaska (Earnst 2004). Although spring staging is not well studied, and the extent of open water and degree to which loons congregate presumably varies annually, large numbers of yellow-billed loons have been reported in open-water leads in some years (Alexander et al. 1997). Satellite telemetry data indicate the species also uses near-shore marine waters in the Chukchi Sea during fall migration (J. Schmutz, unpubl. data). Breeding yellow-billed loons may be particularly vulnerable to near-shore oil spills during spring and fall migrations, while the poorly understood non-breeding segment of the population, which is thought to spend nearly all its time in the marine

environment, may be vulnerable during the entire open-water season. The Service, Alaska Department of Natural Resources, Alaska Department of Fish and Game, Bureau of Land Management, Mayor of the North Slope Borough and National Park Service have entered into a Conservation Agreement for the yellow-billed loon. The agreement, signed by all parties in September 2006, addresses threats to onshore habitats in the U.S.

We are also concerned about apparent population declines in king and common eiders. The numbers of king and common eiders recorded during spring migration counts at Barrow declined by 56 percent and 53 percent, respectively, from 1976 to 1996 (Suydam et al. 2000). Both species occur in significant numbers in Chukchi Sea nearshore waters during spring and fall migrations to and from breeding grounds in northern Alaska and Canada. Open water leads in the Chukchi Sea are important during spring migration, and both species can become concentrated in these areas if poor weather prevents them from continuing northward (Roseneau and Herter, 1984). Ledyard Bay is an important resting, foraging and staging stopover site in spring (Powell et al. 2005, Dickson et al. 2003), and in summer and fall, Kasegaluk Lagoon and Peard Bay are important staging and molting areas for common eiders. A large oil spill reaching Ledyard or Peard bays, Kasegaluk Lagoon, or spring lead systems could impact a significant portion of both king and common eider populations.

Pacific brant have also suffered population declines despite interagency and interstate efforts to reverse the downward trend. Winter survey numbers have declined in recent years to the point that the Pacific Flyway Council recommended "very restrictive" harvest levels for this species, which is an important subsistence resource for communities in northern and western Alaska and an important sport species along the Pacific coast in Washington, Oregon and California. Subadults and failed breeders from the Yukon Delta and Russian breeding areas move along the Chukchi Sea starting in mid-June (Lehnhausen and Quinlan 1981), most on their way to the unique communal molting area near Teshekpuk Lake along the central Beaufort Sea coast (Derksen et al. 1979). Up to 30 percent of the entire Pacific brant population, including birds that breed in Alaska, Canada and Russia, congregate to molt north of Teshekpuk Lake (Mallek 2004). After molt, these birds and Canada-breeding migrants use marine habitats of the Beaufort and northern Chukchi seas. Thousands of brant rest and feed in salt marsh, and mudflat habitats along the Chukchi Sea coast in August and September, especially at Kasegaluk Lagoon (Roseneau and Herter 1984), where up to 45 percent of the Pacific Flyway population may congregate. A large spill in Kasegaluk Lagoon could threaten a significant portion of the already beleaguered Pacific brant population.

Polar Bears

Alaska's two stocks of polar bears spend the majority of their life cycle in the ice-covered waters of the Beaufort and Chukchi seas, including the proposed lease sale area. The Service has been petitioned to list polar bears as threatened under the Endangered Species Act. We are currently evaluating whether such a listing is warranted. If polar bears become listed under the Act, the Section 7 consultation for the proposed lease sale will need to be amended to include an assessment of the potential impacts to this species. Consultation could lead to additional requirements to reduce the likelihood of adverse effects of oil activities on polar bears. Additionally, legislation to implement the bilateral *Agreement on the Conservation and*

Management of the Alaska-Chukotka Polar Bear Population was just signed by Congress and will require an increased level of international coordination and communication with our Russian counterparts for activities that affect polar bears, as well as other actions deemed appropriate by the Joint Commission that will be formed to oversee implementation of the *Agreement.*

In the proposed lease sale area, our primary concerns for polar bears are: 1) large-scale oil spills or other pollution events; 2) disturbance to denning bears; and 3) cumulative effects from oil and gas development that could cause habitat loss or preclude the use of preferred habitat. The potential for oil spills and the subsequent impacts on polar bears are a major concern. Polar bears may be affected directly through contacting spilled oil or ingesting contaminated prey, or indirectly through loss of habitat or displacement of prey species. Polar bear vulnerability to oil spills in the offshore environment would increase if spilled oil occurred near or dispersed to areas with aggregations of bears.

In the Chukchi Sea, areas of concern include the recurrent lead system between Point Hope and Barrow (winter and spring) and the southern edge of consolidated multi-year ice where polar bears are concentrated during late summer and early autumn. Clearly, coastal and nearshore areas provide important habitat for polar bears, and the risk of an oil spill in the nearshore environment is a significant concern. Polar bears have a low reproductive capacity, which makes them slow to recover from major environmental or anthropogenic perturbations. Confounding this are additional factors such as high harvest levels, changes to sea ice, and reduced prey availability. Given these factors, oiling of even a small number of polar bears could result in population-level effects.

Oil activity in the Chukchi Sea also has the potential to increase disturbance to polar bears through increased levels of seismic, aircraft, overland, and barge activities. Effects to polar bears would depend on the level, location, and timing of activities, as well as other factors such as the age, sex, number, and distribution of bears during the specific activities, and environmental factors such as ice conditions and availability of prey. Activities that disturb polar bears or preclude them from using their desired habitats could result in a loss of net recruitment into the population or lowered reproductive rates. For example, in the Chukchi Sea, polar bears tend to aggregate along leads or polynyas during winter and spring months, and along the pack ice edge during late summer and early fall months, making them vulnerable to disturbance related to human activities in these areas. This is particularly noteworthy with respect to changing ice conditions in recent years, including seasonally diminished ice cover and reduced thickness, earlier ice break-up near shore during spring, and increased periods of open water during summer and fall months.

One of the most critical phases in the life cycle of polar bears is maternity denning, which is dependent on snow and ice. In the Chukchi Sea, most denning is believed to occur in Russia; however, some denning has been noted on multi-year ice, primarily in pressure ridges where snow drifts accumulate. Denning also has been reported along shore-fast ice, barrier islands and on the mainland between Point Lay and Barrow. Activities that may preclude use of preferred denning habitats or result in disturbance to bears in maternity dens pose serious concerns and warrant use of pro-active mitigation measures such as accurate delineation of denning habitat, use of FLIR or scent-trained dogs to detect dens, and 1-mile buffers around known dens.

Pacific Walrus

The Pacific walrus is represented by a single stock of animals, which ranges across the shallow continental shelf waters of the Bering and Chukchi Seas. The planning area encompasses seasonally important foraging and resting habitat for this species. Almost the entire Pacific walrus population migrates into the eastern Chukchi Sea each summer to forage on benthic invertebrates. Previous monitoring efforts associated with exploratory drilling of the Popcorn, Crackerjack, and Burger prospects documented tens of thousands of walruses within the proposed lease sale area. The shallow, productive, ice covered waters of the eastern Chukchi Sea are considered particularly important habitat for female walruses rearing their dependent young. Walruses are hunted throughout much of their range and these offshore waters offer important refuge from anthropogenic disturbances. Walruses are highly susceptible to disturbances; there are numerous published accounts of walruses fleeing land and ice haulouts in response to the sight, sound, or smell of humans and machines. Because walruses usually associate in large densely packed groups, these disturbance reactions occasionally result in animal injury, mortality and mother-calf separations.

Oil exploration and development activities in the Chukchi Sea have the potential to impact walruses in a number of ways. Air and vessel traffic may cause herds to stampede, causing disruption in energy budgets as well as possible physical injury or death. Noise from air traffic, seismic surveys, icebreakers, and supply ships may displace individuals and herds. Development of offshore production facilities increases the potential for large offshore oil spills, which could affect walruses directly, either through contact with oil or by ingesting contaminated prey, or indirectly through the loss of habitat or reduction in prey numbers or availability.

Walrus are a highly migratory species and a resource of considerable economic and cultural importance to coastal Natives both in Alaska and Chukotka; harvest levels are estimated at more than 5,000 walrus per year (2000-2005). In addition to the potential for localized impacts on subsistence hunting opportunities in the coastal communities along the eastern Chukchi Sea coast of Alaska, any degradation of the health and status of the Pacific walrus population will have far reaching consequences for coastal communities in the Bering Strait region in Alaska and Russian Chukotka. Many of these communities rely on walrus hunting as their primary source of food and income. To address this concern, we recommend that the analysis of potential impacts to subsistence hunting patterns be expanded to include the aboriginal communities in the Bering Strait region and the northern coastline of Chukotka. Information concerning hunting patterns in these communities is available from the Services' Marine Mammals Management Office. 017-001

Given the importance of the Chukchi Sea Planning Area to the Pacific walrus population, and the significance of this species to the culture and economy of many coastal communities in the Bering and Chukchi Seas, walruses should be more prominently featured in the analysis and summary of potential impacts of proposed actions. In the Final EIS, we recommend that Pacific walrus be identified as a species of special concern. We believe the importance of the offshore habitats within the planning area to the Pacific walrus population, the documented sensitivity of walruses to anthropogenic disturbances, and the significance of walrus hunting to the economy and culture of indigenous communities in Alaska and Chukotka, Russia merit special consideration. 017-002

We further recommend that the analysis of potential impacts to Pacific walruses consider various aspects of their life history (e.g., the tendency of walruses to aggregate in large groups, their longevity, and low rates of reproduction), which make them particularly vulnerable to disturbance events, susceptible to cumulative impacts, and limit their ability to recover from population-level perturbations. The Final EIS also should acknowledge that, based upon previous monitoring efforts in the Chukchi Sea, exploration activities (seismic and particularly exploratory drilling) are expected to result in the take (Level B harassment) of up to several thousand walruses. The analysis and proposed mitigation measures should also identify particular concerns with respect to potential impacts to female walruses and dependent calves.

017-003

The analysis of effects of a large oil spill does not adequately address potential impacts to the Pacific walrus population and affected subsistence communities. The conclusion suggests that only small numbers of walruses would be impacted and that recovery would occur within 1-5 years, but it is unclear how this conclusion was drawn. The oil spill trajectories presented in the EIS indicate a relatively high probability of fouling at several important coastal haulout sites in both the United States and Russia that are used seasonally by tens of thousands of animals. Displacement from these crucial areas would likely result in population-level impacts on recruitment and survival. Walruses are long-lived animals with low rates of natural mortality and low rates of reproduction. This life history strategy will severely limit the ability of the Pacific walrus population to recover from any adverse impacts associated with a large oil spill. Similarly, the conclusion that subsistence hunting opportunities would be interrupted for no more than 1-5 years following a large oil spill also seems unrealistic. In addition to disruptions of walrus hunting during clean up efforts, the analysis should also consider long-term effects such as concerns over the consumption of tainted meat, and secondary effects of oil on benthic communities. As walruses are long-lived animals, concerns over contaminants are likely to persist for decades.

017-004

The mitigation measures proposed in the DEIS do not adequately address concerns over potential impacts of oil activities in the Chukchi Sea to Pacific walruses or subsistence use of walruses. The measures identified in the DEIS to protect marine mammals and subsistence uses of them are based on oil and gas activities in the Beaufort Sea, where walruses are relatively rare and subsistence cultures have traditionally targeted other marine species such as bowhead whales, seals, and polar bears. Due to the importance of the planning area to the Pacific walrus population, mitigation measures for walruses should be strengthened. Although the Service is likely to promulgate stipulations through development of incidental take regulations under the Marine Mammal Protection Act, we also recommend that walrus be implicitly addressed in several of the proposed mitigation measures considered in the Final EIS. We provide details on this recommendation in the Specific Comments section below.

017-005

We also believe that additional information concerning walrus habitat use patterns and subsistence hunting patterns in the Chukchi Sea are needed to adequately evaluate potential impacts of oil activities and to formulate effective mitigation strategies. Unfortunately, no published information exists regarding walrus habitat use patterns in the planning area and adjacent marine waters, and there is only minimal information concerning walrus hunting patterns in the Chukchi Sea. The Service recommends the Final EIS specifically identify these information gaps. Until they are addressed, we recommend a precautionary approach to

017-006

exploration and development in this region to reduce potential impacts to subsistence walrus hunters.

Alternatives

The DEIS presents four alternatives for conducting oil and gas leasing in the 34 million-acre planning area. The Proposed Action (Alternative I) is to make the entire planning area, 6,156 whole or partial lease blocks, available for leasing. Alternative II, the No Action Alternative, would not authorize leasing at this time. Under Alternative III (Corridor I Deferral), 1,649 lease blocks encompassing 9.1 million acres along the shoreward edge of the planning area would be deferred from leasing to reduce impacts to subsistence hunting, fish, wildlife and habitats. Alternative IV (Corridor II Deferral) would include a smaller shoreward deferral area covering 795 lease blocks, roughly half the area deferred under Alternative III, primarily to reduce potential impacts to migrating whales.

Although the No Action Alternative would eliminate the potential for impacts to fish, wildlife, and subsistence resources, the Service understands that such an approach would preclude the opportunity to explore for and develop other resources. We also acknowledge that the MMS faces a difficult challenge in trying to balance protection of important biological resources with efforts to provide access to areas with high energy-development potential. Based on our review of the action alternatives presented in the DEIS, the Service believes Alternative III (Corridor I Deferral) best achieves this balance. This alternative would make nearly three-fourths of the planning area available for leasing while prohibiting development in those areas from which a spill would be most likely to reach sensitive coastal, near shore and spring-lead habitats that support the most important seasonal concentrations of fish, wildlife and subsistence resources.

The DEIS estimates a 40 percent chance of a large spill occurring over the production life of a hypothetical million barrel field under Alternative I. It concludes that potentially significant impacts to a number of fish, wildlife and subsistence resources could occur, depending on the location, size and timing of a large spill, and that the risk that several regional bird populations could experience significant adverse impacts is high. Spills from several launch sites analyzed in the DEIS have relatively high probabilities of contacting habitats that are of particularly high value to a number of resources; these include Ledyard Bay, Kasegaluk Lagoon, Peard Bay and Spring Lead systems.

Under Alternative III (Corridor I Deferral), the chance of a large spill is reduced to 28 percent (Table A.1-26), and, assuming development occurs, the likelihood that spilled oil will reach the highest value habitats is reduced by half or more (Table A.2-75). The DEIS concludes that the Corridor I Deferral area would reduce potential impacts to listed eiders and other marine and coastal birds (ES-vii) and that Alternative III would have a lower level of potential impacts to lower-trophic level organisms, fish and Essential Fish Habitat, marine mammals and subsistence harvest than the other action alternatives (pages IV-372-376). The area deferred under Alternative III also would reduce the likelihood of spills reaching the southern portion of the planning area, which is an important region for seabirds, especially male murres attending flightless young. Large groups of these birds drift north and west through the planning area in

late summer and fall until juvenile birds are flight capable; adult males also molt during this period, which would prevent large numbers of birds from moving large distances to evade a spill.

Conclusion

Due to the lack of effective techniques for containing, recovering and cleaning up oil spills in Arctic marine environments, particularly during poor weather and broken ice conditions, a large spill could have significant impacts on a variety of Service trust resources. Although the extent of impacts would depend on the size, location and timing of spills relative to seasonal concentrations of fish and wildlife and on the effectiveness of spill response and clean-up efforts, under some scenarios, population-level impacts to some species could be expected. We believe selection of Alternative III (Corridor I Deferral) would reduce the likelihood of such impacts while making the majority of the Chukchi Sea Planning Area available for oil and gas leasing and development.

The Service believes the magnitude of potential impacts from large spills warrants the highest standards and state-of-the-art technologies for well control, spill prevention, leak detection, pipeline integrity, spill modeling and response. With only a single production facility (Northstar) currently operating in Northern Alaska OCS waters, oil and gas infrastructure remains largely untested in Alaskan Arctic marine environments. Development in the Chukchi Sea Planning Area would require substantial increases in infrastructure, including much longer pipelines subject to a wider range and perhaps greater intensity of ice, wave and current conditions. We recommend, therefore, that secondary containment and advanced leak detection technologies be further developed and analyzed for potential use in the Chukchi Sea.

We encourage the MMS to continue working with Industry, State and Federal resource agencies, universities, and local communities to develop effective methods for containing and recovering oil spilled in Arctic waters, and to improve spill modeling capabilities. The results of these efforts should be used to guide the placement of infrastructure to minimize potential impacts to fish, wildlife and subsistence resources and the habitats that support them. If oil development is proposed in the Chukchi Sea, an effort should be made to assess future infrastructure needs so that redundancy of both offshore and onshore facilities can be minimized via consolidation, sharing, and planning for future capacity. This could reduce the potential for spills in some areas as well as the direct, indirect and cumulative impacts of infrastructure sprawl. Such an effort should recognize the increased likelihood of additional development following construction of the pads, pipelines and other support infrastructure needed for development of the first field.

To address the array of potential impacts of offshore oil and gas development in the Chukchi Sea, continued and expanded research and monitoring efforts will be needed to fill information gaps, determine appropriate facility construction requirements, develop appropriate mitigation measures and evaluate their effectiveness. Mitigation measures focused on the effects of climate change will be needed to protect the Arctic environment over the life of oil and gas projects. Research and monitoring plans should be developed in consultation with State, Federal and North Slope Borough resource specialists, Native communities and the oil and gas industry. Results of all research and monitoring efforts should be made available to agencies and the public to facilitate evaluation of impacts and the effectiveness of mitigation efforts.

017-007

Recommendations

As the MMS prepares the Final EIS for the proposed Lease Sale 193 in the Chukchi Sea OCS Planning Area, the Service provides the following recommendations.

1) Alternative III (Corridor I Deferral) should be adopted as the preferred alternative in the Final EIS to reduce the likelihood of impacts to important coastal and nearshore habitats and the numerous species that concentrate there.

2) An analysis of changes in conditional probabilities (the percent chance that a large spill would reach coastal habitats) associated with each action alternative should be completed and included in the Final EIS. We believe this analysis would further clarify the differences in risk to trust resources associated with each of the action alternatives.

3) Development in the Chukchi Sea would require subsea pipelines many times longer than anything used in the Arctic to date; therefore, the MMS should facilitate further analyses of pipeline design focusing on the need for pipeline integrity, secondary containment, pipeline monitoring, and highly reliable and sensitive leak-detection systems.

4) The MMS should evaluate whether winter-only drilling in the Chukchi Sea would effectively reduce the likelihood of oil spill impacts to seasonally concentrated fish, wildlife and subsistence resources.

5) The MMS should continue to support research that will improve understanding of important bird use areas in the Chukchi Sea Planning Area.

6) The MMS should work cooperatively with the Service to initiate studies to determine the number, status, and distribution of polar bears and walruses in the Chukchi Sea.

7) To moderate anthropogenic effects on polar bears from oil and gas operations, the MMS should work with the Service to develop and implement Incidental Take Regulations for the Chukchi Sea.

8) New oil and gas activities should continue to be administered under previously successful stipulations including requirements for developing oil spill contingency plans, bear-human interaction plans, waste prevention and management plans, and measures to minimize bear attractants and disturbances from oil and gas activities. We also support MMS working with NOAA to develop *Information To Lessees* that protects polar bears' primary prey, ice seals.

9) Oil and gas operators and contractors should be encouraged to participate in the Service's Incidental Take Program for polar bears and Pacific walrus for exploration, development or production activities.

10) To prevent unnecessary conflicts with walrus hunters, lessees should be specifically required to consult with the Eskimo Walrus Commission (EWC) prior to the submission of exploration, development or production plans in the Chukchi Sea Planning Area.

11) We recommend that the analysis of potential impacts to subsistence walrus hunting patterns be expanded to include the aboriginal communities in the Bering Strait region and the northern coastline of Chukotka. Information concerning hunting patterns in these communities is available from the Services' Marine Mammals Management Office.

12) The MMS and the Service should work cooperatively to develop *Information to Lessees* (ITL) regarding planning for protection of walruses. Alternatively, ITL # 14 in the DEIS (planning for protection of polar bears) could be expanded to include Pacific walruses. Our Marine Mammal Management staff would be pleased to assist in developing the necessary language.

13) The MMS should continue to work with Federal, State and North Slope Borough agencies to develop mitigation measures to protect fish, wildlife and subsistence resources and a rigorous monitoring program to evaluate the effectiveness of these measures.

14) The MMS should continue to work with Industry, State and Federal resource agencies, universities, and local communities to develop effective methods for containing and recovering oil spilled in Arctic waters, and to improve spill modeling capabilities.

SPECIFIC COMMENTS

Executive Summary

D.2. Effects in the Unlikely Event of a Large Oil Spill: Here and elsewhere in the DEIS, a large spill is repeatedly referred to as "unlikely," despite the spill analysis that estimates a 33-51 percent chance of a large spill over the production life of a hypothetical million barrel field under Alternative I. We do not consider this an unlikely event, and we believe that the potential for large spills could be even higher given that the infrastructure required to develop such a field is largely untested in Arctic marine environments. The Biological Evaluation (BE, Page 7) states that a large bottom-founded structure would likely be needed as a central facility for development and that although such platforms "...have been used in high latitude settings worldwide, no platform...has operated in environmental conditions equivalent to the Chukchi Shelf." The oil spill analysis indicates that upheaval buckling and thaw settlement, two factors we believe could influence spill likelihood, were assessed based on professional judgment and that "...no engineering analysis was carried out for the assessment of frequencies to be expected for these effects" (Appendix A, pg. A.1-18). We believe that a 33-51 percent chance of a large spill should be described as a "moderate likelihood" event in the Final EIS.

017-008

Alternatives

Page II-38: This section states: "The absolute changes in conditional probabilities (the percent chance that a large spill would reach coastal habitats) associated with [Alternative III] could be quantified, but this has not been done." We recommend that this analysis be completed for the Final EIS, and we believe it will further clarify the differences in risk to trust resources associated with each of the action alternatives. 017-009

Migratory Birds

III.B.5.f (3): Add to text and citation list that Common Eiders stage in spring in Ledyard Bay (Dickson et al. 2003). 017-010

III.B.5.f (3): This section is incorrectly numbered (both the "Common Eider" and "King Eider" sections are numbered III.B.5.f (3); this section should be III.B.5.f (4), and subsequent sections renumbered accordingly). Additionally, this section should highlight the importance of Ledyard Bay as a spring staging area for king eiders. Add to text that Powell et al. (2005) found that all radio-marked king eiders (n = 60) used Ledyard Bay as a spring staging area over a 3-year period. Dickson et al. (2001; in current citation list) also highlighted Ledyard Bay as an important spring staging area for king eiders. These sources suggest that most Alaskan and Canadian breeding king eiders likely use this area in spring. About 300,000 king eiders are estimated pass Barrow in spring (Suydam et al. 2000), and all or most could be at risk of direct oil contact if a large spill were to reach Ledyard Bay in spring. If oil contacted the region when eiders are not present, chronic oiling, and alteration of benthic communities on which eiders depend also could result in significant negative impacts to the species. 017-011

III.B.5.f (4): This section indicates that up to 45 percent of the Pacific Flyway population of Pacific brant may stage in Kasegaluk Lagoon during the postbreeding period (late August and September). An oil spill reaching Kasegaluk Lagoon during this time could have a significant impact on this already declining species, which also is an important subsistence resource. 017-012

III.B.5.g: Only a few shorebird species move west along the coast – notably the *arcticola* race of the dunlin and possibly ruddy turnstones and bar-tailed godwits (although there is little to no data on the latter two species). Most of the shorebirds that stage on the North Slope coastal sites migrate to Central and South America, and thus are likely to move east along the North Slope. We have ample data from band resightings to confirm that *arcticola* Dunlin migrate from Barrow west along the coast to the Yukon Delta (exactly when they cut south is unknown) and then on to Japan, China, and other countries in Southeast Asia. The Taylor et al. project will likely provide much better data on this species (as well as on phalaropes and Semipalmated Sandpipers) once information from radio-equipped birds has been analyzed. I also think the last sentence of the paragraph above could be clearer. Perhaps you should say that only a few specific sites (e.g., Kasegaluk and Peard Bay Lagoon) have had bird studies conducted. This includes studies from the 1980s and more recently by A. Taylor. These studies were not focused on specific species. 017-013

IV.C.1.g(1): The summary of Marine and Coastal Birds should include Ledyard Bay in its description of important bird areas. Ledyard Bay is not only designated critical habitat for 017-014

Spectacled Eiders, but is also used for spring and fall staging common and king eiders. All or most members of these species that breed on the North Slope of Alaska and in northwest Canada may use Ledyard Bay in spring and fall. 017-014

IV.C.1.g(2)(a)1): This section should stress that molting birds are unable to fly; thus particularly high levels of energy expenditure would result from disturbance at a time when energy demands are already high due to molting. 017-015

IV.C.1.g(4)(a)2): Ledyard Bay should be included in this section, with information regarding the percent chance of spills. Ledyard Bay is relevant not only to Spectacled Eiders, but to nearly all marine birds. 017-016

IV.C.1.g(6)(a), Long-tailed Ducks: The DEIS suggests the worst-case scenario for long-tailed ducks are up to 7,000 birds being contacted by oil in Peard Bay or Kasegaluk Lagoon. Indeed a far worse scenario could result from spilled oil if the benthic organisms that long-tailed ducks feed on are contaminated from spilled oil. Chronic low-level contamination and depleted food reserves could have a far greater impact on marine birds than the immediate direct oiling event. 017-017

IV.C.1.g(6)(a), Common Eiders and King Eiders: Worst-case scenarios for common and king eiders are described in which oil reaches Kasegaluk Lagoon or Peard Bay. Again, Ledyard Bay should be included in the description of such scenarios as it regularly hosts large portions of both populations in spring and fall. 017-018

IV.C.1.g(6)(a), Common Eiders: This section estimates that 4,000 birds could be impacted by oil if Peard Bay is contaminated from a spill; however, his number does not account for turnover during migration. Satellite telemetry suggests that large portions of the northern Canada population of Pacific common eider use Ledyard as a spring staging location. Various other locations along the Chukchi coast are used in fall (Dickson et al. 2003). If oil were present in Ledyard bay in April, potentially tens of thousands or even hundreds of thousands of COEI could be impacted directly. 017-019

IV.C.1.g(6)(a), Common Eiders: The DEIS states that in the event that the local breeding population of common eiders is contacted by spilled oil, recovery would be expected to occur in fewer than three generations. This assessment does not address recovery time if common eiders that use Ledyard Bay in spring contact oil. In this case the entire Pacific population could experience substantial depletions. 017-020

IV.C.1.g(6)(a), King Eiders: In this section, the DEIS states that "the number of birds that could be affected at sea during spring or fall migration is unknown." It is known, however, that the number of birds that could be affected at sea during spring is virtually the entire Pacific population numbering in the hundreds of thousands. In an MMS report, Powell et al. (2005) found that all radio-marked king eiders (n = 60) over 3 years used Ledyard Bay as a spring staging area. Canada-breeding king eiders also stage in Ledyard Bay in spring and fall (Dickson et al 2001). 017-021

IV.C.1.g(6)(b), Conclusion: This section should identify the importance of Ledyard Bay to all marine birds. 017-022

Polar Bears

II.B.3.c(2): The Service supports the standard stipulations and the new polar bear ITL #14 described in this section; however, we believe the following additional actions are warranted to moderate the anthropogenic effects on polar bears from oil and gas operations:

1) Development of an ITL that protects polar bears' primary prey, ice seals; 017-023

2) Development and implementation of Incidental Take Regulations for the Chukchi Sea; and

3) Selection of Alternative III (Corridor I Deferral) as the preferred alternative.

III.B.6.c: This section of the DEIS provides good coverage of polar bear life history; however, the Service would like to make MMS aware of a new report that has recently become available and pertains to polar bears (Regehr et al. 2006). Based on this report, we recommend that the Final EIS includes the following points in discussions relating to the southern Beaufort Sea (SBS) population of polar bears: 017-024

1) The population size estimate has been revised downward from 1800 to 1500 animals;

2) Cub-of-the-year survival has declined;

3) Declines in skull sizes of cubs-of-the-year and adult males have been noted; and

4) Declines in adult male body weights have been noted.

IV.C.1.h (4): In this section, the DEIS notes various anthropogenic factors that may affect polar bears. We recommend that this section be expanded to include discussion of increased bear-human interactions and level B harassment as a potential additional source of stress on polar bears, particularly if coastal habitat use by polar bears continues to increase. As oil and gas activities along the coast expand from existing operations in the Beaufort Sea into the Chukchi Sea, the increased presence of both humans and bears in the coastal environment will likely result in increased bear-human interactions, especially if bears become nutritionally stressed; this will warrant closer monitoring and evaluation. This discussion could be added at pages IV-233-234. 017-025

IV.C.1.h(4)(e): We recommend that the DEIS clearly notes the following as important habitat for polar bears (as noted in USFWS 1995 and Kalxdorff 1997): 017-026

1) The coast, barrier islands, and shore-fast ice edge between Point Hope and Barrow (and beyond) provide an important corridor for polar bears traveling and feeding during fall, winter, and spring months;

2) Late winter and spring leads that form off shore from the Chukchi Sea coast provide important feeding habitat for polar bears;

3) Polar bear denning has occurred at Cape Lisburne, Cape Beaufort, the barrier islands between Point Lay and Peard Bay, the Kukpowruk, Kuk, and Sinaruruk Rivers, Nokotlek Point, Point Belcher, Skull Cliff and Wainwright Inlet. While we agree with the DEIS statements that most polar bear denning occurs in Russia, traditional ecological knowledge indicates that denning may be more frequent along Alaska's Chukchi Sea coast than scientific studies have previously been able to quantify. In addition, the distribution of denning areas may be changing as a result of climate change. Because of the importance of denning events to the population, identification of all known denning habitat is warranted. 017-026

Pacific Walrus

II.B.3.c(1), Stipulations, Stipulation #5: The conflict Avoidance Agreements that have been negotiated between industry and the Alaska Eskimo Whaling Commission appear to be working well. Similar agreements may be necessary to reduce conflicts with walrus hunters in the Chukchi Sea. We recommend that lessees be specifically required to consult with the Eskimo Walrus Commission prior to the submission of exploration, development or production plans in the Chukchi Sea Planning Area, to discuss potential conflicts with the siting, timing, and methods of proposed operations and safeguards or mitigating measures that could be implemented by the operator to prevent unreasonable conflicts with walrus hunters. 017-027

II.B.3.c(2), Information to Lessees (ITL) Clauses: We recommend that MMS and the Service cooperatively develop *Information to Lessees regarding planning for protection of walruses.* Alternatively, Stipulation # 14 (planning for protection of polar bears) could also be expanded to include Pacific walruses. Our Marine Mammal Management staff would be pleased to assist in developing this language. 017-028

II.B.4, Mitigation Measures for Seismic Operations in the Chukchi Sea: Based on the potential for animal injury, mortality and mother-calf separation caused by disturbance events we recommend the following stipulation should be included in this section: 017-029

"Vessels and aircraft should avoid concentrations or groups of walruses. Operators should, at all times, conduct their activities at a maximum distance from such aggregations. Under no circumstances, other than an emergency, should aircraft be operated at an altitude lower than 1,000 feet when within 0.5-mile (800 meters) of walrus groups. Helicopters may not hover or circle above such areas or within 800 lateral meters of such areas."

Section II.B.4.a, Measures to Mitigate Seismic-Surveying Effects: Note that the Service will also require a July restriction to provide walrus cows and calves additional protection during the spring migration. 017-030

Section III (Description of Effected Environment): While this section provides a good overview of Pacific walrus in the Chukchi Sea, this information was not adequately addressed in the analysis or summary of potential impacts of proposed actions. Therefore, we recommend that Pacific walruses be identified and highlighted as a species of special concern in Sections IV (Environmental Consequences) and V (Cumulative Effects), similar to the treatment of bowhead whales in Section IV.C.1.f(1).

017-031

REFERENCES

Alexander, S. A., D. L. Dickson, and S. E. Westover. 1997. Spring migration of eiders and other waterbirds in offshore areas of the western Arctic. Pages 6-20 *in* D. L. Dickson (ed.), King and common eiders of the western Canadian Arctic. Canadian Wildlife Service Occasional Paper No. 94, Edmonton, Alberta, Canada.

Dau, C. P. and W. W. Larned. 2005. Aerial population survey of common eiders and other waterbirds in nearshore waters and along barrier islands of the Arctic Coastal Plain of Alaska, 24-27 June 2005. USDOI, FWS, Migratory Bird Management, Anchorage, AK.

Day, R. H., K. J. Kuletz, and D. A. Nigro. 1999. Kittlitz's murrelet (*Brachyramphus brevirostris*). In: Poole, A. and F. Gill, editors. The Birds of North America. Academy of Natural Sciences, Philadelphia, PA, and American Ornithologists' Union, Washington, D.C.

Derksen, D. V., M. W. Weller and W. D. Eldridge. 1979. Distributional ecology of geese molting near Teshekpuk Lake, National Petroleum Reserve-Alaska. Pages 189-207 *in* R. L. Jarvis and J. C. Bartonek (eds.), Management and biology of Pacific Flyway geese. Oregon State Univ., Corvallis, OR.

Dickson, D. L., T. Bowman, A. Hoover and M. Johnson. 2003. Tracking the movement of common eiders from nesting grounds near Bathurst Inlet, Nunavut to their moulting and wintering areas using satellite telemetry. 2002/2003 Progress Report. Canadian Wildlife Service, Edmonton Alberta, Canada.

Dickson, D. L., G. Balogh and S. Hanlan. 2001. Tracking the movement of king eiders from nesting grounds on Banks Island, Northwest Territories to their molting and wintering areas using satellite telemetry. 2000/2001 Progress Report. Canadian Wildlife Service, Edmonton, Alberta, Canada. 39 pp.

Earnst, S. L. 2004. Status assessment and conservation plan for the yellow-billed loon (*Gavia adamsii*). Scientific Investigations Report 2004-5258, U.S. Geological Survey, Anchorage, Alaska. 42 pp.

Kalxdorff, S. B. 1997. Collection of Local Knowledge regarding polar bear habitat use in Alaska. Technical Report MMM 97-2, U.S. Fish and Wildlife Service, Marine Mammals Management Office, Anchorage, Alaska. 72 pp.

Lanctot, R. B., D. E. Blanco, R. A. Dias, J. P. Isacch, V. A. Gill, J. B. Almeida, K. Delhey, P. F. Petracci, G. A. Bencke and R. Balbueno. 2002. Conservation status of the buff-breasted sandpiper: historic and contemporary distribution and abundance in South America. *The Wilson Bulletin* 114: 44-72.

Lehnhausen, W. A. and S. E. Quinlan. 1981. Bird migration and habitat use at Icy Cape, Alaska. Unpubl. rep., U.S. Fish and Wildlife Service, Anchorage, AK. 298 pp.

Mallek, E.J. 2004. Teshekpuk Lake Area Molting Goose Survey - 2003. Unpubl. rep., U.S. Fish and Wildlife Service, Waterfowl Management, Fairbanks, AK. 13 pp.

Martin, P. D., T. Obritschkewitsch and D. C. Douglas. *In prep.* Distribution and movements of Steller's eiders in the non-breeding period. U.S. Fish and Wildlife Service, Fairbanks, AK. 43 pp.

Petersen, M. R., W. W. Larned and D. C. Douglas. 1999. At-sea distribution of spectacled eiders: a 120-year-old mystery solved. The Auk. 116(4): 1009-1020.

Powell, A. N., L. Phillips, E. A. Rexstad, and E. J. Taylor. 2005. Importance of the Alaskan Beaufort Sea to king eiders (*Somateria spectabilis)*. OCS Study MMS 2005-057. University of Alaska, Coastal Marine Institute, Fairbanks, AK.

Regehr, E., S. Amstrup, and I. Stirling. 2006. Polar bear population status in the southern Beaufort Sea. Open-File Report 2006-1337, U.S. Geological Survey, Anchorage, Alaska.

Roseneau, D. G. and D. R. Herter. 1984. Marine and coastal birds. Pages 81-115 *In* J. C. Truett (Ed.), The Barrow Arch Environment and Possible Consequences of Planned Offshore oil and gas Development: Proceedings of a Synthesis Meeting, Girdwood, AK, 30 Oct.-1 Nov., 1983. Outer Continental Shelf Assessment program, NOAA/Ocean Assessments Division, Anchorage, AK.

Suydam, R.S., D.L. Dickson, J.B. Fadely, and L.T. Quakenbush. 2000. Population declines of king and common eiders of the Beaufort Sea. Condor 102: 219-222.

Troy, D. M. 2003. Molt migration of spectacled eiders in the Beaufort Sea region. Unpublished report for BP Exploration (Alaska), Inc., Anchorage, AK. 17 pp.

USFWS. 1995. Habitat Conservation Strategy for Polar Bears in Alaska. U.S. Fish and Wildlife Service, Marine Mammals Management Office, Anchorage, Alaska. 232 pp.

USFWS. 2001. Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the Spectacled Eider; Final Rule. U.S. Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17 66(25): 9146-9185.

USFWS. 2005. U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form: Kittlitz's Murrelet (*Brachyramphus brevirostris*). U.S. Fish and Wildlife Service, Anchorage, AK. 21 pp.
http://ecos.fws.gov/docs/candforms_pdf/r7/B0AP_V01.pdf

MMS Responses to USDOI, Fish and Wildlife Service Comments

FWS 017-001

The Service was consulted on Chukotka coastal community hunting patterns. A discussion of Chukotkan subsistence-hunting patterns and potential impacts is found in Section III.C.3.c(3)(h), Russian Northern Chukchi Sea Coastal Communities. The concerns referenced in the comment are discussed in detail in that section, as well as in Section IV.C.1.l., Subsistence-Harvest Patterns.

For a discussion of the Bering Strait region subsistence communities, see response to comment **EWC 008-001**. See also response to comment **NAEC 011-006**.

FWS 017-002

Text expanding the discussion relating to walruses and their habitat has been added to Section III.B.6.a(5).

FWS 017-003

Additional discussion on potential impacts to walruses has been added to Section IV.C.l.h(3)(a), Noise and Disturbance, Section IV.C.1.h(3)(b) Effects from Oil Spills, and Section IV.C.l.h(2) Effects from 3D/2D Seismic Surveys.

FWS 017-004

The origin of the statement "recovery would occur within 1-5 years" is unclear. It is not found in the subsistence-impact discussion; furthermore, even if significant effects on subsistence resources means a resource "becomes unavailable, undesirable for use, or available only in greatly reduced numbers" for a period of years, it does not necessarily imply recovery of that resource after that period. Impacts from a large oil spill by definition imply significant effects. Tainting, contamination, and climate change concerns are discussed in Sections IV.C1.l., and V.C.12, Subsistence-Harvest Patterns.

Section D.2. in the Executive Summary, Effects in the Event of a Large Oil Spill, has been revised. The issue of secondary effects of oil on benthic communities was discussed in Section IV.C.1.h(3)(b), Effects from Oil Spills. Additional text has been added.

FWS 017-005

With respect to proposed mitigation measures, under Section II.B.4.b., "Alternative Mitigation for Seismic Surveying" the 193 EIS states:

> Depending on the environmental issues and analysis associated with an individual seismic survey or with multiple seismic surveys in the Chukchi Sea Planning Area, some of the mitigations measures described below may be selectively incorporated in Incidental Take Authorizations issued by either NMFS or FWS under section 7 of the ESA or LOA's/IHA's issued under the MMPA for activities under Geological and Geophysical exploration permits issued by MMS.

Text has been added to Alternative Mitigation Measures 5 & 6:

5. Potential impacts to female walruses and dependent calves are a major concern. Seismic-survey and associated support vessels shall observe a 0.5-mile (~800-meter) safety radius around Pacific walrus groups hauled out onto land or ice.
6. Potential impacts to female walruses and dependent calves are a major concern. Aircraft shall be required to maintain a 1,000-foot minimum altitude within 0.5 miles of hauled-out Pacific walruses.

These mitigation measures are not mandatory unless and until selected by the Secretary. To ensure that "mitigation measures for walruses should be strengthened," FWS could include appropriate mitigation measures in their incidental take authorizations under the MMPA.

FWS 017-006

Section IV.C.1.h(1), Conclusion, has been edited.

FWS 017-007

The MMS acknowledges that continued research and monitoring would address the array of potential impacts of offshore oil and gas development in the Chukchi Sea. The MMS will continue to work with the appropriate agencies to develop mitigation and monitoring during the NEPA process. Any research published by MMS is placed on a MMS website for public information.

FWS 017-008

The MMS agrees with this comment. Qualifying language related to oil spills has been eliminated from the text. The actual numbers resulting from the analyses will be used in the text.

FWS 017-009

The OSRA model has been developed by the USDOI as a tool to evaluate the risk of potential large oil spills on the OCS. The OSRA model addresses the following independent factors:

1. the chance of one ore more large spills occurring as a function of the quantity of oil to be produced and handled at individual production sites and pipeline routes;
2. the probabilities of various spill trajectories from production sites and transportation routes as a function of wind, ice and current patterns for the area; and
3. the location in space and time of vulnerable environmental, social and economic resources defined according to the same coordinate system used the spill trajectory simulation.

The results of these parts of the analysis are combined to estimate the total oil-spill risk associated with production and transportation at locations within a proposed lease area and its alternatives.

This information from each component is used separately and together in the risk analysis that is presented in the EIS. The conditional probabilities for the Alternatives are generally not standard OSRA products. For the areas identified in the FWS letter (e.g., Ledyard Bay, Kasegaluk Lagoon, and some spring lead systems) we have provided annual conditional probabilities for the FWS preferred alternative, Alternative III, for 3, 10, and 30 days. In the future, MMS can better serve the FWS if they request this type of information during the Scoping process.

Most of the estimates are slightly smaller probabilities, as one might expect for resources "not too close" to a slightly smaller (and further offshore) launch area. Some estimates are larger, consistent with an offshore resource that can be contacted by the part of the launch area that is further offshore, and thus gets a higher probability.

Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 3 Days, Chukchi Sale 193

		Alternative I						Alternative III					
ID	Environmental Resource Area Name	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 8a	LA 9a	LA 10a	LA 11a	LA 12a	LA 13a
—	Land	-	-	-	-	-	-	-	-	-	-	-	-
1	Kasegaluk Lagoon	-	-	-	-	-	-	-	-	-	-	-	-
10	Ledyard Bay Spectacled Eider Critical Habitat	-	-	6	4	-	-	-	-	-	-	-	-
19	Chukchi Spring Lead 1	-	-	-	-	-	-	-	-	-	-	-	-
20	Chukchi Spring Lead 2	-	-	-	-	-	-	-	-	-	-	-	-
21	Chukchi Spring Lead 3	-	-	-	-	-	-	-	-	-	-	-	-
22	Chukchi Spring Lead 4	-	-	-	1	2	-	-	-	-	-	-	-
23	Chukchi Spring Lead 5	-	-	-	-	-	-	-	-	-	-	-	-

Notes- ** = Greater than 99.5 percent; - = less than 0.5 percent; LA = Launch Area, P = Pipeline. Rows with all values less than 0.5 percent are not shown.

Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 10 Days, Chukchi Sale 193

		Alternative I						Alternative III					
ID	Environmental Resource Area Name	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 8a	LA 9a	LA 10a	LA 11a	LA 12a	LA 13a
—	Land	-	1	4	3	2	4	-	-	-	-	-	-
1	Kasegaluk Lagoon	-	-	2	2	-	-	-	-	1	-	-	-
10	Ledyard Bay Spectacled Eider Critical Habitat	-	1	12	7	-	-	-	1	4	1	-	-
19	Chukchi Spring Lead 1	-	1	-	-	-	-	-	-	-	-	-	-
20	Chukchi Spring Lead 2	-	-	2	-	-	-	-	-	-	-	-	-
21	Chukchi Spring Lead 3	-	-	1	2	-	-	-	-	1	-	-	-
22	Chukchi Spring Lead 4	-	-	-	2	3	-	-	-	-	1	-	-
23	Chukchi Spring Lead 5	-	-	-	-	-	1	-	-	-	-	-	-

Notes- ** = Greater than 99.5 percent; - = less than 0.5 percent; LA = Launch Area, P = Pipeline. Rows with all values less than 0.5 percent are not shown.

Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 30 Days, Chukchi Sale 193

		Alternative I						Alternative III					
ID	Environmental Resource Area Name	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 8a	LA 9a	LA 10a	LA 11a	LA 12a	LA 13a
—	Land	4	11	15	11	9	11	-	-	-	-	-	-
1	Kasegaluk Lagoon	-	1	6	7	1	-	-	1	6	3	-	-
10	Ledyard Bay Spectacled Eider Critical Habitat	-	5	19	11	1	-	-	5	11	4	-	-
19	Chukchi Spring Lead 1	-	1	-	-	-	-	-	-	-	-	-	-
20	Chukchi Spring Lead 2	-	-	4	1	-	-	-	-	1	-	-	-
21	Chukchi Spring Lead 3	-	-	4	4	-	-	-	-	4	1	-	-
22	Chukchi Spring Lead 4	-	-	1	5	5	-	-	-	2	3	1	-
23	Chukchi Spring Lead 5	-	-	-	-	1	2	-	-	-	-	1	-

Notes- ** = Greater than 99.5 percent; - = less than 0.5 percent; LA = Launch Area, P = Pipeline. Rows with all values less than 0.5 percent are not shown.

FWS 017-010

We believe the best available information on eider use of Ledyard Bay during spring migration is from Oppel (2007, pers. commun.).

FWS 017-011

We have corrected these typographical errors in the EIS. We also have revised the king and common eider sections. We believe the importance of Ledyard Bay to a variety of sea ducks is consistently emphasized throughout the final EIS.

FWS 017-012

These points are made in Section IV.C.1.g(6)(a) Birds with Higher Potential for Substantial Effects, Pacific Brant.

FWS 017-013

These points are well taken, but several changes have been made to the EIS text. We have revised the last sentence of the first paragraph to read: "While established for a few sites (Kasegaluk Lagoon and Peard Bay) for a few species, shorebird use of concentration areas along the Chukchi Sea coast has not been well studied."

FWS 017-014

See response to comment **FWS 017-013**.

FWS 017-015

The potential impacts to individual species are described in Section III and are not necessarily duplicated in their entirety in Section IV. For example, Section III.B.5.b(1), Murres, concludes that molting "is a critical portion of their life cycle, because molting and foraging birds are vulnerable to both disturbances and spills and flightless individuals are not capable of undertaking large-scale movements to other areas." Section IV.C.1.g(2)(a)1) restates the sensitivity of molting birds to disturbances in terms of energetic expenditures that could be minimized or avoided.

FWS 017-016

During much of the winter, Ledyard Bay is covered with ice and is unavailable to marine birds. In late spring, birds returning to their breeding grounds make use of open-water areas consisting of polynyas or leads in the ice. The MMS described these areas by hypothetical polygons (ERA's 19-24) for oil spill risk analysis. Consequently, ERA 20 represents Ledyard Bay as envisioned to be April 15-June 10. The percent chance of a spill reaching this ERA is included in this section.

FWS 017-017

We described the potential long-term effects from a spill impacting benthic foods for long-tailed ducks. Our worst-case scenarios assumed all birds within the lagoon during certain times would be killed from oil contact. The scenario is unlikely. We cannot assume that all benthic organisms would be killed, nor is it known for how long or to what extent low-level contamination would impact long-tailed ducks. We believed it would be highly speculative to ascribe a numeric estimate to these potential and unlikely impacts.

FWS 017-018

The use of nearshore areas of the Alaska Chukchi Sea by king eiders has only been studied recently and preliminary results were unavailable when the draft EIS was prepared. We believe the importance of the spring lead system is included in species descriptions in Section III. Similarly, Ledyard Bay is identified as being particularly important to king eiders in the fall. We believed it speculative to estimate how many

common or king eiders could be affected by a spill in offshore areas, such as Ledyard Bay, because at sea density information is lacking.

FWS 017-019

We agree that turnover rates would be important factors in estimating the potential numeric impacts to marine and coastal birds from oil spills. Turnover rates for marine and coastal birds during spring and fall migration, however, are largely unknown.

The importance of the spring lead system is described for both king and common eiders in Section III. We concur that a winter spill in the spring lead system could affect many eiders; however, there is an estimated maximum 4% chance that a spill originating from a platform would contact these areas (see Sec. IV.C.1.g(4)(a)2), Winter Spill).

Furthermore, it is unclear what percentage of a migrating eider population could be affected at any one time or during any one spill event. Additional research on the seasonal distribution and abundance of marine and coastal birds using these areas could be useful in identifying the range of potential impacts to these species.

FWS 017-020

The first part of this comment addresses a summer spill and potential effects to eiders nesting on barrier islands. We believe our conclusion regarding this impact is correct.

The second part of this comment is similar to comment **FWS 017-019** and we refer the reader to that response.

FWS 017-021

See the response to comment **FWS 017-019**.

FWS 017-022

We concur with this recommendation and have revised the section accordingly.

FWS 017-023

The MMS agrees that the development of appropriate mitigation measures that protect ice seals, the polar bear's primary prey, is warranted. We believe that the best approach would be to develop such mitigation measures through direct discussions between the polar bear and seal experts at FWS and NMFS, respectively, and to incorporate them directly into the Incidental Take Authorizations each agency provides under the MMPA, and that they be incorporated as conditions of approval for specific MMS-permitted activities.

FWS 017-024

The MMS is aware of the report noted, which was not available at the time the draft EIS was written. The new information in the report has been incorporated into Section III.B.6.c and Section IV.C.1.h(4)(e).

FWS 017-025

The text in Section IV.C.1.h (4) has been modified to add the requested discussion on anthropogenic factors.

FWS 017-026

The text of Section III.B.6.c, Marine Fissipeds – Polar Bear, has been expanded to include more discussion on polar bear habitat.

FWS 017-027

We believe that this comment already is appropriately addressed in Stipulations 4 and 5 and in the discussion of those stipulations in Section II.B.3.

FWS 017-028

The MMS agrees that such an ITL is a good idea and would be pleased to work with the FWS Marine Mammal Management staff in developing the appropriate language.

FWS 017-029

After further discussions with FWS and MMS protected species biologists, modifications were made to II.B.4.b, Alternative Mitigation for Seismic Surveying. See response to comment **FWS 017-005**.

FWS 017-030

The MMS acknowledges that FWS is well within their management authority under the MMPA to enforce any such restrictions it deems appropriate to mitigate potential impacts to Pacific walruses.

FWS 017-031

Text was added to Section IV.C.1.h(3)(b), Effects from Oil Spills.

STATE OF ALASKA

SARAH PALIN, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
OFFICE OF PROJECT MANAGEMENT AND PERMITTING

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January 3, 2007

Mr. John Goll
Director, Alaska OCS Region
Minerals Management Service
949 East 36th Avenue, Room 308
Anchorage, Alaska 99508-4363

RE: Lease Sale 193

Dear Mr. Goll:

Thank you for the opportunity to comment on the draft environmental impact statement (DEIS) for Proposed Outer Continental Shelf (OCS) Chukchi Sea Lease Sale 193. The proposed sale, tentatively scheduled for November 2007, covers approximately 34 million acres (6,155 whole or partial blocks) off the northwest coast of Alaska. The DEIS analyzes potential environmental effects of Lease Sale 193 from exploration, development, and production of the area proposed for leasing, and also considers various deferral alternatives.

At this time, the State of Alaska is still evaluating the information contained in the DEIS and the various deferral alternatives. We intend to submit additional comments in the near future – within 30 days from today's date.

Sincerely yours,

Randy Bates
Acting Director

cc: Marty Rutherford, Acting Commissioner, DNR
Mike Maher, Acting Commissioner, DEC
Denby Lloyd, Acting Commissioner, ADF&G
Pat Galvin, Commissioner, DOR
Mike Tibbles, Office of the Governor
Mike Nizich, Office of the Governor
John Katz, Office of the Governor, Washington, D.C.
Bruce Anders, Petroleum Lands Manager, DNR /DOG
Kerry Howard, Director, DNR/OHMP
Dick Mylius, Director, DNR /MLW
Kim Kruse; Robert McLean; Al Ott; Jack Winters; Stefanie Ludwig; Jonne Slemmons; Ken Taylor; Don Perrin; Ed Fogels; Kathy Sheehan-Dugan, DNR
Matt Robus, Director, DFG/Wildlife
Bob Small, Lori Quackenbush, Mark Fink, DFG
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Jeanne Hanson, Larry Peltz, NMFS
Ted Rockwell, EPA
Craig Perham, Louise Smith, Larry Bright, FWS
Johnny Aiken; Tom Lohman; Gordon Brower; Karla Kolash; Dennis Roper, North Slope Borough
Lanston Chinn; Brian Boyd, Issac Nukapigak, Kuukpik
The Honorable Edward Itta, Mayor, North Slope Borough
The Honorable George Kingik, Mayor, City of Point Hope
The Honorable Joseph Ahmaogak, Mayor, City of Wainwright
The Honorable Elizabeth Hollingsworth, Mayor, City of Atqasuk
The Honorable Nathaniel Olemaun, Jr., Mayor, City of Barrow
The Honorable Lon Sonsalla, Mayor, City of Kaktovik
The Honorable Carl Brower Mayor, City of Nuiqsut
Leonard Lampe, Native Village of Nuiqsut
Maggie Ahmaogak; Margaret Ferguson, AEWC
Price Leavitt, Executive Director, Inupiat Community of the Arctic Slope
Nancy Wainwright
Pamela A. Miller, Northern Alaska Environmental Center
Anne Wilkas; Michael Frank, Trustees for Alaska

3130-1R Mineral Management Service

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
3801 Centerpoint Drive, Suite 500
Anchorage, Alaska 99503-5823

JAN 30 2007

RECEIVED
FEB 01 2007
OHA

Ms. Judith Bittner
State Historic Preservation Officer
Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, Alaska 99501-3565

FAXED

Dear Ms. Bittner:

The Minerals Management Service (MMS) is pleased to initiate Section 106 consultation, as required by the National Historic Preservation Act, for Chukchi Sea Oil and Gas Lease Sale 193. A draft environmental impact statement was published in October 2006 (Enclosure 1).

Based upon previous consultation with your staff, the MMS is aware of two (2) historic resources in the Lease Sale 193 area, one whaling bark wrecked in 1876 and a whaler/tender wrecked in 1886, as depicted on the attached map (Enclosure 2) and table (Enclosure 3). To date, there are no specific prehistoric resources identified in the Lease Sale 193 area.

Activities associated with Lease Sale 193 that have the potential to disturb offshore historic and prehistoric resources include: (1) use of bottom cables for seismic data collection; (2) anchoring which may disturb host or overlying sediment; (3) excavating well cellars; and (4) emplacement of bottom-founded structures.

In the event the aforementioned activities are planned in areas of known offshore historic resources or, based upon geophysical data, an area with a high potential for prehistoric resources (e.g., water depths <60 m that do not have high-density ice gouging), the MMS will require each lessee to prepare an archaeological report by a qualified archaeologist as specified in MMS NTL No. 05-A03, "Archaeological Survey and Evaluation for Exploration and Development Activities." The MMS staff of trained geologists and geophysicists will interpret the geophysical data (which forms the basis of a sub-surface archaeological report), and determine if activities are protective of the resources. The MMS will provide your staff a copy of the archaeological report and any recommended mitigation prior to commencement of the activities.

TAKE PRIDE IN AMERICA

Given our procedures outlined above, MMS concludes that proposed Chukchi Sea Sale 193 will have no effect upon known offshore historic and/or prehistoric resources. We ask your concurrence with our findings. If you have any questions, please contact Michael Burwell, Sociocultural Specialist, at (907) 334-5249 or Deborah Cranswick, Chief Environmental Assessment Section, at (907) 334-5267.

Sincerely,

John Goll
Regional Director

Enclosure(s)

Chukchi Sea Planning Area Sale 193 Environmental Impact Statement-CD
Map of known historic resources in Lease Sale 193
Table of Shipwrecks in the Chukchi Sea Planning Area

No Historic Properties Affected
Alaska State Historic Preservation Officer
Date 3/2/07
File No.: 3130 - 1R MMS MG

Due to the high volume of reviews, our office is no longer writing letters of concurrence in cases where there are no historic properties affected by a given project. Instead, the cover letter is being stamped with **"No Historic Properties Affected"** and being returned to the applicant. The stamp will serve as evidence of consultation with the State Historic Preservation Office as required by Section 106 of the National Historic Preservation Act. We will continue writing letters in situates where there are historic properties that may be affected by a given project. **If cultural resources are inadvertently discovered as a result of this project, work that may further disturb the resources must cease. Our office must be contacted immediately in order for the project to stay in compliance with the National Historic Preservation Act.** Please note that if your Scope-of-Work changes, you **must** send another letter of concurrence to this office prior to implementing changes.

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally-owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. Administration.

OCS EIS/EA
MMS 2007-026

Chukchi Sea Planning Area

Oil and Gas Lease Sale 193 and Seismic Surveying Activities

Final Environmental Impact Statement VOLUME II

U.S. Department of the Interior
Minerals Management Service
Alaska OCS Region