



Cook Inlet Planning Area

Oil and Gas Lease Sales 191 and 199

Final Environmental
Impact Statement

Volume II
(Section VII and Appendices)



COOK INLET PLANNING AREA OIL AND GAS LEASE SALES 191 AND 199

Final Environmental Impact Statement

OCS EIS/EA, MMS 2003-055, in 3 volumes:

Volume I, Executive Summary and Sections I through VI

Volume II, Section VII and Appendices

Volume III, Tables, Figures, Map, Bibliography and Index

The summary is also available as a separate document:

Executive Summary, **MMS 2003-056**.

The complete EIS is available on CD-ROM (**MMS 2003-055 CD**) and on the Internet (http://www.mms.gov/alaska/cprojec/Cook_Inlet/Cook_Inlet_Sale.htm).

This Environmental Impact Statement (EIS) is not intended, nor should it be used, as a local planning document by potentially affected communities. The exploration, development and production, and transportation scenarios described in this EIS represent best-estimate assumptions that serve as a basis for identifying characteristic activities and any resulting environmental effects. Several years will elapse before enough is known about potential local details of development to permit estimates suitable for local planning. These assumptions do not represent a Minerals Management Service recommendation, preference, or endorsement of any facility, site, or development plan. Local control of events may be exercised through planning, zoning, land ownership, and applicable State and local laws and regulations.

With reference to the extent of the Federal Government's jurisdiction of the offshore regions, the United States has not yet resolved some of its offshore boundaries with neighboring jurisdictions. For the purposes of the EIS, certain assumptions were made about the extent of areas believed subject to United States' jurisdiction. The offshore-boundary lines shown in the figures and graphics of this EIS are for purposes of illustration only; they do not necessarily reflect the position or views of the United States with respect to the location of international boundaries, convention lines, or the offshore boundaries between the United States and coastal states concerned.

The United States expressly reserves its rights, and those of its nationals, in all areas in which the offshore-boundary dispute has not been resolved; and these illustrative lines are used without prejudice to such rights.

Alaska Outer Continental Shelf


OCS EIS/EA
MMS 2003-055

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(Section VII and Appendices)

Author
Minerals Management Service
Alaska OCS Region

VOLUME II

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VII. REVIEW AND ANALYSIS OF COMMENTS RECEIVED

VII.A. Summary of Comments Received on the Draft Cook Inlet Multiple-Sale EIS

We received approximately 2,000 written comments on the draft EIS during the public comment period from December 13, 2002, to February 11, 2003. A notice requesting comments appeared in the *Federal Register* on Wednesday, December 11, 2002. (See Appendix I for a copy of that notice.) We received letters, emails, and postcards from a wide spectrum of the population, most originating from within Alaska or other parts of the United States. Approximately 93 persons testified at the five court-reporter-recorded public hearings held in January 2003 in Anchorage, Seldovia, Homer, and Kenai-Soldotna, and by telephone. We held four government-to-government meetings with Native communities. We also received a petition with approximately 387 signatures. We refer to this collective input as comment documents.

A team of MMS specialists reviewed all comment documents, including hearing transcripts, and identified comments that required a response. Comments require a response if they are “substantive and relate to inadequacies or inaccuracies in the analysis or methodologies used; identify new impacts or recommended reasonable alternatives or mitigation measures; or involve substantive disagreements on interpretations of significance.” We assigned tracking numbers to the comment documents in roughly the order in which they were reviewed, and comments within each document are consecutively numbered. We have responded in Section VII.C and have revised the final EIS to address many of the concerns and incorporate additional information provided in the public’s comments.

Many of the comment documents were identical statements prompted by campaigns organized by environmental organizations. We received numerous comments that did not suggest changes to the EIS but offered an opinion, point of view, and/or a recommendation that the decision maker(s) adopt specific alternative(s), mitigating measures, or take specific actions. These comments are included as part of the public record and they are available to decisionmakers during the deliberation process for the two proposed sales evaluated in this EIS. Most commenters voiced a preference for Alternative II - No Lease Sale. These commenters suggested that the national energy policy should shift away from fossil fuels and instead emphasize conservation and alternative energy sources. Many commenters felt that leasing in lower Cook Inlet was not compatible with the ecological, economic, and social values of the area, including Native subsistence culture and lifestyle. Many commenters expressed concern about the effects of an oil spill. Commenters expressing a preference for Alternative I, III, or IV often cited the need to develop additional energy sources to sustain the local economy and attendant sociocultural institutions.

VII.B. Introduction and Process

VII.B.1. Distribution of the EIS

After the draft EIS was completed and published, the MMS made copies available to the public, organizations, and government agencies to review. A Notice of Availability was published in the *Federal Register* (see Appendix I) notifying the public of the availability of the draft EIS and giving them a contact to notify if they wanted a review copy. Copies were distributed to public libraries around the State; these locations were indicated in the *Federal Register* Notice. Lists of parties interested in the Cook Inlet lease-sale area are maintained by the MMS and copies of the draft EIS, a CD-ROM of the draft EIS, or the Executive Summary were mailed to this listing in advance of the public hearings. The initial distribution was approximately 350 copies of the draft EIS, 200 CD-ROM's of the draft EIS, and 500 copies of the Executive Summary. A copy of the draft EIS was placed on the MMS's web page. Copies were available and distributed at the public hearings and at or in advance of government-to-government meetings.

The final EIS has been distributed to the same interested parties that received the draft EIS and those who requested copies of the final EIS. The MMS will make available a CD-ROM copy of the final EIS which, in some cases, will be mailed out with a paper copy of the Executive Summary. A copy of the final EIS will be placed on the MMS web page.

VII.B.2. Response Approach to Comments

During the comment period, various governmental agencies, organizations, and individuals provided letters, e-mail messages, or oral testimony.

All comment documents, including hearing transcripts, were reviewed by a team of MMS specialists, who identified comments that required a response. Comments required a response if they were substantive and suggested modifications to alternatives, including the Proposed Action, recommended new alternatives or mitigating measures; disagreed with analysis or methodologies; or related to the accuracy and/or the completeness of the data or information. We assigned tracking numbers to each of the comment documents in roughly the order in which they were reviewed and consecutively numbered comments within each document. As previously noted, we received numerous comments that did not suggest changes to the EIS but offered an opinion, point of view, and/or a recommendation that the decisionmaker(s) adopt specific alternative(s), mitigating measures, or take specific actions. These comments are included as part of the public record and they are available to decisionmakers during the deliberation process for the two proposed sales evaluated in this EIS.

VII.B.3. Public Hearings Held

Public hearings for this EIS were announced in the *Federal Register* notice. Advertisements and announcements about the availability of the EIS and the public hearings were placed in various newspapers and sent to various media outlets. When the Kenai-Soldotna public hearing was rescheduled from a Friday night to midday Saturday at the request of the Kenai Peninsula Borough government to facilitate public participation, announcements regarding the change were sent to media outlets and to recipients as a coversheet with the EIS, CD-ROM, or Executive Summary. Up-to-date information about the hearings was posted on the MMS's web page. Similarly, when the location of the public hearing in Homer was changed from the City Council chambers to the Homer High School Commons to accommodate the anticipated number of participants, local media outlets were contacted and signs placed at the council chambers directing the participants to the high school a short distance away. Public hearings on the draft EIS were held as follows:

Anchorage, Alaska	MMS Conference Room, 4:00-6:30 p.m.	Monday, January 16, 2003
Seldovia, Alaska	Community Center, 7:00-9:00 p.m.	Monday, January 21, 2003
Homer, Alaska	Homer High School, 7:00-11:30 p.m.	Wednesday, January 23, 2003
Kenai, Alaska	Merit Inn, 11:00 a.m.-1:00 p.m.	Saturday, January 25, 2003
Teleconference	Toll Free Call-In, 4:00-6:30 p.m.	Monday, January 28, 2003

VII.B.4. Government-to-Government Meetings

In accordance with Executive Order 13175 - Government-to-Government Relationships with Native American Tribal Governments, the MMS held government-to-government meetings with the four tribal governments to discuss items of mutual concern regarding the proposed action. Government-to-government meeting attendees and meeting summaries prepared by MMS attendees are found in Section I.D.

Meetings were held as follows:

Ninilchik Village Tribe	December 30, 2002
Native Village of Seldovia	December 30, 2002
Native Village of Port Graham	January 31, 2003
Native Village of Nanwalek	January 31, 2003

VII.C. Comments

Tracking numbers were assigned to the 122 comment documents (letters, e-mail, postcards, and public hearing transcripts) in the order in which they were evaluated. These documents are reproduced in Section VII.D, and the responses follow the document. The documents listed in the following contained comments meet the previously described criteria for which we prepared responses. Many of the comments are similar. We responded to similar comments in full and refer the commenter to that response to avoid repetition in our responses. In some cases we provide additional information. Please note that document numbers 34 to 43, 65, 66, 73, 98, and 102 were initially reserved for documents but were not used. Therefore, this section contains neither documents with these numbers nor corresponding responses.

<u>Originator</u>	<u>Document No.</u>
<u>Federal Agencies</u>	
Department of Commerce	
Assistant Secretary for Oceans and Atmosphere	001
National Marine Fisheries Service	106
Department of the Interior, Fish and Wildlife Service	
Air Quality Branch	002
Regional Director, Region 7	111
Alaska Maritime National Wildlife Refuge (Homer Public Hearing)	084
Department of the Interior, National Park Service, Alaska Region	003
Department of Homeland Security, United States Coast Guard	004
Environmental Protection Agency, Region 10	006

<u>Originator</u>	<u>Document No.</u>
<u>State of Alaska</u>	
Office of the Governor. Division of Intergovernmental Coordination	005
<u>Local Government</u>	
City of Kenai	013
City of Homer	014
Kenai Peninsula Borough (Written communication, Kenai Public Hearing)	005, 094
<u>Alaska Native Tribes</u>	
Ninilchik Traditional Council	015
Native Village of Eklutna	016
Chickaloon Village Traditional Council	017
Native Village of Port Graham	018
<u>Industry and Business</u>	
Resource Development Council	012
Alaska Oil and Gas Association	019
Agrium	021
Anchor Point Chamber of Commerce	022
Cook Inlet Fisherman's Fund	027
Kenai Peninsula Fishermen's Association	046
United Cook Inlet Drift Association	056, 091
SeaFlight SportFishing Charters	063
Cook Inlet Spill Prevention and Response, Inc. (Kenai Public Hearings)	093
Seldovia Oil Spill (Seldovia Public Hearings)	096
<u>Conservation Groups and Environmental Organizations</u>	
Cook Inlet Keeper (Written Comments, Public Hearing)	007, 086
Cook Inlet Regional Citizen Advisory Council	008
Alaska Marine Conservation Council	011
Kachemak Bay Conservation Society	031
Kachemak Bay Citizen's Advisory Board	033
Center for Biological Diversity	057
Alaska Wildlife Alliance (Anchorage Public Hearing)	088
Alaska Community Action on Toxics (Anchorage Public Hearing)	089
<u>Individuals</u>	
Marla D. McPherson (Written communication, Homer Public Hearing)	009, 075
Paul McCollum (Written Communication, Homer Public Hearing)	010, 076

<u>Originator</u>	<u>Document No.</u>
W. Findlay Abbott	020
David Anderson	023
Lexa Baxter	024
Megan Brinson	025
Gerald Brookman	026
Valery Connor	028
Terry Cummings	029
Mako Haggerty (Written Comment, Homer Public Hearing)	030, 080
Lenita Higman	032
Michael Kliemann	044
Doug Koester	045
Michael LeMay	047
Craig Matkin	048
Catherine McCarthy	049
Michael McCarthy	050
Deborah McMullen	051
Michael O'Meara	052
Jeff Richardson	053
Barbara Seaman	054
Richard Tyler (Written Comment, Homer Public Hearing)	055, 068
Daniel Zatz	058
Tom Lakosh	059
John Dodge	060
Travis Richardson	061
Arthur Kettle	062
Elise Wolf	064
Mitchell Hrachiar (Homer Public Hearing, Written Comment)	067, 118
Dave Lyon (Homer Public Hearing)	069
David Raskin (Homer Public Hearing)	070
Dale Banks (Homer Public Hearing, Written Comment)	071, 100
Tom Evans (Homer Public Hearing)	072
Robert Archibald (Homer Public Hearing)	074
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Craig Phillips (Homer Public Hearing)	078
Craig Matkin (Homer Public Hearing)	079

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Emily Ward (Homer Public Hearing)	081
George Overpeck (Homer Public Hearing)	082
Phil Warren (Homer Public Hearing)	083
Cameron Forbes (Homer Public Hearing, Written Comment)	085, 108, 109
Pamela A. Miller (Anchorage Public Hearing)	087
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VII.D. Comment Letters and MMS Responses to Comments

In this section we have reproduced each of the comment letters we received. Only those pages of the public hearings with specific comments are reproduced in Section VII.D. For a complete transcript of the public hearings see the MMS web page at www.mms.gov/alaska/cproject/Cook_Inlet/Cook_Inlet_Sale.htm. As explained earlier, we have numbered each comment that we identified for a response. The responses for each comment letter are provided immediately following the letter. Please note that document numbers 34 to 43, 65, 66, 73, 98, and 102 were initially reserved for documents but were not used. Therefore, this section contains neither documents with these numbers nor corresponding responses.



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Assistant Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

• January 30, 2003

RECEIVED
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REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Regional Director
Minerals Management Service (MMS)
Alaska OCS Region
949 East 36th Avenue
Anchorage, Alaska 99508

Dear Sir:

Enclosed are comments from the National Oceanic and Atmospheric Administration (NOAA) on the Outer Continental Shelf Oil and Gas Lease Sales 191, and 199 in the Cook Inlet, Alaska. These proposed sales are scheduled for the years 2004 and 2006, respectively. We hope our comments will assist you. Thank you for giving us an opportunity to review the document.

Sincerely,

James P. Burgess, III
NEPA Coordinator

Enclosure

cc: Director, Minerals Management Service
Department of the Interior
Mail Stop 4230
1849 C Street, NW
Washington, DC 20240-0001



January 29, 2003

MEMORANDUM FOR: Steven Kokkinakis
Office of Strategic Planning

FROM: James W. Balsiger
Administrator, Alaska Region

SUBJECT: DEIS for Cook Inlet Planning Area: Comments

The Alaska Region has reviewed the December 2002 Draft Environmental Impact Statement (DEIS) prepared by the Minerals Management Service (MMS) Alaska Outer Continental Shelf Region for Lease Sales 191 and 199 in the Cook Inlet Planning Area. Please refer any questions to Brad Smith or Brian Lance in our Anchorage office at (907) 271-5006.

General Comments

The Minerals Management Service's proposed action (also described here as Alternative I) consists of the Cook Inlet multiple-sale area which includes 517 whole or partial blocks covering 2.5 million acres in Cook Inlet. These blocks would be offered through two (2) individual sales which would occur sequentially- Lease Sale 191 in 2004 and Lease Sale 199 in 2006. This alternative reflects an estimated resource development of 140 million barrels of recoverable oil and 190 billion cubic feet of natural gas. The DEIS assumes that the oil and gas will be recovered as a result of a single development, which may result from either one or both sales.

The DEIS offers three (3) additional alternatives: the no action alternative and two (2) alternative deferral areas. While it is not clear whether the DEIS intends for these alternatives to be mutually exclusive, we recommend the adoption of Alternatives III and IV. These alternatives present small, but potentially valuable, improvements from the proposed action. Alternative III (Lower Kenai Peninsula Deferral) would reduce potential effects on subsistence fish resources and associated habitat. The deferral area is used for subsistence by the communities of Port Graham, Nanwelek, Seldovia, and Port Chatham. The MMS projects this alternative (and the other) would slightly reduce potential effects to essential fish habitat when compared to the proposed plan. While exploratory activities adjacent to the deferral area

001

would continue and may present many of the same impacts expected in the proposed plan, Alternative IV (Barren Islands Deferral) offers meaningful benefit to the protection of locally important marine resources, endangered species and marine mammals, and essential fish habitat around the Barren Islands. The inclusion of both alternatives would reduce the intrusion of the sale into designated critical habitat of endangered Steller sea lions.

NMFS and MMS are currently consulting on the effects of the proposed sales on threatened and endangered species. This consultation will result in the preparation of a biological opinion under section 7(a)(2) of the Endangered Species Act of 1973, as amended. On December 18, 2002, NMFS sent MMS a letter responding to your request for a programmatic Essential Fish Habitat Consultation on activities associated with leasing and exploration from proposed Lease Sales 191 and 199, as well as exploration associated with all other existing leases in the Cook Inlet Planning Area. NMFS has received a response dated January 10, 2003, from MMS and will continue to work on completing the EFH consultative requirements.

Specific Comments on the DEIS

Page ES-3, second paragraph, last sentence. "Effects to essential fish habitat that could be caused by seismic surveys, turbidity, and pipeline construction (both offshore and onshore) are considered low and are not expected to result in measurable effects at the ecosystem level." This section should clarify whether the action will have an "adverse effect" on essential fish habitat (EFH). A finding of "adverse effect" triggers an EFH assessment and consultation.

002

Page ES-4, last paragraph, second sentence. How habitat will recover "in a month or so" is not clear. Recovery would depend on the type of habitat affected, the degree of impact, as well as temporal and spatial factors.

003

Page ES-6, Alternative II. "The production from the Cook Inlet OCS would displace oil currently being imported by tanker to Cook Inlet area processing facilities. Without the OCS production, importation by tanker, with its attendant environmental effects, will continue and possibly increase." Does this imply that if Alternative I is accepted importation of oil by tanker in Cook Inlet will decrease or disappear altogether?

004

Page II-3. II.B. Alternative 1. The text here does not provide sufficient discussion of the transportation associated with these sales. The document states that the tankering of OCS crude oil

005

is not foreseen as part of the action. Does this assume all oil from this

005

sale would be used within the south central Alaskan region? What is the potential that oil would be shipped outside of the state? What is the potential for liquified natural gas from the sale to be shipped from the processing facility at Nikiski?

Page II-14. II.F.2. Information to Lessees (ITL's). If an agency has a concern but no regulatory authority, how does the ITL system help enlighten the lessee about other agencies' concerns? For example, ITL No. 6 covers Drilling Fluids and Cuttings Discharge during Post-Lease Activities. The contact federal agency for ITL No. 6 is the Environmental Protection Agency (EPA). NMFS has concerns about the effects of drilling fluids and cuttings discharge on EFH. How would the lessee be informed of NMFS concerns?

006

Page III-12. Water Quality. This section should be reviewed for clarity, because it seems to present a challenge to the lay reader's ability to understand these issues. For example, we found the passage "In this vein, a non-framework dependent unit of weight can be approximated by using "tonnes," representing both metric tonnes and English long tonnes, rather than English short tons. Weight in English long tonnes or metric tonnes is the same to the third decimal place. English short tons are 10% lighter." to be especially difficult.

007

Page III-16. III.A.4.a(3)(c)1). The DEIS states the metals in the permitted discharges of Cook Inlet wastewater facilities also occur in drilling muds, cuttings, and produced waters from offshore oil and gas operations. "Table III.A-3 does not include drill cuttings even though they are discharged at twice the rate of drilling mud because their trace metal composition is similar to the natural background (Boehm, 1998)." What are the cumulative (additive) effects? Page V-35 V.C.5.e(3)(e) states that over the next 5 to 10 years municipal wastewater and seafood waste are estimated to contribute double the inputs of the oil industry-produced waters. NMFS believes this is even more reason to inject produced waters, muds, and cuttings downhole.

008

Page III-51 Beluga Whale. We appreciate MMS's attention to this important Cook Inlet species. The discussion and analysis within the DEIS are very thorough and present an accurate accounting of the stock and the effects of hunting and resource development on this depleted marine mammal.

Page III-62. Humpback whale. While the DEIS again presents an excellent narrative describing this important species of endangered whale, it is also evident the sale area supports feeding aggregations of humpback whales from one or more stocks. NMFS has received many reports of "several hundred" humpbacks sighted near the Barren Islands by summer fishing charters, and have observed humpbacks on several occasions feeding near the Kenai Peninsula coastline north and east of Elizabeth Island. We believe this use should be a determining factor in the decision to establish the two deferral alternatives.

-031

Page. III-161. We were pleased to see the presentation of local observations and knowledge in the DEIS. It would be helpful if many of the statements which appear in this section had some time-reference, because when the statement was made is not always certain. Listing certain observations among communities to identify common issues or problems would also be interesting.

009

Page IV-10. IV.A.5.c. This section should also include a description of dispersants and any considerations or restrictions on their use in Cook Inlet.

010

Page IV-12. IV.B.1.a(1). This section discusses the effects of permitted discharges of produced waters. The DEIS states in conclusion that, "Drilling fluids and produced waters would be injected downhole during development and production." Meanwhile, on page IV-50. IV.B.1.e(2)(a)2) the DEIS states, "Drilling muds and cuttings may be discarded into Cook Inlet during exploration, if permitted by the Environmental Protection Agency. This activity is not expected to have any effects to essential fish habitat or water quality." Why produced waters would be injected downhole during development and production, but not during exploration is unclear. Is it feasible to inject produced waters downhole during exploration? If so, NMFS would support this technique as an EFH conservation recommendation. The Environmental Protection Agency (EPA) has guidance for discharge into Cook Inlet. What assurance exists that produced waters will be injected downhole?

011

Page IV-13. IV.B.1.a(2)(a). The DEIS states the current National Pollutant Discharge Elimination System (NPDES) permit for Cook Inlet (EPA 1999) requires that the bulk of drilling mud be "practically nontoxic" in order to be discharged. What does "practically nontoxic" mean? Also, what kind of impacts to fisheries and essential fish habitat could be expected inside the "mixing zone" (EPA's NPDES), particularly to eggs, larval stages of fish, and prey? A discharge of drilling muds, cuttings, and production waters would occur on a consistent basis throughout

012

013

the life of the field. What would this mean to resources and habitat?

014

Page IV-42. IV.B.1d(3)(b)1). The DEIS states that concentrations of petroleum hydrocarbons beneath the initial surface slick are less than 0.1 parts per million, well below toxic levels for finfishes. NMFS

015

believes the DEIS should present a discussion on the potential effects of dispersants and associated dispersed oil to fish and prey associated with near surface and midwater habitats. Numerous marine fishes have pelagic life stages associated with these habitats.

Page IV-47. IV.B.1.e(1). The DEIS states effects on essential fish habitat from seismic surveys, turbidity, and pipeline construction are considered low. Are these effects considered adverse or not?

016

Page IV-48. Seismic Surveys. The information presented in the third paragraph here contains some errors. We recommend rewording this paragraph as "As a temporary measure (until NMFS completes its underwater acoustic criteria for marine mammals), NMFS resorted to human standards, meant for the workplace, in assessing 'incidental take' applications under the MMPA. At 70 dB above an animal's acoustic threshold (the level at which it can hear) ocean noise was presumed to affect behavior. At 80-100 dB over an animal's threshold, noise was presumed to induce temporary hearing loss and at 155 dB to cause immediate, permanent auditory damage (Jasny and Reynolds, 1999; National Research Council, 1996). However, Jasny and Reynolds (1999) indicate that behavioral changes may hinder an animal's survival, without actually damaging its hearing."

017

Page IV-50. IV.B.1.e(2)(a)1). The DEIS states that Pacific Herring are a prey species, as well as commercial fish species, that may be adversely impacted by seismic activity. The DEIS further states that if seismic surveys are restricted to early fall and late summer they will not affect spawning habitat when herring are concentrated in spring. The NMFS supports this timing restriction as an EFH conservation recommendation.

018

Page IV-55. IV.B.1.e(3)9c)2). This section discusses the effects of a large oil spill on essential fish habitat. The DEIS states, "The concentration of oil in the water column of the oiled estuarine areas would be expected to decrease to below the regulatory criterion of 15 parts per billion within 30 days."

The DEIS states the same for marine water habitat. How was the regulatory criterion of 15 parts per billion determined, how is it defined, and which agency has regulatory authority?

019

The DEIS further states on page IV-54. IV.B.1.e(3)(c)1) that, "Egg and larval stages of many species are more susceptible to stress and toxic substances than adult stages. Several studies have demonstrated adverse effects of oil to fish in intertidal habitat at levels below the water quality guidelines of 15 parts per billion, including mortality to pink salmon embryos at 0.1 parts per billion." Possible effects on egg and juvenile stages from an oil spill when levels fall below this regulatory criteria of 15 parts per billion are not clear. Numerous marine fish species, both commercial and forage species, have pelagic egg and larval stages within the project area and would likely be adversely affected should an oil spill occur. As stated in the DEIS possible ecosystem effects on Walleye Pollock could radiate up and down the food chain. In the case of a large oil spill, is there an adverse effect or not?

020

Page IV-53 IV.B.1.e(3)(c). This section discusses the effects of a large oil spill on essential fish habitat. The DEIS states the greatest risk to essential fish habitat is from major oil spills. What measures will be taken during exploration, development, and production to prevent oil spills? What spill response procedures have been established for Cook Inlet? Have these response procedures been proven effective under various conditions, including broken ice, in Cook Inlet?

021

Page IV-92. Third paragraph. National Marine Fisheries Service (1995) does not appear in the literature cited section.

022

Page IV-191 through IV-205. The DEIS clearly supports the recommendation for adoption of both alternatives III and IV. NMFS believes these deferrals should be adopted, particularly in view of their benefits to marine mammals and endangered species, and the relatively small loss of oil potential.

Page IV-201. IV.B.4.b(4). This section discusses the differences in effects between the preferred alternative and the Barrens Island Deferral. The DEIS states, removing the area around the Barren Islands and Kennedy Entrance would slightly decrease the probability of oil spill impacts to the beaches of Kamishak Bay and the Barren Islands as well as estuarine waters in outer Shelikof Straight. This alternative presents small, but

potentially valuable, improvements from the proposed action. Kennedy Entrance and the waters around the Barren Islands are important essential fish habitat due to the upwelling of nutrients into the trophic food chain. A 50% reduction in potential impacts to zooplankton and phytoplankton populations (fish prey), as stated in the DEIS, is substantial. NMFS believes support for this alternative is justified.

Page IV-205.IV.C.3. Unavoidable effects to Essential Fish Habitat should include the effects of produced waters, potential oil spills (large and small), as well as the potential use of dispersants.

023

Page IV-209. IV.D.5. The DEIS states oil spills could have short-term effects on marine habitats and that fish and fish habitats are expected to recover within one generation. This statement is rather broad. NMFS believes recovery would be species, habitat and site specific. Also, recent studies (2002) in Prince William Sound show Exxon Valdez oil present in both intertidal and subtidal habitats 13 years after the spill. Furthermore, this oil was shown to be bioavailable to organisms using these affected habitats.

024

Page IV-211. IV.D.11 and IV.D.12. The DEIS states that an oil spill would likely have effects on commercial fisheries and subsistence harvest patterns that are short-term in nature and should not have long-term effects. In describing the potential effects of an oil spill on commercial and subsistence uses any analysis of potential long term effects should be based in part on the perception by resource user groups that a resource could be tainted. Also, for migratory and mobile species any effects model should include effects outside the spill area as these potentially tainted species move into areas not directly affected by the spill.

025

Page IV-216. IV.F.2.c. Is there a standard response technology for a spill occurring during late fall freeze-up? If so, is there any reasonable prediction of the efficiency of this technology, or examples of its testing or actual use in Cook Inlet or elsewhere in Alaska? Please provide a description of the experience(s) of using oil skimming systems "successfully" in Cook Inlet amid broken ice.

026

Page IV-221. IV.F.3.e(2). This section discusses the effects of a 120,000-barrel blowout on essential fish habitat. The DEIS should include a discussion of possible effects to surface and mid-water essential fish habitats from an oil spill of this magnitude. Numerous marine species have juvenile, planktonic,

027

and egg stages that occupy these habitats. What would be the effect if dispersants were used to control a spill?

Page IV-243. IV.F.3.o. This section discusses the effects of a 120,000-barrel blowout on sport fisheries. The DEIS states an oil spill could eliminate sport fishing in Cook Inlet for 1 year. In describing the potential effects of an oil spill on sport fisheries, any analysis of potential long term effects should be based in part on the perception by resource user groups that a resource could be tainted. Effects could very well extend beyond 1 year.

028

Page V-28. V.C.5.d(1). The DEIS states, while some individual fishes may be disturbed, injured, or killed, "effects measured at the population level are not likely." The words "effects measured at the population level are not likely" are used throughout the DEIS to describe potential effects to fish resources and EFH. Measurable effects at the population level following a disturbance are difficult to demonstrate. The ability to demonstrate an effect is sensitive to sample size and scale. The large amount of natural variation inherent in most wild populations often swamps out any effects of the disturbance. This has been shown across numerous taxa and disturbance events, including the Exxon Valdez oil spill. The inability to demonstrate an effect does not necessarily mean there was no effect. The DEIS does a good job addressing this issue on page V-36.V.C.5.c(4). This discussion on page V-36.V.C.5.c(4) should be referenced throughout the DEIS when mention is made to "no measurable effects at the population level."

029

Page V-28. V.C.5.d(2). This section discusses cumulative effects of drilling discharges on fisheries resources. Are there any data on depositional zones outside the project area (e.g. Shelikof Straight)? If, as stated in the DEIS, Cook Inlet is a system dominated by dilution over deposition, then discharge of produced waters from oil industry sources, as well as municipal discharges, are likely being deposited outside Cook Inlet. What are the cumulative effects on bottom habitats and associated demersal fish populations?

030

MMS Response to Comment Document 001**Response 001-001.**

The alternatives are not mutually exclusive. Section I.F was changed to note: “if the Secretary of the Interior decides to proceed with each of the sales (191 and 199), by not choosing Alternative II - No Lease Sale, the Secretary may choose one, all, some combination, or part of the deferral options to comprise the Final Notice of Sale for Sale 191. The Secretary will have the full suite of options available for Sale 199 when that decision is made in 2006. The Secretary may choose the same options selected for Sale 191 or different options.”

Response 001-002.

The section has been revised to clarify that impacts may be adverse to essential fish habitat (EFH).

The MMS Cook Inlet Lease Sale EIS is used to satisfy Essential Fish Habitat Consultation information needs as specified in 50 CFR § 600.920 and must state whether impacts may be adverse or not. At the request of the MMS, the NMFS stated in a letter of finding dated March 12, 2003: “To streamline environmental review requirements, MMS and NMFS staff have worked cooperatively to develop procedures to incorporate EFH consultations into their existing NEPA process, and MMS may incorporate EFH consultation into their NEPA process” as described within the regulations and letter. The regulations detail procedures for NMFS and Federal Agencies to coordinate, consult, or provide recommendations on Federal actions that may adversely affect EFH. The intended effect of the rule is to promote the protection, conservation, and enhancement of EFH. An adverse effect (defined in 50 CFR § 600.810) means any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Response 001-003.

The Executive Summary has been amended to state that localized EFH may recover across months to years.

Response 001-004.

Production from the OCS would offset importation of petroleum to Cook Inlet area refineries from sources outside Cook Inlet. Imports could decrease by a corresponding amount. We anticipate the production of 140 million barrels of oil from the sales. This level of production is unlikely to result in the ending of imports. See Section V.C.1.d for a discussion of the cumulative effects of tanker transportation of petroleum in Cook Inlet.

Response 001-005.

The EIS assumes that all oil and natural gas production will be brought ashore to Cook Inlet refineries and processing plants and used by consumers in Southcentral Alaska. We do not anticipate that oil would be shipped out of State for processing. The scenario anticipates that sales of OCS gas would commence in 2022 and be used for local consumption without specific reference to the ultimate consumer of the gas. Liquefied natural gas exports from Nikiski go to foreign countries, specifically Japan. Natural gas produced from the OCS cannot be exported to foreign countries; therefore, we do not anticipate exports of OCS gas as liquefied natural gas from Nikiski.

Response 001-006.

The MMS evaluates the comments received from all agencies on the draft EIS. If information needs to be added to an existing ITL or a new ITL needs to be created, we will incorporate the new information into the

final EIS. This change would be noted in our response to the comment. If the concerns regard agency regulation of produced water, that information would be included in the ITL. Comments regarding the environmental effects of produced water on essential fish habitat would be addressed through the EFH consultation process. However, because we assume produced water would be reinjected, there appears to be little cause for concern.

Response 001-007.

The text has been reviewed and revised as requested.

Response 001-008.

The potential cumulative effects from oil-industry wastes, municipal waste, and seafood waste are examined in Section V.C.5.a(3). None of the three, singly or together, were found to be of sufficient volume or concentration to degrade Cook Inlet water quality. Multiple water, biota, and sediment monitoring studies cited in the EIS reinforce this conclusion. However, note that recent industry practice, for example the Osprey platform, and EPA guidance indicate that at least during development and production, produced waters, muds, and cuttings likely would be disposed of downhole and not discharged.

Response 001-009.

New text providing context and time reference for the local and traditional statements quoted has been added to the beginning of Section III.C.3.d - Regional Traditional Knowledge on Subsistence. The suggestion to list common issues and problems across communities is a good one and already has been provided in Section III.C.7 - Environmental Justice.

Response 001-010.

A discussion of dispersants and conditions of their usage in Cook Inlet has been added to the EIS to Section IV.A.5.c.

Response 001-011.

Produced water usually is not a factor in exploration drilling. Byproducts of exploratory drilling, mostly muds and cuttings, would be discharged according to the terms of the current NPDES general permit for Cook Inlet. Please see Response 008-003 for discussion of the disposal of produced water.

Response 001-012.

The term “practically nontoxic” is defined by IMCO/FAO/UNESCO/WHO as toxicity (LC₅₀) only at concentrations greater than 10,000 parts per million (=1%). This terminology is discussed and defined in Section III.A.4.a(3)(c)3b and again in Section IV.B.1.a(2)(c).

Response 001-013.

The MMS anticipates discharges of drilling muds and cuttings to occur only during exploration-drilling operations. Based on EPA information (see Section VII, Document 006), MMS expects that lessees and operators of new production platforms will reinject production and development discharges of produced waters, drilling muds, and cuttings into existing wells. This expectation is based on the EPA’s goal of achieving a zero discharge from offshore platforms as well as advances made as best available technology platform designs enabling them to reinject such wastes.

During exploratory-drilling operations, bulk drilling mud, usually about 100-200 barrels at a time, is discharged several times during the drilling of a well, when the composition of the drilling mud has to be changed substantially or when the volume exceeds the capacity of the mud tanks. Washed drill cuttings and a small volume of drilling mud solids are continuously discharged during drilling operations; the discharge rate varies from about 25-250 barrels per day. The most recent general NPDES permit for Cook Inlet oil and gas discharges (AKG285000; Environmental Protection Agency, 1999) allows discharge of only muds with negligible toxicity (greater than 30,000 parts per million) as measured by an LC₅₀ test (see Section IV.B.1.a(2)(c)). An LC₅₀ test measures the lethal concentration for 50% of the test organisms

exposed during a 96-hour period. Concentrations of 1-100 parts per million are toxic to 50% of the organisms exposed over a 96-hour period.

Section 403(c) of the Federal Water Pollution Control Act (Clean Water Act) regulations allow only a 100-meter radius mixing zone for initial dilution of discharges in OCS waters. Additionally, the waters of Cook Inlet generally are vertically well mixed and strongly influenced by the tidal cycle. Juvenile and adult fishes are not likely to incur acute (lethal) toxic effects from exposure to permitted discharges within the Federal mixing zone, because (a) the concentrations are of negligible toxicity by EPA's standards, (b) discharge concentrations of negligible toxicity will become rapidly diluted within the mixing zone by waters of Cook Inlet as they are swept past the discharge point by strong tidal currents, and (c) the timing of drilling discharges in juxtaposition with the presence of significant numbers of juvenile and adult fishes in the mixing zone for each exploratory or delineation well drilled. Juvenile and adult fishes occurring within the mixing zone may experience sublethal effects; however, these effects are slight and not predicted to impact fish populations. Eggs, fry, and small prey occurring in or entering the mixing zone during discharge of muds and cuttings may experience lethal and sublethal impacts if they are very close (within 1-2 meters) to the discharge point, and volumes of muds and cuttings are released at rates permitted by the EPA (500-1,00 barrels per hour depending on water depth). Such lethal and sublethal effects most likely would result from physical damage or smothering resulting from the bulk constituents comprising muds and cuttings. Only very small numbers of eggs, larvae, or prey are believed susceptible to such close exposure, due to the limited periods of high discharge rates; the few exploratory wells (totaling seven wells for both lease sales) to be drilled over a 4-year period; and relative to the widespread distribution of eggs, larvae, and prey in Cook Inlet. Such slight mortality of eggs, larvae, and prey is considered negligible to the population dynamics of fisheries resources. Essential fish habitat located on the seafloor below the 100-meter mixing zone radius would become temporarily unavailable for fish to inhabit during actual drilling activities. Sediment deposition during discharges and physical activities associated with the drilling operations likely would disturb and displace fishes from the immediate area. Fishes may reinhabit the immediate drilling area within minutes to hours after drilling or discharging operations ceased.

Response 001-014.

The statement that "a discharge of drilling muds, cuttings, and production waters would occur on a consistent basis throughout the life of the field" is not correct, because the scenario assumes zero discharge during production. The effects of discharging drilling muds and cuttings during exploration are addressed for each resource where discharge could cause an effect (Sections IV.B.1.a through IV.B.1.s).

Response 001-015.

Additional information was added to Section IV.B.1.d addressing the impact and use of dispersants on fisheries resources.

Response 001-016.

The section has been revised to clarify that impacts may be adverse to EFH. Please see Response 001-002.

Response 001-017.

The paragraph has been amended as recommended.

Response 001-018.

The MMS is consulting with NOAA Fisheries on essential fish habitat as required in 50 CFR § 600.905. We anticipate conservation recommendations from NOAA Fisheries concerning potential postlease seismic-survey operations. For additional information regarding conservation recommendations received as part of the EFH Consultation, see Appendix D.

Response 001-019.

The State of Alaska set the regulatory criterion of 15 parts per billion. For more details, please see Section IV.B.1.a(3)(c)2) concerning water quality criteria for hydrocarbons.

Response 001-020.

Several sections of the EIS concerning oil-spill impacts to fisheries resources and EFH have been revised to reflect the points expressed by the commenter. Additionally, recent studies have been added to support the overall assessment.

Response 001-021.

Also see response to comment 001-026.

The petroleum industry and the Government have separate responsibilities for oil-spill prevention, contingency planning, and response. The MMS has established stringent requirements for spill prevention and response and employs an inspection program to ensure industry compliance. To complement the regulatory programs in place, the petroleum industry uses state-of-the-art technology for prevention equipment and the most current operating procedures while conducting operations on the OCS. Additionally, the petroleum industry must maintain a constant state of readiness for oil-spill response to meet the MMS's stringent response requirements. If an oil spill should occur, it is the responsibility of the spiller to respond to the spill with the oversight of the Federal and, depending on the location of the spill, State Governments. The Federal Government's role during an oil spill has been restructured and expanded by the Oil Pollution Act of 1990.

Specific regulations covering exploratory operations are found in 30 CFR 250, Subsections B and D, which cover exploration and drilling operations, respectively. The MMS regulations incorporate numerous industry Standards, Recommended Practices, and Technical Specifications that outline standard engineering practices and procedures adopted by the petroleum industry. The MMS prevention program begins when the Exploration Plan (EP) is submitted.

The purpose of the EP is to provide the Government and the public with general information about the proposed exploration program. The EP contains general information pertaining to the operator's overall drilling plan and is reviewed by the MMS; the public; and other State, Federal, and local government organizations. If the EP meets MMS requirements, it may be approved. The MMS prepares an Environmental Assessment on each EP. If major environmental effects are identified that are not addressed by existing regulatory requirements, the MMS may restrict the activity or adopt additional mitigation. No exploratory drilling may be conducted unless an EP has been approved and deemed consistent with the Alaska Coastal Zone Management Plan. The EP may describe single-well or multiple-well drilling programs that are contingent on the results of each subsequent well. The EP outlines the scope of the proposed activities as well as the equipment, personnel, and a general timeline to be used for the drilling operation. An analysis of the potential environmental effects likely to occur during the drilling operations also is presented in the EP. In general, the EP provides the MMS and the public the information necessary to ensure that the operator will use the appropriate equipment and trained personnel to safely conduct the drilling operation and to determine if the activity will have any significant environmental effects. An Oil Spill Contingency Plan (OSCP) is submitted as supporting information for the EP. The OSCP provides information pertaining to the operator's planned response should an oil spill occur from the drilling operation. The OSCP includes information on site- or situation-specific oil-spill-response strategies, equipment, trained personnel, and the logistical support necessary to conduct a spill response.

Before any drilling can begin, the operator must submit an Application for Permit to Drill (APD) to the MMS. The APD may be submitted before, during, or after submission of the EP but may not be approved until an EP has been approved and deemed consistent with the Alaska Coastal Management Program.

The APD outlines a drilling plan specific to a single well and provides proprietary geologic and engineering information. The APD is reviewed by MMS petroleum engineers, geologists, and geophysicists to ensure that all drilling operations meet MMS's stringent requirements and are conducted in an environmentally sound manner. The APD includes well-specific information such as casing, cementing

and mud programs, well-control-equipment-operating limitations, expected pressure gradients, surface and bottomhole locations, drilling-unit-operating limitations, shallow-hazards data, and other engineering and geologic information. Site-specific seismic and geologic information is analyzed to determine the presence of shallow hazards (i.e., shallow gas, faulting, and other such hazards). The APD includes a Critical Operations and Curtailment Plan that describes the procedures for shutting down operations prior to environmental conditions that approach the operating limitations of the drilling unit.

Once the EP and APD are approved, the MMS's exploratory permit requirements are fulfilled and the operator may begin drilling. It should be noted that there are numerous additional State (depending on the location of the drill site) and Federal permits that require approval before drilling may begin.

Once drilling is under way, the MMS monitors operations through daily drilling reports and onsite MMS activities inspection. If the operator determines the need to deviate from the plans described in the APD, a sundry notice, which contains detailed engineering information pertaining to the proposed changes, must be submitted to the MMS for review and approval.

Offshore exploratory wells generally are used only for exploration and, therefore, require abandonment once the operator has extracted all the necessary information. When the well is ready for abandonment, the operator must submit an abandonment plan to the MMS. Abandonment plans outline well-specific procedures to abandon the well so that permeable formations are isolated with cement plugs to prevent potential formation fluid (oil, gas, or water) migration to the surface.

The MMS also requires that drilling personnel successfully complete an MMS-approved well-control training course. The courses are designed to ensure all drilling personnel understand and can detect signs of potential well-control problems as well as the actions necessary to prevent loss of well control. As an additional preventive measure, the MMS requires complete redundancy in blowout prevention equipment. The MMS also requires the blowout prevention equipment to be actuation and pressure tested on a regular basis to ensure its integrity. To reduce the likelihood of the loss of well control, the MMS requires the operator to conduct specific procedures for monitoring the mud system during activities that are known to have a high kick (influx of formation fluids into the well bore) occurrence rate.

The EP process ends once a discovery has been made and delineation drilling is complete. Before any production facilities or platform may be placed on the OCS, the designated operator must prepare and submit a Development and Production Plan (DPP). Similar to an EP, the DPP includes information on potential environmental effects and an activity-specific OSCP. The DPP must undergo a public-review process and a separate environmental review by the MMS. The OCS Lands Act also requires that at least one DPP in a frontier area, which would include the area, be subject to a complete EIS. Every development well is required to have an approved APD prior to being drilled. Although production recently has begun from the Alaska OCS, the MMS has extensive regulatory experience for offshore production in both California and the Gulf of Mexico. The MMS regulations for preventing spills from production operations are found in 30 CFR 250 Subsections E, F, H, and J. The regulations cover completion, workover, production, and pipeline operations, respectively. To make the regulations as comprehensive as possible, the MMS has incorporated by reference numerous industry Standards, Recommended Practices, and Technical Specifications. Primary among the American Petroleum Institute documents for prevention is API RP 14C, Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms.

A platform-surface-safety system is a group of safety devices that are intended to automatically detect and prevent the occurrence of common production-system hazards and, thereby, protect the facility, personnel, and environment from injury. The major threat to safety on a production platform is the release of hydrocarbons. Thus, the analysis and design of a production-platform-safety system must focus on preventing hydrocarbon releases by stopping their flow to a leak, thereby minimizing the volume of hydrocarbons that are released. To accomplish this, safety systems use protection concepts to prevent the occurrence of undesirable events. An undesirable event is an adverse occurrence in a process component that may result in the accidental release of hydrocarbons. There are five undesirable events around which the surface-safety system is designed: (1) An **overpressure** condition occurs when the pressure in a process component exceeds the normal operating pressure range. (2) A **leak** occurs following a breach in a process component resulting in an accidental escape of oil, water, and/or gas to the atmosphere. (3) A **liquid overflow** occurs when the accumulation, of liquid within a process component becomes greater than

the design accumulation causing a discharge of liquids through a gas or vapor outlet. (4) **Gas blowby** occurs when the liquid level within a process component becomes less than the design accumulation, causing a discharge of gas from a process component through a liquid outlet. (5) **Underpressure** occurs when the pressure in a process component becomes less than the design-collapse pressure, causing the process component to collapse.

Because the undesirable events may occur, the production-safety system is designed to prevent them, isolate the problem to minimize or prevent the effect, contain any spillage, and shut in the process in the event of a fire. The platform-safety system provides two levels of protection to prevent or minimize the effects of an equipment failure within the process. The two levels of protection are independent of and in addition to the control devices used in the normal process operation. In general, these two levels of protection are provided by different types of safety devices and give a broader spectrum of coverage for the five commonly occurring undesirable events. These protective measures are common industry practices and are proven through many years of experience.

In a production safety system, undesirable events are detected by various types of sensors that initiate a shutdown action to prevent or limit the release of hydrocarbons from a well or process component. These sensors are installed on the specific well or process vessel or as part of the Emergency Support System, which includes: (1) the combustible gas-detection system to sense the presence of escaped hydrocarbons and to initiate alarms and platform shutdown before gas concentrations reach the lower explosive limit; (2) the containment system to collect escaped liquid hydrocarbons and to initiate platform shutdown; (3) the fire-loop system to sense the heat of a fire and to initiate platform shutdown; (4) the Emergency Shutdown System to provide a method to manually initiate platform shut down by personnel observing abnormal conditions or undesirable events; and (5) the subsurface safety valves, which may be self actuated or actuated by an Emergency Shutdown System and/or a fire-loop system located within the wellbore of every well.

Prior to installation of the production-safety system, the MMS must review and approve the plans. To ensure proper installation and the functionality of the system, the MMS conducts a preproduction inspection to test each of the safety devices prior to allowing production to commence.

The MMS inspection program plays an integral role in the prevention of oil spills. The program is designed to provide effective monitoring and enforcement of operator compliance with the requirements set forth in the OCS Lands Act, applicable Federal laws and regulations, lease terms, conditions of permit approval, and other directives. Compliance is ensured through a rigorous inspection program that uses comprehensive inspections before, during, and after commencement of drilling operations. The MMS uses an inspection staff composed of highly trained technicians and engineers to implement this multifaceted inspection program.

Prior to the use of a drilling unit that previously has not been approved for use on the Alaskan OCS, the drilling unit must undergo a rigorous inspection to ensure compliance with MMS regulations. The MMS technicians inspect electrical systems, blowout prevention systems, ventilation systems, alarm systems, and other safety and prevention systems to ensure compliance with MMS regulations. Any system found not in compliance must be corrected prior to commencement of drilling operations.

For exploratory drilling operations in Alaska, inspectors witness operations critical to the safety and stability of the well, including but not limited to cementing; blowout drills; and pressure testing blowout preventers, chokes, and diverters. In addition to witnessing such operations, inspectors conduct detailed and partial inspections using the Potential Incident of Non-Compliance (PINC) checklist.

The PINC lists are composed of items the inspector must examine to ensure that the operator is complying with the regulations, lease stipulations, and permit conditions. Partial inspections are completed on a daily basis, provided the inspector remains on the drilling unit for more than 1 consecutive day, and consist of inspecting items on the partial PINC list. Detailed inspections generally are conducted on a weekly basis and use the detailed PINC list as well as special PINC lists specifically generated for each operation. In addition to inspecting for compliance with MMS requirements, MMS inspectors, under a Memorandum of Agreement with the EPA, conduct inspections for compliance with the EPA's NPDES permits for operational discharges.

In the event of a commercial discovery and subsequent development and production, the MMS Alaska OCS Region would develop an inspection strategy commensurate with the scope and nature of the activities as well as the operating environment.

The goal of the MMS oil-spill program is to ensure that the lessee is prepared to respond to any size spill—from a small operational spill to a large worst-case spill. To achieve this goal, the MMS requires OSCP's for all operations. Further, the MMS uses inspections, equipment deployment, and tabletop-communication exercises to ensure that the lessee has trained, knowledgeable crews and well-maintained equipment to respond to a spill.

Before conducting exploratory drilling operations, MMS's oil-spill regulations (30 CFR 250.42) require each lessee to submit an OSCP to the Regional Supervisor, Field Operations, MMS, for approval with, or prior to, the submission of an EP or DPP. The OSCP is developed for the site-specific operations, based on the type, timing, and location of the proposed activities. The OSCP must satisfy the content requirements and provisions identified in 30 CFR 250.42 and the Planning Guidelines for Approval of Oil Spill Contingency Plans developed jointly by the MMS and the U.S. Coast Guard.

In accordance with regulatory requirements and industry standards, exploration and development projects must be designed and would be operated to prevent potential accidents and oil spills. Safety and pollution-prevention equipment would be installed, tested, and maintained according to MMS requirements and other applicable Federal and State requirements.

Each well to be drilled would be designed according to the intended use of the well. The final design of each well would be submitted to the MMS before drilling begins and would be reviewed to ensure that it meets MMS requirements found in 30 CFR Subpart D. The following is a list of essential components for well safety:

- multiple blowout preventors used during drilling;
- redundant power sources used to activate blowout preventors and other safety equipment during drilling;
- casing programs designed to contain subsurface formation pressures;
- cementing programs designed to support casing and to contain formation fluids and pressure outside the casing;
- drilling-fluid programs designed to control formation pressures and to provide a stable borehole environment in the open hole during drilling, completion, and workover operations;
- well completions designed to ensure well control during production;
- well-control training and drills completed by all personnel;
- following completion of the well, subsurface safety valves installed that would automatically shut in the well to prevent formation fluids from flowing to the surface; and
- additional redundant safety valves installed at the surface.

Production equipment would be designed for the maximum pressures that could be encountered. Automatic and manual shutoff valves would be installed between each piece of processing equipment and pressure vessels, so the flow can be isolated and stopped at any point in the production stream. Equipment would be installed with sensors to shut in the facility and stop the flow before operating pressure exceeds design pressures. Pressure sensors and shutoff valves would be tested and maintained on a scheduled basis, according to MMS requirements. Production equipment would meet design and operating specification, according to MMS requirements. The production stream would be connected to an automated shutdown system to be activated should there be a pipeline leak or other process upset. All production equipment and safety systems would be tested before startup. Process operators would be trained and certified to operate and maintain production safety systems, according to our requirements.

Response 001-022.

We have corrected our typographical error. The resulting date of the reference is 1993, and this reference has been added to our bibliography.

Response 001-023.

Section IV.C.3 has been revised to accommodate the recommended impact-producing factors.

Response 001-024.

Sections IV.D.4 and IV.D.5 have been amended. The MMS concurs that recovery would be species, habitat, and site specific. Recovery of EFH may require months to decades. However, oil spilled in the amounts assumed under the Proposed Action would not measurably affect the overall regional population of fisheries resources or their prey.

Response 001-025.

In the event of an oil spill contacting fisheries resources that are commercially harvested, it is assumed that access to the resource would be closed to commercial fishing. Closures of commercial fisheries are discussed in Section IV.B.1.k(3). A note regarding tainted migratory fishes that are harvested elsewhere has been added to Section IV.B.1.d(3)(b).

For purposes of analysis, short-term effects are considered to be those that persist over the lifetime of the project—in this case, 30 years. Long-term effects are those that would persist longer than 30 years. Short-term tainting effects from a 1,500- or 4,600-barrel spill certainly could occur and are discussed in Section IV.B.1.1 - Effects of Sale 191 on Subsistence-Harvest Patterns. Based on the recovery of subsistence harvests to prespill levels 10 years after the *Exxon Valdez* spill, the issue of tainting 30 years after a spill is not expected to be a primary concern to resource user groups. See also Section V.C.5.1 - Subsistence-Harvest Patterns for a discussion of cumulative effects.

Response 001-026.

Response methods in Cook Inlet would vary with the conditions. In times of heavy ice concentration, responders most likely would use free-skimming tactics to access oil and remove it from the ocean surface. Free skimming relies on the natural tendencies of the ice to reduce spreading and concentrate oil in pockets along the floe. When a concentration is discovered, a skimming vessel would deploy its skimmer into the oil without the use of boom. The vessel would float with the ice floe, and because there is no boom, responders are better able to react to changing conditions and change location quickly after the oil has been recovered. On-water skimming operations have reported efficiencies of 5-15%. The Cook Inlet Spill Prevention and Response, Inc. (CISPRI) is the local spill-response cooperative in the area and has operated in the Cook Inlet over the past decade responding to spills in open-water and broken-ice conditions using both boom and skimmer and free-skimming tactics. Tactics that may be used in responding to spills in different environmental conditions are described in the CISPRI Technical Manual, which is incorporated by reference in spill-contingency plans submitted by CISPRI members operating in the offshore.

Another response method is in situ burning, or burning the oil while it is on the ocean or ice surface. Again, ice works to contain and concentrate oil such that it is thick enough to support on-water burning. The ice works as a fire boom in this instance and allows the operation to go forward without having to deploy boom in the ice-filled environment. Depending on the oil and how soon burning is initiated, in situ burning has reported efficiencies of more than 90%.

Response 001-027.

Section IV.F.3.e was revised to discuss the potential effects of a very large spill to pelagic habitats and fishes.

Response 001-028.

Sport fisheries were closed in 1989 as a result of the *Exxon Valdez* oil spill, when oil drifted into Cook Inlet. In 1990 and thereafter, sport fishing was reopened. Sport fishing for salmon and halibut in Cook Inlet, and other areas where the oil spread for only one season, resumed in 1990 and thereafter. Perception of tainting lasted only for one fishing season. We have added this information to the text in Section IV.F.3.o.

Response 001-029.

A statement referring the reader to the section has been added to Section IV.A-1.

Response 001-030.

Because of the need to definitively examine the distribution and environmental risk of anthropogenic chemicals (i.e., metals, petroleum hydrocarbons including polynuclear aromatic hydrocarbons [PAH's]) in advance of any future oil and gas exploration and production activities that potentially could affect the lower Cook Inlet and Shelikof Strait, the MMS funded a 2-year study in the region (Boehm, 2001a). Study objectives were to (a) evaluate the Shelikof Strait and outermost Cook Inlet as potential depositional areas or "traps" for oil industry contaminants; (b) determine whether contaminant concentrations in sediments of these areas pose an environmental risk; (c) determine whether contaminants in these areas have accumulated relative to pre-industry concentrations; (d) determine whether any increases can be correlated with specific discharge events or activities (for example, the *Exxon Valdez* oil spill); and (e) determine the importance of other hydrocarbon and metal sources to the sediments. Field sampling was gathered in 1997 and 1998. The study concluded the following:

- The surface sediments of outermost Cook Inlet and the Shelikof Strait are traps for fine-grained sediment and are potential traps for contaminants from oil and gas production activities in upper Cook Inlet.
- The concentrations of metals and organics (i.e., PAH's) in sediments in outermost Cook Inlet and Shelikof Strait have not increased significantly since offshore oil exploration and production began in Cook Inlet (circa 1963).
- The concentrations of organics (i.e., PAH's) and metals do not appear to pose any immediate ecological risk to the marine environment in the study area.
- The levels and patterns of induction of CYP1A in cells of demersal fish (i.e., halibut and Pacific cod) are consistent with some mild induction by contaminants, but with weak induction in the gills they appear not to be waterborne but rather from the diet. None of the measured contaminants in the fish tissues correlated with CYP1A induction, but chlorinated hydrocarbons were not measured. Specifically, the results on the hepatocytes and the kidney cells are consistent with some low level of enzyme-inducing compounds in the diet of these fish. There were no significant correlations between the CYP1A scores and the locations (i.e., zones) of the fish.

The study concluded that the current concentrations of metals and PAH's in the Shelikof Strait and outermost Cook Inlet are not linked to either oil and gas development in the upper Cook Inlet or to the *Exxon Valdez* oil spill. The residues that are present, from a combination of natural sources—river inputs, oil seepages, etc.—pose no significant risk to the biota and the benthic environment of outermost Cook Inlet and Shelikof Strait. The degree of current risk is very low and is similar to nonimpacted coastal regions in Alaska and elsewhere. Consequentially, cumulative effects of drilling discharges on seafloor habitat and associated demersal fish populations of outermost Cook Inlet and Shelikof Strait are expected to be inconsequential at most.

Response 001-031.

We appreciate the additional information from NMFS on humpback whales. We have incorporated the information in this comment into our background information and our analyses of potential effects on humpbacks.

-----Original Message-----

From: Meredith_Bond@partner.nps.gov [mailto:Meredith_Bond@partner.nps.gov]
 Sent: Tuesday, February 11, 2003 3:09 PM
 To: AKRIS
 Cc: Sandra_V_Silva@partner.nps.gov
 Subject: FWS-AQB comments regarding OCS EIS/EA MMS 2002-065

TO: Regional Director, Alaska Region, Minerals Management Service
 via electronic Mail to: AKRIS@MMS.GOV

FROM: Meredith Bond, Environmental Engineer, Fish and Wildlife Service - Air Quality Branch

SUBJ: Draft Environmental Impact Statement for the Proposed 2004 and 2006 Outer Continental Shelf Oil and Gas Lease Sales 191 and 199 in Cook Inlet (OCS EIS/EA MMS 2002-065)

The Fish and Wildlife Service (FWS) - Air Quality Branch (AQB) recently became aware of the Draft Environmental Impact Statement (DEIS) for the proposed 2004 and 2006 Outer Continental Shelf (OCS) oil and gas lease sales 191 and 199 in Cook Inlet. The proposed action would offer 517 whole or partial blocks of the Cook Inlet Planning Area for leasing. These blocks are located south and east of Tuxedni National Wilderness Area (NWA), encompassing a large portion of Cook Inlet and coming within 5 km of Tuxedni NWA. Tuxedni NWA is a very important sea bird sanctuary and a Class 1 air quality area administered by the FWS. You are accepting comments on the DEIS through today, February 11, 2003.

FWS-AQB notes that the DEIS shows that Class 1 Significant Impact Levels are projected to be exceeded for several pollutants during the exploration phase, and for nitrogen oxides during development and production phase. As the DEIS discusses, when predicted pollutant concentrations exceed any Class 1 significance levels, an increment consumption analysis is required.

001

In addition, the DEIS says that VISCREEN visibility model results exceeded the screening criteria for both exploration and production facilities located at a distance of 12 km from the Tuxedni NWA (although the document does not provide data regarding the magnitude of the projected exceedances). This indicates a potential exists for unacceptable adverse impacts by the pollutant plume at this Class 1 area. In Section 169A of the Clean Air Act, as amended in 1977, Congress established as a national goal, "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class 1 Federal areas which impairment results from man-made air pollution."

002

As air quality emission permits are processed for activities resulting from these lease sales, FWS-AQB will closely monitor the Class 1 increment and visibility impacts at Tuxedni NWA, and expects that permit applicants will perform cumulative impacts analyses when indicated by pertinent regulation, policy and guidance.

003

If you have any questions regarding FWS-AQB's comments on this DEIS, please contact me.

LCDR Meredith Bond, P.E., USPHS

Environmental Engineer
U.S. Fish and Wildlife Service
Air Quality Branch
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MMS Response to Comment Document 002**Response 002-001.**

The MMS has conducted limited air quality impact studies for proposed Cook Inlet Sales 191 and 199 (Herkhof, 2002). Because this reference is an unpublished document, we have added it to the EIS as Appendix H - Air Quality Modeling and have added a sentence stating that to Section IV.B.1.b. These studies have, as the commenter notes, indicated that for some potential pollutant source areas and adverse weather conditions, certain pollutant levels could reach potentially significant impact levels to the Class I Tuxedni National Wilderness Area. The MMS intends to see that additional air quality studies be done in conjunction with permitting for any specific project that the preliminary studies suggest might pose the risk of failing to meet required pollutant standards. (At this time no specific exploration or development projects are being proposed.) Such additional studies would be conducted by the applicant as part of the application for the air quality permits required for specific projects. As the commenter also notes, the EIS does point out that an increment consumption analysis would be required if the additional study results should predict pollutant concentrations exceeding any Class I significance levels. Such an analysis would be done by the applicant for a specific project. To this end, we have added ITL No. 7, Information on Air Quality Regulations and Standards.

Response 002-002.

Please see Response 002-001.

The limited air quality impact studies discussed do indicate that under adverse conditions, visibility could be adversely affected. Because a potential does exist for adverse impacts at the Tuxedni National Wilderness Area Class I site, the MMS intends to see that additional air quality studies are made in conjunction with permitting for any specific project that the preliminary studies suggest might pose a risk of failing to meet required standards. Such an analysis would be made by the applicant for a specific project and would be a requirement before the necessary air quality permits could be issued.

Response 002-003.

Please see Responses 002-001 and 002-002. The MMS intends to see that permit applicants will perform any required cumulative impacts analyses.



IN REPLY REFER TO

United States Department of the Interior

NATIONAL PARK SERVICE
2525 Gambell Street, Room 107
Anchorage, Alaska 99509-2892

Document 003

L7619 (AKSO-RER)

RECEIVED
FEB 14 2003

FEB 13 2003

Mr. John Goll
Regional Director, Alaska OCS Region
Minerals Management Service
949 East 36th Avenue, Room 308
Anchorage, Alaska 99509-4663

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

RE: Draft Environmental Impact Statement for Proposed Outer Continental Shelf Oil and Gas Lease Sales 191 and 199 in the Cook Inlet Planning Area, Alaska

Dear Mr. Goll:

The National Park Service appreciates the opportunity to comment on the subject draft environmental impact statement (EIS). As you acknowledge in the draft EIS, the National Park Service (NPS) manages three national park system units that could be affected by the proposed lease sales. These are Lake Clark National Park and Preserve (LACL), Katmai National Park and Preserve (KATM), and Aniakchak National Monument and Preserve (ANIA). LACL and KATM lie adjacent to the Lower Cook Inlet area and ANIA lies down current of the proposed lease sales along the Alaska Peninsula. The primary concerns the NPS has for these lease sales and the draft EIS are that the these national park units are accurately described and that adequate measures would be taken to protect their resources and values should a successful lease sale go forward.

The titles of these national park units are incorrect in the draft EIS; the correct titles are provided above. LACL and KATM are both 4-million acre national park units, which include important coastal natural and cultural resources within Cook Inlet. LACL includes about 120 miles of coastline from Redoubt Point to Chinitna Bay along Lower Cook Inlet. KATM has almost 480 miles of coastline from Kamishak Bay in Lower Cook Inlet to Cape Kubakli in the Shelikof Straits, including islands in Lower Cook Inlet and in the Shelikof Straits within five miles of mean high tide of the mainland. ANIA has about 70 miles of coastline at a distance of over 200 miles down current of the proposed lease area. These segments of coastline and nearshore islands include important biologically productive areas and archeological sites in the Gulf of Alaska. Furthermore, the designated Katmai Wilderness includes all of its ocean coastline, including the nearshore islands, which is not correctly described in the draft EIS.

D-003

There are a variety of oil-industry-related activities that can lead to permitted or fugitive discharges resulting in adverse effects to natural and cultural resources in Cook Inlet. Such discharges include: accidental spills from tankers, pipelines, and well blow-outs; permitted discharges of treated production water; permitted discharges of drilling muds and work-over fluids during drilling and servicing of wells; permitted discharges of waste water; water discharge from storage tanks and ballast; leakage from storage tanks and pipelines; and air pollutant emissions and haze plumes from production platforms.

Next month marks the 14th year since the tanker vessel *Exxon Valdez* released 11 million gallons of crude oil into the waters of Alaska, including Cook Inlet. The coast of LACL was narrowly missed, but KATM and ANIA were directly impacted. Residual oil still persists in pockets along the coast of KATM from the *Exxon Valdez* oil spill. The potential for oil spills would continue to threaten natural and cultural resources in the region.

Though we continue to refine our spill response abilities and resource knowledge since the *Exxon Valdez* oil spill, the NPS is limited in qualified personnel, spill response equipment, and baseline resources information to effectively respond to and evaluate impacts from petroleum spills in LACL, KATM, and ANIA. Emergency response to a major spill requires expertise and field equipment extending beyond the capabilities of the NPS. An efficient communication process and response plan should be in place so qualified federal, state, and private contractor personnel can respond to unexpected spills in a time-efficient manner. The draft EIS appears to address this topic in Chapter II.F.2, where it identifies a requirement for an approved Oil-Spill Response Plan in accordance with 30 CFR 254, including spill response drills that include the deployment of equipment to demonstrate preparedness for spills under realistic conditions.

Specific comments are attached. If you have any questions about these comments, please contact Joan Darnell, Environmental Resources Team Manager at 257-2648, or Bud Rice, Environmental Protection Specialist at 907-257-2466.

Sincerely,



Marcia Blaszk
Acting Regional Director

cc:
Superintendent LAKA

Attachment

D-003

NPS Specific Comments on MMS Draft EIS for Cook Inlet OCS Oil and Gas Lease Sales 191 and 199

Page I-5, I.C.1.a(4) Wildlife and Aquatic Habitat:

The names for the National Park Service (NPS) managed units are incomplete in paragraph 2 of this section. They should be Aniakchak National Monument *and Preserve*, Katmai National Park *and Preserve*, and Lake Clark National Park *and Preserve*.

001

Page II-16, II.F.c, IITL No. 3. Sensitive Areas to be Considered in the Oil-Spill Response Plans, 3rd Bullet:

This description should include all of the coastal area of Katmai National Park and Preserve, not just the Islands classified as wilderness. We recommend you delete "all Islands classified as wilderness under the authority of" before Katmai National Park and Preserve.

002

Page II-7, II.F.2.e, IITL No. 5, Information on Oil Spill Response Preparedness:

We recommend this section specifically require lessees to become familiar with geographic response strategies (GRS) being produced by federal, state, and private entities under the Alaska Unified Plan for the Cook Inlet and Kodiak Subarea Contingency Plan areas.

003

Page III-33, III.A.5. Air Quality, Last Paragraph:

The EIS is incorrect in asserting air quality monitoring is confined to population centers like Anchorage. An EPA-approved air monitor was established in fall of 2001 at Silver Salmon Lodge to monitor air quality in Tuxedni Bay for the Class I airshed at Tuxedni National Wildlife Refuge. See the web site describing this monitoring station at: <http://vista.cira.colostate.edu/improve> or contact Kristi Morris @nps.gov for more information.

004

Page III-198, III.C.9(a) Katmai National Park and Preserve, Line 3:

We recommend the sentence describing the coastal wilderness of the park have amended to it, "including the offshore islands."

005

Page III-199, III.C.9.a(2) Lake Clark National Park and Preserve, Paragraph 2, line 4:

The phrase "is was 19,721" should be *it was* 19,721. Visitors in 2001.

006

Page IV-121, IV.B.1.i(3)(f2)b), Effects on Brown Bears:

The flats at the head of Tuxedni Bay also provide important bear habitat. There are other more important bear feeding areas in Katmai National Park than Katmai Bay that were oiled by the *Exxon Valdez* oil spill. These include Swikshak Bay, Hallo Bay, Kukak Bay and Arnalik Bay. Hallo Bay is one location where EVOS oil has been monitored since the year of the spill.

007

Page IV-141 and 142, IV.B.1.n(1): Conclusion on Effects to Visual Resources:

The NPS is aware of brown haze from the oil platforms in upper Cook Inlet and is concerned that a brown haze could also obscure pristine vistas along the LACL and

008

D-003

KATM coasts in the future. This impact would be in addition to visibility impacts of oil platforms within 5 miles of the shores, and it should be addressed in this EIS.

Page IV-145, IV.B.1(3)(b), Large Oil Spills:

Though we agree an oil spill would not significantly degrade recreation and tourism in the interior of KATM or LACL, the EIS should note it could significantly degrade public recreation along the coasts of these parks. The EIS should note there are private inholdings and lodges serving the general public in Tuxedni Bay, near the mouth of the Johnson River, in Chinitna Bay, and in Kukak Bay.

009

MMS Response to Comment Document 003

Response 003-001.

Revisions have been made to the names of park units.

Response 003-002.

The text has been deleted as requested.

Response 003-003.

Geographic response strategy information was added to ITL No. 3, which is more appropriate to geographic response strategy than ITL No. 5.

Response 003-004.

As was stated in the draft EIS in Section III.A.5, page III-33, air quality monitoring is confined **mostly** to population centers. We note your comment calling attention to the Tuxedni Bay EPA-approved air monitor, and we have modified Section III.A.5 to include that information.

Response 003-005.

The text has been amended as requested.

Response 003-006.

The text has been amended as requested.

Response 003-007.

If the assumed 1,500- or 4,600-barrel spill contacted Tuxedni, Swikshak, Hallo, Kukak, or Amlik bays, the effects on brown bears are likely to be similar to the effects described in Section IV.B.1.i(3)(f)2(b) - Effects on Brown Bears. The EIS recognizes that several brown bear habitats along the south coast of the Alaska Peninsula, including these bays, could be contaminated by the assumed spill (see Section IV.B.1.i(3)(c)2)).

Response 003-008.

Section IV.B.1.b(2) has been modified to include concerns about regional haze possibly causing visibility impacts along the Lake Clark and Katmai National Park coasts in the future.

Response 003-009.

The EIS acknowledges (Section IV.B.1.n(3)(b)) that a major oil spill could degrade (“physically or perceptually”) public recreational opportunities along the coasts of these parks within the values indicated. The subsequent reference to the parkland interior merely indicates that potential degradation would not affect all portions of these parks.

Wording has been added to Section IV.B.1.r(3)(b), to address this comment.

U.S. Department
of Transportation

United States
Coast Guard



Commandant
United States Coast Guard

2100 Second Street, S W
Washington, DC 20593-0001
Staff Symbol: (G-MSO)
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FEB 18 2003

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FEB 4 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Regional Director
Minerals Management Service
Alaska OCS Region
949 East 36th Ave
Anchorage, AK 99508-4302

Dear Regional Director:

We have reviewed the draft EIS for the proposed Outer Continental Shelf Oil and Gas Lease Sales 191 and 199 in the Cook Inlet, Alaska.

We offer the following comment. We suggest that you address the impacts, if any, that exploration and exploitation activities such as the placement of Mobile Offshore Drilling Units (MODU's) and fixed platforms would have on commercial navigation of vessels transiting to and from the various ports in the area.

001

Thank you for the opportunity to comment.

Sincerely,

M. W. BROWN
Captain, U.S. Coast Guard
Chief, Office of Operating and
Environmental Standards
By direction of the Commandant

MMS Response to Comment Document 004

Response 004-001

A discussion of navigational issues related to oil platforms in Cook Inlet is contained in Section III.D.4.

STATE OF ALASKA

OFFICE OF THE GOVERNOR

OFFICE OF MANAGEMENT AND BUDGET
DIVISION OF GOVERNMENTAL COORDINATION

FRANK H. MURKOWSKI,
GOVERNOR

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February 21, 2003

Mr. John Goll
Director, Alaska OCS Region
Minerals Management Service
949 East 36th Avenue, Room 308
Anchorage, AK 99508-4363

RECEIVED
FEB 28 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear Mr. Goll:

Thank you for the opportunity to comment on the draft environmental impact statement (EIS) for the two upcoming oil and gas lease sales proposed for the Cook Inlet Outer Continental Shelf (OCS). The Minerals Management Service (MMS) has prepared a draft EIS for Lease Sale 191 scheduled for 2004 and Lease Sale 199 scheduled for 2006. These comments represent a consolidated state response on the draft EIS from the State of Alaska Departments of Natural Resources, Fish and Game, and Environmental Conservation.

The State of Alaska will provide additional comments on the individual lease sales in response to the consistency determinations prepared by the MMS for each sale as required by the Coastal Zone Management Act. In addition, the Governor will provide "section 19" comments for each sale as authorized by the OCS Lands Act.

The proposed sale area extends just south of Kalgin Island to the northwest of Shuyak Island encompassing approximately 2.5 million acres. The sale area excludes Shelikof Strait. The MMS estimates that 140 million barrels of oil and 190 billion cubic feet of natural gas could be discovered and produced from a single development that could result from either or both sales. The draft EIS evaluates the effects of four alternatives, including a Lower Kenai Peninsula Deferral and a Barren Islands Deferral.

The State supports the concept of completing a single EIS for both lease sales. Unless evidence is presented that would justify the need for a supplemental EIS, an environmental assessment would likely be sufficient for the individual sales.

This letter provides general comments about the proposed lease sales in Cook Inlet including the location of deferrals and content of mitigating measures. Attachment A provides page-specific comments on the draft EIS. Preliminary comments from the Kenai Peninsula Borough related to the consistency of the lease sales with the Alaska Coastal Management Program are included in Attachment B.

Deferrals

The State of Alaska supports inclusion of the two deferral alternatives in the proposed sale: Alternative III, the Lower Kenai Peninsula Deferral and Alternative IV, the Barren Islands Deferral. Exclusion of these areas from the two proposed lease sales would reduce potential physical disturbances and oil spill impacts to important fish and wildlife populations and habitats adjacent to and within the Kachemak Bay Critical Habitat Area, the Kachemak Bay National Estuarine Research Reserve, and the Barren Islands. These areas support important species including populations of the endangered Steller sea lion; threatened Steller eider; Cook Inlet beluga whale (depleted marine mammal stock); sea otter; Pacific salmon; various species of seabirds; and shellfish. The deferrals would also reduce potential conflicts with subsistence, recreational, and commercial users of these resources. These deferrals are supported by the Kenai Peninsula Borough and the villages located in the vicinity of the deferrals.

Including the two deferrals in the sale would allow the areas with the highest prospectivity to be offered for leasing while reducing the potential risk to fish and wildlife populations and traditional harvest activities. The area deferrals in Alternatives III and IV would remove approximately 13 percent of the prospective sale acreage. The draft EIS states that the Opportunity Index (i.e., chance for commercial production) for deferral Alternatives III and IV is approximately one percent for each alternative. In contrast, the draft EIS states that the lease sale area north of Kachemak Bay contains 75 percent of the commercial potential (p. IV-189). Inclusion of the deferrals in Alternatives III and IV would achieve a reasonable balance between exploration and development of hydrocarbon reserves and conservation of biological resources important to Alaskans.

Mitigating Measures

We note that the MMS has expanded its discussion of the effectiveness of proposed stipulations. These narratives are quite informative, particularly regarding Stipulation No. 1, Protection of Fisheries. The stipulations and information to lessees are similar to those proposed for past Cook Inlet OCS sales. They also appear to address specific concerns raised in the Tri-Borough Agreement approved by the Kenai Peninsula Borough, the Kodiak Island Borough and the Lake and Peninsula Borough.

The State recommends changes to the language in Stipulation No. 4, Transportation of Hydrocarbons to respond to concerns about the condition of pipelines in Cook Inlet from

regulatory agencies and members of the public. In light of these concerns and considering the difficulty of the repair and replacement of offshore pipelines, the State recommends addition of specific language to the beginning of the second paragraph of the stipulation (new language underlined).

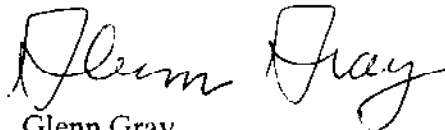
All pipelines, including both flow lines and gathering lines for oil and gas, shall be designed and constructed to provide for adequate protection from water currents, storms and ice scouring, permafrost, subfreezing conditions, and other hazards as determined on a case-by-case basis. Following the development of sufficient pipeline capacity . . .

The revision to this stipulation would reduce potential oil spill impacts to fish and wildlife resources including major seabird colonies on the Barren Islands, Chisik and Duck Islands, seabird feeding concentrations extending off the mouth of Kachemak Bay, sea otters inhabiting nearshore areas in lower Cook Inlet, and recreational and commercial intertidal shellfish resources. We note that the state recommended specific pipeline design language for OCS Lease Sale 149.

We look forward to reviewing individual consistency determinations prepared by MMS for each of the two lease sales after issuance of the final EIS.

Again, thank you for the opportunity to submit comments on the draft EIS. Please contact me at (907) 465-8792 if you or your staff have any questions about these comments.

Sincerely,



Glenn Gray
Project Analyst

Attachments: Page-Specific Comments on the Draft EIS

cc: Bill Jeffress, DGC
Kurt Fredriksson, DEC
Dick LeFebvre, DNR
Kerry Howard, DFG
Pam Rogers, DNR
Jeff Mach, DEC
Mark Fink, DFG
Beverly Sires, MMS
Dan Bevington, Kenai Peninsula Borough

**State of Alaska Comments on the Draft EIS for
OCS Oil and Gas Lease Sales 191 and 199
February 21, 2003**

Attachment A

Page-Specific Comments

These page-specific comments accompany a February 21, 2003 letter to John Goll, Alaska Region Director of the Minerals Management Service (MMS). These State of Alaska requests the MMS consider these recommendations when developing the final Environmental Impact Statement (EIS) for proposed Outer Continental Shelf (OCS) Oil and Gas Lease Sales 191 and 199.

Section I.F. NEPA Process for Lease Sales 191 and 199, paragraph 1, page I-11.

002

The citation for ADEC, 1999, appears to be incorrect. This citation probably should be ADNR, 1999.

Section II.B.3.b(2) Production Infrastructure, paragraph 3, page II-6.

003

This section of the EIS should be expanded to explain why exploratory drilling muds and cuttings would be discharged under an NPDES permit, but production wastes may be brought ashore for disposal. That explanation is included in the Section IV.B.1.a(3)(a), but it would be helpful to the reader if it was included in this section also.

Section II.B.3.b(3) Support and Logistics Activities, page II-6.

In this or another appropriate section of Chapter II, the EIS should provide a description of the other support and logistics facilities that would be needed to support lease sale exploration and production activities. For example, there is mention that production drilling muds and cuttings may be brought ashore for disposal. The EIS should describe how management and disposal of these wastes would be accomplished onshore and whether additional waste management facilities would be needed. Chapter II should identify that solid wastes, hazardous wastes, "universal" wastes, and used oil would likely be generated by exploration and production facilities and associated support facilities and describe how these wastes would be managed.

004

005

Section II.F.2c. ITL No. 3 Sensitive Areas to be Considered in the Oil Spill Response Plans, Page II-16.

This section identifies the Nushagak and Mulchatna Rivers Recreation Management Plan as an area to consider in spill response planning. These areas are outside of the sale vicinity and reference to them should be deleted from the final EIS.

006

Section III.A.4.a(3)(a) Water Quality, page III-14.

The EIS should include a discussion of other sources of hydrocarbons entering Cook Inlet such as urban and suburban runoff and leaching from oil spill locations. These sources may enter Cook Inlet via rivers or directly from adjacent property.

007

Section III.A.5 Air Quality, paragraph 2, page III-33.

The citation of the URL for the online summary of the Alaskan air emissions summary is missing.

008

Section III.B.5, Marine and Coastal Birds, Page III-136.

This section does not describe the important bird habitats north of the Forelands. For example this section and Volume II, Maps, do not identify spring and fall waterfowl staging concentrations in Trading Bay and at the mouth of the Kenai River. The final EIS should include this information.

009

Section III.C.9.b, State Resources, Critical Habitat Areas, Page III-205.

This section does not describe the fish and wildlife populations and habitats found within Redoubt Bay, Kalgin Island, Clam Gulch, and Kachemak Bay Critical Habitat Areas potentially affected from Sale 191 activities. In addition, the draft EIS does not identify and describe resources in Trading Bay State Game Refuge (TBSGR) north of Redoubt Bay. The TBSGR would be at risk from a large or very large oil spill in the northern portion of the Sale 191. These areas were given special status by the Alaska Legislature because of their high value to fish and wildlife. The final EIS should include descriptions of these special areas and identify potential affects from OCS leasing in lower Cook Inlet.

010

011

Section IV.A.2 Basic Assumptions for Effects Assessment by Alternative, paragraphs 9 and 10, pages IV-4 and IV-5.

The EIS should discuss the potential effects from the generation of wastes, other than solid wastes, from exploration and production activities. Exploration, production, and supporting activities would generate hazardous wastes, "universal" wastes, and used oil. Also, the EIS should describe other predicted effects, such as air emissions and noise, from onshore support facilities.

012

013

IV.A.4. Oil Spills. Page IV-6

As illustrated in Appendix A, the Sale 191 and 199 oil spill risk analysis does not address potential shoreline impacts north of the Forelands. The reason is unclear. According to the draft EIS (page II-6), if a commercial discovery is made in the sale area, the oil would likely be transported via subsea pipeline to a landfall north of Anchor Point. From there, pipelines would be constructed to Nikiski, and from Nikiski, the oil would presumably be trans-shipped or processed for in-state sale. Under this development scenario, a pipeline or tanker spill could

014

occur in the Nikiski vicinity and oil could be carried northward. Consequently, because these activities and potential effects are connected to the proposed lease sale actions, the final EIS should address the possibility of oil spill shoreline impacts north of the Forelands.

014

IV.A.4, Oil Spills, and IV.F Low-Probability, Very Large Oil Spill.

The MMS and leaseholders should support the continued development of geographic response strategies for the protection of critical resource areas in Lower Cook Inlet, Kodiak Island and the Alaska Peninsula where strategies have not yet been developed.

IV.A.4, Oil Spills, and IV.F Low-Probability, Very Large Oil Spill.

The EIS should include a discussion of how the agency or leaseholders would support community-based oil spill prevention and response programs in the communities of lower Cook Inlet and Kodiak Island.

015

IV.A.4, Oil Spills, and IV.F Low-Probability, Very Large Oil Spill.

The analysis of potential effects of oil spills from exploration and production activities assumes that no oil spill cleanup activities occur. MMS requires lessee oil spill contingency plans, however, to address the use of dispersants. There appears to be no discussion of the potential use of dispersants or the effects from their use. The EIS should discuss the potential use of dispersants and include an analysis of the potential effects of dispersant use.

016

IV.A.4, Oil Spills, and IV.F Low-Probability, Very Large Oil Spill.

In the analysis of oil spill effects, the EIS assumes that no cleanup of a large oil spill will occur. This assumption is unrealistic because both federal and State law require the prompt cleanup of spills and the assumption of no cleanup action unfairly exaggerates the potential effects. This assumption also appears to be used as a basis to avoid describing the oil spill cleanup capabilities that currently exist or may be needed for proposed exploration and production activities, identifying environmental conditions that may preclude or adversely affect cleanup actions, and describing mitigation requirements to reduce the potential of a spill or the potential effects from a spill; all of which are not analyzed or discussed in any detail in the EIS. The State of Alaska and private industry have developed substantial oil spill response capabilities in Cook Inlet that are not recognized in the EIS.

017

The EIS should describe all actions that are necessary to minimize the potential for a catastrophic oil spill, estimated at 5,000,000 gallons, which would conservatively result in adverse effects to more than three hundred miles of Alaska's coastal resources. Also, the EIS should describe mitigation measures that the MMS would require leaseholders to take to reduce the potential for an oil spill or the potential effects from an oil spill during exploration and production activities, especially during times when environmental conditions would preclude or significantly reduce the effectiveness of oil spill response actions. Mitigation measures that are, or could be, required include the use of specific management practices, equipment, and procedures to prevent or

018

respond to spills, including requirements for the development and implementation of oil discharge prevention and contingency plans, the use of appropriate best available technologies for spill prevention and response equipment, and timing restrictions for conducting specific high-risk activities during periods when oil spill response may be ineffective.

018

Section IV.A.4.b Small Spills, page IV-8.

Several aspects of the table presented in this section are unclear. The table does not indicate what the spill size represents. Is this a mean or median spill size from historical records? In the 500 - 999.9 barrel category, what is the meaning of 0 spills, but a 643 barrel spill size? In addition, this discussion of small oil spills appears to be limited to production activities. Is it intended to include exploration activities also?

019

Section IV.A.6 Accidental Gas Releases from OCS Production Facilities, page IV-10.

Gas releases from Alaskan facilities do not appear to be included in this discussion, although they are discussed elsewhere in the EIS. Is this because the Cook Inlet releases were from exploratory facilities or is there another reason for this apparent omission?

020

Section IV.A.6.b Accidental Gas Release During Development and Production.

The EIS should discuss the potential effects from a gas pipeline leak that occurs offshore or onshore.

021

Section IV.F.2.a Blowout Assumptions, page IV-215.

The EIS should provide the basis for the assumption that a blowout will last for 15 days.

022

Section IV.F.3.c(2) Effects of a 120,000-Barrel Blowout, page IV-219.

The last sentence in the section is incomplete.

023

Section IV.F.3.d. Fisheries Resources, Effects of a 120,000-Barrel Blowout. Page IV-20.

This section does not adequately describe the potential large spill impact to the Pacific herring stock in Lower Cook Inlet. Other sections in the draft EIS summarize oil effects to egg/larval development and survival of Pacific herring (e.g., page IV-43). Peer-reviewed literature generated from Exxon Valdez Oil Spill studies describes acute and chronic effects to Prince William Sound herring. Although herring stocks in Cook Inlet have been depressed, monitoring of the Kamishak Bay herring stock has found that virtually the entire mainland shoreline and extensive reefs from Cape Douglas north to Iniskin Bay provide spawning habitat for herring. The ADF&G recently completed an Arc View GIS database that includes all of the documented herring spawning locations that have been observed during the past 20+ years in Kamishak Bay. Herring begin migrating into Kamishak Bay in mid-April and spawn from late-April to early-June. Depending upon water temperature, their eggs incubate for 10-21 days before hatching. It

024

Mr. John Goll
Attachment A

February 21, 2003

is unknown whether the larvae rear in Kamishak Bay or are immediately transported outside the Inlet. Given the prevailing current patterns in Cook Inlet, it appears likely that a large spill occurring during April to late-July in the lease area north of Cape Douglas could significantly impact the spawning or migration behavior of adults, incubation of eggs, and survival/development of herring larvae in Kamishak Bay.

The draft EIS states that losses to herring eggs and larvae are likely to be less than 10 percent in the Inlet, and large-scale losses are not expected. The State disagrees with this conclusion, and recommends that the final EIS acknowledge the potential for significant oil impacts to herring in Lower Cook Inlet.

Section VI.C Contacts for Review of the EIS, page VI-3.

025

Please note that while the Department of Environmental Conservation has offices in Anchorage and Fairbanks, it no longer has an Anchorage District Office or a Northern Alaska District Office. Please contact Jeff Mach, the DEC oil and gas coordinator, at (907) 465-5290, to more accurately identify agency programs that should be consulted in preparation of the EIS.

Section V.C.5.d. Cumulative Effects, Fisheries Resources, Page V-28.

026

This section does not adequately address the potential impacts to herring from a very large oil spill.

This concludes the State of Alaska page-specific comments on the draft EIS for the Cook Inlet Planning Area: Oil and Gas Lease Sales 191 and 199.


KENAI PENINSULA BOROUGH

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 BUSINESS (907) 262-4441 FAX (907) 262-1892

 DALE BAGLEY
 MAYOR

January 28, 2003

RECEIVED

JAN 30 2003

 REGIONAL DIRECTOR, ALASKA OCS
 Minerals Management Service
 ANCHORAGE, ALASKA

 State of Alaska
 Office of Management and Budget
 Division of Governmental Coordination
 550 West 7th Avenue, Suite 1660
 Anchorage, AK 99501

Attention: Glenn Gray, Project Analyst

 RE: AK 0212-010G; OCS Cook Inlet Lease Sales 2004-2006; Draft Environmental
 Impact Statement (EIS)

Dear Mr. Gray;

The KPBC Planning Commission held a public hearing for decision on consistency with the KPBC Coastal Management Program and its enforceable policies on January 27, 2003. The proposed project is located in federal waters of lower Cook Inlet, extending approximately from Kalgin Island south to near Shuyak Island.

In June 2002, the Secretary of the Interior issued a Final 5-Year Offshore Oil and Gas Leasing Program for 2002-2007. It includes two lease sales on the Cook Inlet Outer Continental Shelf. Lease Sale 191 scheduled in 2004 and Lease Sale 199 in 2006. The multiple-sale EIS assesses environmental effects of these sales, both of which consider for leasing the same geographical area in the Cook Inlet. As the MMS begins preparations for Lease Sale 199, an Environmental Assessment (EA) will be done to determine whether the EIS is still adequate or whether a supplemental EIS is needed. That EA will be available for public review and comment.

The proposal for each sale is to offer for leasing 517 whole or partial lease blocks in the Cook Inlet OCS Planning Area, an area encompassing approximately 2.5 million acres (1.01 million hectares). The proposed sale area is seaward of the State of Alaska submerged lands boundary in Cook Inlet and extends from 3 to 30 miles offshore from Kalgin Island south to near Shuyak Island. The proposed sale area excludes Shelikof Strait. Although the water depths may exceed 650 feet, the Minerals Management Service (MMS) expect most, if not all, exploration and development activities will take place in shallower water. For purposes of analysis, the MMS assumes that 140 million barrels of oil and 190 billion cubic feet of natural gas could be discovered and produced from a single development that could result from either or both sales. Only a small percentage of

the blocks available for lease under the Proposed Action for Lease Sales 191 and 199 likely would be leased. Of the blocks that would be leased, only a portion would be drilled. Of these, only a very small portion, if any, likely would result in production.

Respondents to the proposed lease sales have included affected local, tribal, State, and Federal agencies; the petroleum industry; Native groups; environmental and public interest groups; and concerned individuals. It appears that the input received from these sources aided the MMS in identifying significant issues, possible alternatives, and potential mitigating measures. As part of the local scoping process, MMS held a government-to-government dialogue with Native groups, both in formal agency meetings and in open public forums. Environmental Justice and Government-to-Government coordination are addressed in this DEIS. The Kenai Peninsula Borough has had on-going involvement with scoping concerns for the proposed lease sales, both with the state of Alaska and the federal agencies. This office offered formal scoping comments to MMS and it appears that the MMS has sought to address those comments in the DEIS.

The following major issues were identified from the scoping comments:

- Water quality from discharge of drilling fluids and cuttings,
- Subsistence-harvest patterns,
- Habitat disturbances and alterations,
- Accidental oil spills,
- Commercial and recreational fishing, and
- Socioeconomics.

On February 2, 2001 the Kenai Peninsula Borough Assembly passed Resolution 2001-013 in support of the 2002-2007 OCS Oil and Gas Lease Program. On December 11, 2001 the Kenai Peninsula Borough Assembly passed resolution 2001-127, "Approving the Tri-Borough Position Paper for Federal Outer Continental Shelf Oil and Gas Leasing Program, 2001-2007." The Tri-Borough position will apply to this and all future leases under the 2002-2007 OCS Oil and Gas Leasing Program. The Tri-Borough position also applies to the terms and conditions in any proposed Notice of Sale. The current Kenai Peninsula Borough Administration has also expressed support of the Tri-Borough Agreement, and support for the lease sales 191 and 199 with deferral of the combined areas described in Alternatives III and IV ("Lower Kenai Peninsula" and "Barren Islands")

Finding:

The Kenai Peninsula Borough Planning Commission has held a public hearing to determine consistency with KPB enforceable policies on January 27, 2003. The following findings are the unanimous determination of the Planning Commission.

While it offers strong support for the OCS lease program, the Kenai Peninsula Borough Coastal District objects to the "Preferred Alternative" as stated in the Draft

Environmental Impact statement. We believe that the following alternative measures will permit consistency with the Kenai Peninsula Borough Coastal Management Program Enforceable Policies:

- (1) The proposed lease sale must combine 'Alternatives III and IV' for the Cook Inlet Planning Area Oil and Gas Lease Sales 191 and 199.
- (2) The five points of the Tri-Borough Position Paper (below) must be adequately addressed.

- **No Off-shore Loading of Tankers**

The lower Cook Inlet comprises some of the most dangerous navigable waters in the entire world. This makes offshore loading of tankers particularly dangerous, posing an extremely high risk of an oil spill while attempting to load a tanker in these waters.

Recoverable oil must be pumped to an onshore facility where adequate protected dockage can be provided to allow the safe loading of tankers and to minimize the possibility of a spill during the loading process from the oil generated by any sales under the program.

This requirement is necessary to insure the program is consistent with the Kenai Peninsula Borough Enforceable Policies 2.6 Mitigation, 3.1 Design and Siting Criteria, 5.2 (a) Water Resources, 5.6 Pipelines, 5.8 (a) Oil Storage, 12.1 Priority Use, and Administrative Policy A6 Prevention and Clean Up of Oil Spills.

- **Specific Plans to Minimize and Avoid Commercial Fishing Gear Conflicts with the Exploration and Development of Oil**

Given the great importance of the fisheries, the Tri-Boroughs require that any oil exploration or development minimize conflicts with the fishing industry. This may include critical time periods when no drilling activity would be allowed to occur due to spawning activity and crab molting in the areas in and around the drilling platforms.

These requirements are necessary to insure the program is consistent with the Kenai Peninsula Borough Enforceable Policies 2.3 (a), (b), (c) Commercial Fishing, 2.6 Mitigation, 2.7 Cumulative Impacts, 3.1 Design and Siting Criteria, 5.5 Navigation and Commercial Fishing, and 5.9 (a), (b), (c) Geophysical Surveys.

- **The Oil Exploration Company must have Adequate Spill Prevention and Response Capability**

The Tri-Boroughs have determined that adequate spill prevention and response capabilities shall be specifically identified in exploration and development proposals for the 2002-2007 Program. It is recommended that input from the Cook Inlet Regional Citizens Advisory Council be used to help determine the adequacy of spill prevention and response capability.

These requirements are necessary to insure the program is consistent with Kenai Peninsula Borough Enforceable policies 2.6 Mitigation, 2.7 Cumulative Impacts, 5.2 (a) Water Resources, 12.1 Priority Use, 13.1 Hazardous and Toxic Substances, and Administrative Policy A6 Prevention and Clean-up of Oil Spills.

- **Identification of Critical Habitat Areas**

Identification of critical habitat shall include a prioritization for habitat protection, given the location of a particular spill, as well as identification of critical habitat that cannot practically be protected in the event of a spill.

Further, the identification of critical habitat areas must be a public process that allows residents of the region to have input into and an opportunity to review and critique the proposed critical habitat protection priority prior to final adoption.

These requirements are necessary to insure the program is consistent with Kenai Peninsula Borough Enforceable policies 2.6 Mitigation, 2.7 Cumulative Impacts, 3.1 Design and Siting Criteria, 5.2 (a) Water Resources, 12.1 Priority Use, 13.1 Hazardous and Toxic Substances, and Administrative Policy A6 Prevention and Clean-up of Oil Spills.

- **Provision for Local Government Revenue Sharing**

The Tri-Boroughs agree on a requirement for provision of revenue sharing back to the boroughs from revenues collected by the federal government.

The DEIS suggests that revenue sharing is evident by the distribution of \$12.8 million coastal impact funds. Of this amount \$4.5 million has been distributed directly to eligible boroughs and unincorporated areas. Staff notes that the federal allocation to the program (nationwide) was \$150 million. This reveals that approximately 8% of the federal assistance under the program reached Alaska. Staff suggests that legislation be introduced and passed which allows for revenue sharing with the three boroughs in order to provide the financial resources needed to deal with the impacts of activities under the upcoming OCS lease program. These funds are necessary because the three boroughs will have impacts from infrastructure needs and of population demands for additional municipal services such as police, fire, road service, parks and recreation, education, solid waste disposal, etc.

The history of municipal service provision shows that revenues always lag behind the demand for services. The only reasonable way to approach this problem without placing an undue burden on the existing tax base is to provide for revenue sharing within two hundred miles of any exploration site.

MMS has stated that revenue sharing for the state of Alaska is a legislative matter for the federal government and that further dialogue is not possible in the context of OCS Lease Sales 191 and 199.

This requirement is necessary to insure the program is consistent with Kenai Peninsula Borough Enforceable Policies 3.1 Design and Siting Criteria (which states how development shall be managed).

Assuming that the Kenai Peninsula Borough has opportunity to review specific future exploration and development proposals for consistency with its policies and provided the Tri-Borough Position Paper, it has been determined that the combined Alternatives “III” and “IV” (which exclude portions from leasing near the Port Graham/Nanwalek AMSA and the critical habitats near the Barren Islands) may be found consistent with the Kenai Coastal Management Program and its enforceable policies.

Based upon the Port Graham Village Council position on OCS Oil and Gas Lease Sales 191 and 199, there are serious reservations and concerns for anticipated industrial activities in the Lower Cook Inlet. The primary concern of contaminated subsistence foods are reflected in their comments. The Kenai Peninsula Borough Coastal Management Program identified the Port Graham/Nanwalek area as an Area which Merits Special Attention (AMSA) due to its importance for subsistence hunting, fishing, and food gathering by area residents and its unique cultural value and historical significance. The deferral area described in Alternative III/IV provides additional protection of the important waters and coastline of Port Graham and Nanwalek, and provides consistency with the AMSA plan and its policies.

In summary, these findings are supported by KPB Enforceable Policies 2.6 Mitigation (Which states that all land and water use activities shall be planned and conducted to mitigate potential adverse impacts on fish and wildlife populations, habitats, and harvest activities); 2.7 Cumulative Impacts (Which states that the cumulative effects of proposed new and existing development on ambient air and water quality and coastal habitats shall be considered); and 11.3 Land and Water Plans (Which states that land and water use plans for public land and waters surrounding the communities of Nanwalek, Port Graham, Seldovia, and Tyonek shall avoid or minimize impacts to subsistence resources and activities).

Thank you for the opportunity to comment.

Sincerely,



Daniel Bevington
Coastal District Coordinator

- cc: ✓MMS
(Electronic only):
Max Best, Kenai Peninsula Borough
Bill Popp, Kenai Peninsula Borough
Duane Dvorak, Kodiak Island Borough
Marvin Smith, Lake and Peninsula Borough
Pat Norman, Port Graham
Christine Celantano, Chugachmiut
Emilie Swenning, Nanwalek
Violet Yeaton, Port Graham
Mark Myers, DNR
Jim Hansen, DNR
Karlee Gaskill, DNR
Stephanie Ludwig, DNR
Tom Chapple, DEC
Larry Dietrick, DEC
Fran Roche, DEC
Janet Hall-Schempf, ADF&G
Mark Fink, ADF&G
Kenai River Center

MMS Response to Comment Document 005

Response 005-001.

Our regulations have had very similar wording since 1988, and a stipulation with such wording would be redundant. The MMS regulations require that pipelines shall be designed and maintained to mitigate any reasonable anticipated detrimental effects of water currents, storm or ice scouring, soft bottoms, mud slides, earthquakes, subfreezing temperatures, and other environmental factors (30 CFR 250.1002(f)). Pipelines include producer-operated flow lines and gathering lines (30 CFR 250.1001).

Response 005-002.

The citation has been corrected to State of Alaska, Department of Natural Resources, 1999, 2002.

Response 005-003.

An explanation of zero discharge of drilling muds and cutting was added to Section II.B.3(b)2 with a reference to information added to Appendix B.

Response 005-004.

Support and logistic facilities for OCS development are described in Section III.D of the EIS.

Response 005-005.

Each component of the waste stream has local, State, and Federal regulations regarding the proper disposition of these materials, and waste disposal from OCS facilities must comply with these regulations. Specific waste-management practices will be described in the EP or DPP, which will undergo a complete NEPA analysis including effects, if any, from the disposal of these wastes.

Response 005-006.

The reference to AMSA has been removed from the text.

Response 005-007.

There have been spills in the Cook Inlet watershed with potential to enter marine waters (for example, Associated Press, 1997; Sienkiewicz and O'Shea, 1992), and urban areas such as Anchorage and the Kenai Peninsula in summer have potential to be nonpoint sources of hydrocarbons and other contaminants. However, monitoring programs to date suggest such contamination is not important in the Cook Inlet watershed (Boehm 2001a, Cook Inlet Regional Citizens Advisory Council 1998, Frenzel 2000). The National Research Council (2003) also addressed land-based contributions of oil to the sea for Alaska and elsewhere and concluded that land contributed negligible oil to Alaska's coastal zone.

Response 005-008.

We have added the URL, <http://www.epa.gov/ttn/naaqs/ozone/areas/state/cnty/akcy.htm>.

Response 005-009.

The upper Cook Inlet (that portion of the Inlet located north of the Forelands) is not part of the Sale 191 area, and Oil-Spill-Risk Analysis model spill trajectories were not calculated for that area. No impacts to resources in the upper Cook Inlet are expected to result from the Proposed Action, and none are analyzed in the EIS. Also, please see Response 005-014.

Response 005-010.

Wildlife population and habitat descriptions for the affected sale area are found in the Description of the Environment (Section III.B). Please refer to this section and sections on the effects of the Proposed Action and any related hypothetical oil spills. Please note that the Clam Gulch, Redoubt Bay and Kalgin Island Critical Habitat area are located on Map A-2 in Environmental resource Areas (ERA's) 27 and 28. Kachemak Bay is covered in ERA 3. A brief description of the biological resources of each of these ERA's is included in Table A.1-7b. Regarding the Trading Bay State Game Refuge the upper Cook Inlet is not part of the Sale 191 area, and Oil-Spill-Risk Analysis Model oil-spill trajectories were not calculated for that area. No impacts to biological resources in the upper Cook inlet are expected to result from the Proposed Action.

Response 005-011.

Please see Response 005-010.

Response 005-012.

Please see Response 005-005.

Response 005-013.

Section III.A.5 of the EIS mentions the "scattered emissions...from...some industrial sources" and then describes these industrial emissions. The MMS believes that any such emissions from projects associated with the current multiple-sale proposal probably would be less significant than emissions from existing facilities (some of which they probably would replace). Technology standards have improved since the construction of the earlier industrial sources and should ensure less-significant emissions than those that have occurred. We see no reason to suspect that the existing onshore air quality, which is superior to that set by the National Ambient Air Quality Standards and Alaska air quality laws and regulations, would be degraded below those standards.

Section IV.B.1.b(1) states that we expect that concentrations of criteria pollutants in the onshore ambient air would remain well within the air-quality standards.

The routine operations section for each resource (Sections IV.B.1.a through IV.B.1.s) addresses the effects of noise from the Proposed Action. The hypothetical scenario anticipates no new onshore support facilities under the Proposed Action; therefore, there no discussion of noise from such facilities is included in the analysis.

Response 005-014.

The text has been changed in Sections II.B.3 and IV.A.2 and Appendix B, Section 3 to clarify that the MMS's economic analysis does not anticipate that OCS oil will be shipped by tankers. Oil is expected to be consumed locally and transported by offshore pipeline to onshore pipeline for processing and consumption onshore in Southcentral Alaska.

The EIS does address the chance of an oil spill impacting north of the Forelands. Because general circulation models often are incapable of sufficient resolution for a representation of bays and other small estuarine bodies of water, the Oil-Spill Risk Analysis (OSRA) does not model enclosed bays and estuaries. To count simulated trajectories that would have entered the estuary, the estuary entrance is treated as part of the shoreline, and a land segment is associated with each. Counts of simulated spills contacting these land segments allow for analysis of oil-spill contacts to the bay as a whole without addressing further problems of spill movement within the estuary. The Cook Inlet/Shelikof Strait/Gulf of Alaska oil-spill-trajectory model does not estimate specific contacts to resources north of the Forelands. Environmental Resource Area (ERA 2) and Land Segment (LS) 40 are used to identify the chance of oil moving north of the Forelands. Analysts used the OSRA to estimate the effects to resources north of the Forelands by assuming the same chance of contact to the resources north of the Forelands as ERA 27 and LS 40. If commercial quantities of oil were found, a Development and Production EIS would address the specific

location of the transportation scenario. Detailed analysis regarding that particular transportation practice would be done at that time.

Assuming that an oil spill occurs and we follow its path, the OSRA (LS 40, Map A-3) shows less than a 0.5% chance of contacting a land segment between the forelands after 30 days during summer, winter, or annually from any launch area (LA1-LA7) or any pipeline (P1 through P6). The OSRA (ERA 27, Map A-2) shows less than a 0.5-1% chance of contacting ERA 27 (between Cook Inlet shorelines slightly south of the Forelands) after 30 days during summer, winter, or annually from any launch area (LA1-LA7) or any pipeline (P1 through P6). Factoring in the chance of a spill occurring in the first place, the chance of one or more oil spills greater than or equal to 1,000 barrels occurring and contacting LS 40 or ERA 27 is less than 0.5%.

To summarize, assuming a spill occurs, the MMS assumes the chance of contacting shoreline north of the Forelands ranges from less than 0.5% to 1%. Factoring in the chance of a spill ever occurring, the chance of one or more spills occurring and contacting shoreline north of the Forelands is less than 0.5%.

Response 005-015.

Please see Response 008-002.

Response 005-016.

The Alaska Regional Response Team (ARRT) has Dispersant Guidelines for Alaska and specific guidelines for Cook Inlet. Both were approved by the ARRT in April 1986 and are included in the Unified Plan (Environmental Protection Agency United States Coast Guard Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases (Unified Plan, Volume I). Dispersants are authorized for uses in Zones 1, 2, and 3 in upper and lower Cook Inlet. These documents discuss the toxicity of dispersants and conclude that the toxicity of dispersants is low compared to that of petroleum hydrocarbons.

Cleanup effectiveness can vary widely. Because on-water cleanup effectiveness can range from 0-50%, the MMS chooses to analyze the conservative position where no cleanup occurs. This provides the upper bound of impacts for the decision maker to consider.

Response 005-017.

The commenter states that because requirements for spill cleanup are in place, the EIS unfairly assumes no cleanup. Spill-response plans for Cook Inlet operations were reviewed and received both Federal and State of Alaska approval. Approval by these agencies does not mean that all oil spills in Cook Inlet can or will be cleaned up. In general, the approval does indicate that industry has met both State and Federal spill-prevention and -response planning requirements for the area, taking into account the potential risk of a spill, industry's response capabilities, the potential adverse effects should a spill occur, and all the mitigating measures in place to compensate those who might be damaged should a spill occur.

The MMS acknowledges that Cook Inlet is noted for its high winds, currents, a large tidal range, and the seasonal presence of moving ice in certain areas, and that there are limits to current technology for responding to spills in adverse conditions. Historically, only a small percentage of spilled oil has been recovered at sea. Recently, higher recovery rates are being reached but still typically do not exceed 50%. Response time and oceanographic conditions at the time of the spill are the two most critical factors in determining whether or not a spill effectively can be cleaned up at sea.

The analysis of oil spills without cleanup allows for the decision maker to evaluate impacts and also the mitigation spill cleanup may provide.

Response 005-018.

Please see Response 005-017.

Response 005-019.

The table has been modified to indicate that these are the assumed sizes of spills for analysis. Appendix A, Section E describes that these are median spill sizes. No crude spills are assumed during exploration.

Response 005-020.

A discussion of Alaskan gas releases has been included in this section.

Response 005-021.

Gas pipeline leaks are discussed in Section IV.A.6.b.

Response 005-022.

The time period was chosen based on the analysis of typical oil-industry oil-spill-discharge prevention and contingency plans submitted to the State of Alaska. Table IV.F-1 shows that the oil industry typically uses 15 days as their response-planning standard. We have included this information in the text of the EIS.

Response 005-023.

The incomplete sentence in the text has been corrected.

Response 005-024

The MMS has communicated further with the Alaska Department of Fish and Game to gather additional information regarding the distribution and abundance of Pacific herring in the study area. Map 5 depicts the distribution of herring schools and spawning areas in Kamishak Bay. The Kamishak Bay subpopulation is depressed, and commercial fishing is closed for 2003. Additional analysis indicates that a very large oil spill occurring in Cook Inlet may result in a significant impact to Pacific herring (and other species of forage fishes) in the central Gulf of Alaska that would require multiple generations to recover to their former status. Sections IV.F.3.k and IV.F.3.l have been amended and describe the potential adverse effects.

Response 005-025.

Anchorage District Office and Northern Alaska District Office have been deleted for Department of Environmental Conservation in Section VI.C.

Response 005-026.

Section IV.F.3.d (Fisheries Resources) and IV.F.3.e (Essential Fish Habitat) have been amended to discuss the effects of a very large oil spill on Pacific herring and other forage fishes in the region and to acknowledge that a very large oil spill likely would result in significant impacts to forage fishes and, thereby, also cause important impacts to other species inhabiting the central Gulf of Alaska.

Response 005-027.

This also responds to Comments 007-046, 027-001, 094-001, and 117-001.

The MMS is aware of the importance of the principles set forth in the Tri-Borough Agreement. The Kenai Peninsula Borough Assembly's Resolution supporting Sales 191 and 199 makes particular mention of the Agreement. Additional material provided for the record by the Borough Administration indicates that the MMS is satisfactorily addressing the points of the Agreement. The stipulations contained within the EIS address the points within the Agreement to the extent that they are able to do. For example, Stipulation 1 addresses the issue of no offshore loading of tankers; Stipulation 2 requires specific plans to avoid conflict with commercial fisheries in addition to sport and subsistence fisheries. Information to Lessees 5 discusses the requirement for adequate oil-spill-response capability. Several Stipulations and ITL's address the identification of critical habitat areas. The MMS has noted and the Borough is aware that the provision of

revenue sharing is within the purview of Congress. The MMS continues to work closely with Kenai Peninsula Borough staff to ensure that OCS development is as compatible as possible with those principles.

Document 006



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

FACSIMILE TRANSMITTAL
OFFICE OF ECOSYSTEMS & COMMUNITIES
GEOGRAPHIC IMPLEMENTATION UNIT
FAX NUMBER: (206) 553-6984

TO:	Mr. Fred R. King, Chief
PHONE NUMBER:	[REDACTED]
LOCATION:	MMS
FAX NUMBER:	(907) 271-6805
PAGES (INCLUDING THIS SHEET):	22

FROM: Jo Jiles for Mark Jen
1200 Sixth Avenue, ECO-088
Seattle, WA 98101-1128
(206) 553-2867

Comments:

RECEIVED
FEB 11 2003
REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

D-006



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

Reply To
 Attn Of ECO-088

RECEIVED

FEB 11 2003

Ref: 01-088-MMS

Mr. Fred R. King, Chief
 Environmental Assessment Section
 U.S. Department of Interior
 Minerals Management Service
 949 East 36th Avenue, Room 336
 Anchorage, AK 99508

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear Mr. King: *Fred*

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Cook Inlet Planning Area: Oil and Gas Lease Sales 191 and 199 in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. The DEIS assesses the effects of two (2) lease sales in the Five Year Oil and Gas Leasing Program for the Cook Inlet Outer Continental Shelf (OCS) Planning Area (2002 -2007). Lease Sale 191 is scheduled for 2004 and Lease Sale 199 is scheduled for 2006.

As you are aware, EPA has been meeting with your office regarding the Cook Inlet Planning Area DEIS. These discussions have been productive in assisting us in our review and evaluation of the DEIS. Our written comments are provided in Enclosure 1. EPA has assigned a rating of EC-2 (Environmental Concerns-Insufficient Information) to this DEIS. Please find enclosed a copy of the EPA rating system used in conducting our environmental review (Enclosure 2). This rating and a summary of our comments will be published in the *Federal Register*.

EPA's concerns with the DEIS are based on the following issues:

- (1) *Structuring the Range of Alternatives*. The Final EIS (FEIS) should clearly discuss the option for DOI/MMS to consider an alternative which includes deferral of both the lower Kenai Peninsula and Barren Islands areas to protect critical resources and subsistence uses. The DEIS currently does not include both deferrals as an alternative/option.
- (2) *Environmental Justice*. The FEIS should explain the methods and criteria used to determine minority and low income significance for the Cook Inlet Planning Area. In addition, the EIS should determine if the identified low income and/or people of color communities will be disproportionately impacted by the proposed action. The FEIS should clearly demonstrate that meaningful public participation from the impacted communities has been achieved and disclose

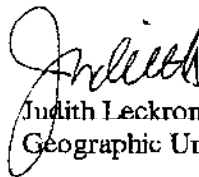
how input from affected Environmental Justice communities has been incorporated into evaluations and decisions made about the project.

(3) *Tribal Trust Responsibilities.* The DEIS should document the Tribal Government-to-Government consultation process with interested Tribes undertaken by DOI/MMS in the Cook Inlet Planning Area. Executive Order 13175 - Consultation and Coordination with Indian Tribal Governments, requires federal agencies to create the opportunity for effective consultation to allow for meaningful Tribal input.

(4) *Standard Stipulations and Information to Lessees.* The information to lessees (ITLs) may not provide adequate mitigating measures for endangered and threatened species and their critical habitat. Certain ITLs should be strengthened by adopting them as standard lease stipulations.

Thank you for the opportunity to provide comments on the DEIS for the Cook Inlet Planning Area: Oil and Gas Lease Sales 191 and 199. EPA is committed to working closely with DOI/MMS and your staff to resolve our outstanding issues. Please feel free to have your staff contact Mark Jen, in our Anchorage Office, at (907) 271-3411, or jen.mark@epa.gov. If you have any questions for me, feel free to contact me, at (206) 553-6911, or lee.judith@epa.gov.

Sincerely,



Judith Leckrone Lee, Manager
Geographic Unit

Enclosures

cc: Dr. James T. Lima, MMS, Anchorage
Dr. George Valiulis, MMS, Herndon, VA
Corps, USFWS, NMFS, Anchorage
ADGC, ADEC, ADNR, ADFG, Anchorage
Anita Frankel
Marcia Combes

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**EPA Detailed Comments on the
Cook Inlet Planning Area Oil and Gas Lease Sales 191 and 199**

Structuring the Range of Alternatives

The range of alternatives evaluated in the Draft Environmental Impact Statement (DEIS) includes the proposed action for lease of 517 whole or partial lease blocks (2.5 million acres) in the Cook Inlet Planning Area Sales 191 to 199 (Alternative I), the no action or no lease sale (Alternative II), and two deferral Alternatives III and IV. The Lower Kenai Peninsula Deferral (Alternative III) would defer leasing 34 whole or partial blocks. Whereas, the Barren Island Deferral (Alternative IV) would defer leasing 36 whole or partial blocks. The manner in which these alternatives are structured in the DEIS appears to preclude consideration and selection of an alternative that includes the deferral for both geographic areas, which have been identified by the public as being critical for fish and wildlife habitat and subsistence resources. EPA believes that full consideration should be given to a fifth alternative, one which would include deferral of 70 whole or partial blocks from the Cook Inlet Planning Area under Lease Sales 191 and 199. The Final EIS (FEIS) should explain that deferral of both the Lower Kenai Peninsula (Alternative III) and the Barren Islands (Alternative IV) could potentially be selected for implementation at the conclusion of the National Environmental Policy Act (NEPA) process. In addition, the FEIS should discuss the effects of such an outcome.

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ENVIRONMENTAL JUSTICE

One of EPA's goals when reviewing an Environmental Impact Statement (EIS) is to determine if the following elements of an Environmental Justice (EJ) analysis have been included:

1. *Identify and explain the criteria for determining if low income and people of color (minority) communities exist within the project area or area of impact by the proposed project;*
2. *Determine if the identified low income and/or people of color communities will be disproportionately impacted by the project; and*
3. *Demonstrate that meaningful public participation from the impacted communities has been achieved. The EIS should also disclose how input from affected EJ communities has been incorporated into project evaluations and decisions made about the project.*

Our comments related to the content of the DEIS and these elements are presented below:

Element 1: Identify and explain the criteria for determining if low income and people of color (minority) communities exist within the project area or area of impact by the proposed project.

EPA's *National guidance for Conducting Environmental Justice (EJ) Analysis* (1998 Peer Review Version), henceforth referred to as EPA's EJ Guidance, recommends using one of the following three methods for determining minority and low income significance:

- A. The absolute threshold for minority significance in Alaska is either 50% or the national average (percent minority) of 34.9% based on 2000 census data.
- B. The relative threshold for minority significance is 1.2 times the State average percent minority. This number is 38.7% for Alaska based on the 2000 census data.
- C. The statistical ranking method is used when the degree of certainty about the percent minority must be exactly determined in small areas.

Section IV.B.1.p(2) of the DEIS states that "one definition of minority population communities includes areas where the minority population ranges from 50%-100%." The method used by MMS to determine minority population communities should be explained in detail and accompanied by a justification for the use of the criteria chosen. Also, please include in the FEIS detailed explanation of any Agency-specific land divisions, such as OSRA land segments depicted in Figure IV.B-1.

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The FEIS should also clearly explain the criteria used to determine low income communities in the Cook Inlet Planning Area. The current discussion on pages IV-150 and 151 is not clear about how the low income criteria was determined or applied. The EIS should provide a detailed explanation of the criteria used to produce Figure IV.B-1.

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EPA's EJ Guidance recommends using one of the following two methods for determining low income significance:

- A. EPA's absolute method sets the income level at or below either the \$15,000 (very low income) or \$25,000 (low income) thresholds, or "below the national poverty level" or "two times the national poverty level." Given the cost of living in Alaska, the median household income in most boroughs is above the national median household income; this does not mean, however, that there are no low income communities in Alaska.
- B. The relative threshold is the affected community's median income compared to the State's median income. The 2000 Census indicates that Alaska's 2000 median household income is \$ 50,746. If the median income for any town or village falls below this number, it is considered to be a low income community.

EPA is providing a Cook Inlet Planning Area map identifying low income and people of color communities which is based on EPA's use of a relative threshold of minority significance of 1.2 times the State's percent minority, and income less than \$25,000 (Enclosure 3). This map identifies more low income and minority communities than the DEIS depicts in Figure IV.B-1 and demonstrates that different approaches can yield different results. This underscores the need to clearly and thoroughly discuss the methodology and assumptions used to define affected EJ communities. EPA recommends that the EIS be revised to include a detailed explanation of the

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approach and assumptions used to produce Figure IV.B-1.

Element 2: Determine if the identified low income and/or people of color communities will be disproportionately impacted by the project.

The topics of subsistence harvest patterns and environmental justice are discussed in relation to social systems, effects of the lease sales, unavoidable adverse effects, short-term and long-term uses and in relation to a large oil spill. In each of these sections, MMS should identify the major concerns raised during the meetings with affected EJ communities. This will provide the public and the decision maker with an understanding of how the issues raised by EJ communities relate to the effects analyses presented in the EIS.

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Element 3: Demonstrate that meaningful public participation from the impacted communities has been achieved. The EIS should also disclose how input from affected EJ communities has been incorporated into project evaluations and decisions made about the project.

The topics of subsistence harvest patterns and environmental justice are scattered throughout the DEIS, which makes it more difficult for readers to locate relevant sections that address their concerns. The development of a table listing the major concerns from the scoping meetings and the corresponding section references (where the issue is addressed), would assist the reader. While Alternative III (the Lower Kenai Peninsula deferral), the standard stipulations, and the information to lessees (ITLs) address some of the major concerns identified during the scoping process, a table showing where each concern is addressed, similar to Table V-14, would be a good addition to the EIS.

Although both Alternatives III and IV defer the leasing of small portions of the Cook Inlet Planning Area to conserve some critical habitat and subsistence resources, FEIS should make a stronger connection between these deferred areas and the major concerns raised by the identified EJ communities.

EPA is concerned about the lack of detailed analysis regarding the following:

- A. Effects related to disposal of rock cuttings and drilling muds in area waters and terrestrial resources on subsistence species, critical fish habitat and subsistence harvest patterns. According to Table B-4 of the DEIS, MMS estimates that 5,200 tons of rock cuttings and drilling muds could be discharged to Cook Inlet waters from each developed field of 68 wells. Tables III.A-12 and 13 indicate the volume of historical discharges into Cook Inlet. While most of the relevant information appears in the EIS, it should also include a detailed analysis of the activities and impacts from this volume of discharges into both the marine and the terrestrial environment.
- B. Frequent, small, oil spills on subsistence resources, critical fish habitat and subsistence harvest levels. Table A.1-10 indicates that a large oil spill from a pipeline or platform, no matter which Alternative is chosen, is a 19% probability. Given the information in Table A.1-11 and A.1-12, although a large oil spill is "unlikely," many smaller spills are

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very likely and will introduce oil into the marine environment from both platforms and pipelines. The FEIS should address both small oil spills and large oil spills equally in the EIS.

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The section on Traditional Knowledge, Subsistence Harvesting and various sections on Environmental Justice identify the concerns of Native Alaskan Tribes who use subsistence harvest in their lives. The FEIS should address concerns related to the effects of both large and small oil spills on aquatic reproduction rates, tainting and loss of critical species. Many references are made to the Exxon Valdez oil spill and its continuing effects on the lives of subsistence harvesters. The mitigating measures for addressing the major concerns that surfaced at the scoping meetings is to apply all or some of the standard stipulations and ITLs to each lease sale agreement. The two deferrals, offered as Alternatives III and IV, would lessen impacts on some of the subsistence species, however, the EIS should clearly identify which ITL(s) and standard stipulation(s) would apply to each Alternative.

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Table B-4 indicates that as many as 68 wells could potentially be developed in each productive field. Please discuss the timing and noise impacts of the seismic activity and the amount of rock cuttings and drilling muds that would be released into the marine environment with well development and the potential effects of smothering critical subsistence shellfish, changing migratory patterns, and impacts to the food chain from increased turbidity and noise. We suggest appending any relevant studies to the EIS that address this issue.

010

In many places within the DEIS, general time frames are referenced. Please quantify all time frames mentioned. References to "short-term" effects (the length of the lease/project duration of 30 years) could become problematic if the definition of "short-term" in Section IV.D. is applied to other Sections.

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TRIBAL TRUST RESPONSIBILITIES

The DEIS considers tribal issues within the context of environmental justice. This is only appropriate insofar as Tribes are composed of individual members who are classified as minorities or low-income populations. Federally-recognized Tribes, as sovereign governments, should be considered separately and distinctly with respect to laws and policies that involve the relationship of Tribes with the federal government and their actions. EPA recommends that the FEIS for the Cook Inlet Planning Area Lease Sales 191 and 199 include a separate section that addresses the federal government's (MMS's) Tribal Trust Responsibilities. Presidential Executive Order (E.O.) 13175 - Consultation and Coordination with Indian Tribal Governments (November 6, 2000; FR Vol. 65; No. 218) recognizes the unique legal relationship the United States has with Indian Tribal governments. The E.O. requires all federal agencies to establish regular and meaningful consultation and collaboration with tribal officials and to strengthen the United States government-to-government relationships with Indian Tribes.

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The DEIS does not discuss or document the consultation process used by DOI/MMS to formally consult and/or coordinate with interested Alaskan Tribes in the Cook Inlet Planning Area on a government-to-government basis. The DEIS indicates that public meetings/hearings

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were held in Homer, Seldovia, Ninilchik, Kenai, Kodiak, and Anchorage. While important, meetings with the general public do not fulfill the tribal consultation responsibilities of the Federal government embodied in E.O. 13175. Formal consultation must take place with the interested tribal governments. The opportunity for effective consultation must be created to allow for meaningful Tribal input. The EIS should document the Tribal consultation process for the Cook Inlet Planning Area Lease Sales 191 and 199.

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EPA believes that if a federal action is located in or adjacent to an Alaska Native Village, it is likely to be of concern to the Tribe. In addition, if a federal action is in an area where a Tribe may have historically used for hunting or subsistence purposes, then it may be of concern to the Tribe. EPA recommends that formal government-to-government consultation with interested Alaska Tribes be conducted with Tribes in the following geographic areas of the Cook Inlet Planning Area:

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Upper Cook Inlet - Tyonek, Knik, Eklutna, Chickaloon
Central Kenai Peninsula - Ninilchik, Kenaitze, Salamantof
Lower Kenai Peninsula - Seldovia, Nanwalek, Port Graham
Kodiak Island - Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, Port Lions
Southern Alaska Peninsula - Chignik, Chignik Lagoon, Chignik Lake, Ivanof Bay, Perryville
Lake Iliamna Area - Nondalton, Newhalen, Igiugig, Iliamna, Pedro Bay, and Kokhanok
Prince William Sound - Tatitlek, Chenega

Tribal consultation could commence by sending a letter requesting formal government-to-government consultation to the Tribal governments identified above. EPA realizes that not all of these Tribes will have the interest, time, resources, or for other reasons, to respond to a formal request. It has been our experience that Tribes will generally self select out of the consultation process if they are not planning to be involved.

The development of a consultation plan, including a schedule or time line, negotiated collaboratively with the Tribe, can help to ensure that Tribes are aware of the Federal action and the dates for significant involvement and decisions. We believe that this will allow for more meaningful and effective consultation between the interested Tribes and MMS. At this stage of the process, EPA recommends that MMS conduct formal consultation with the Tribal Governments identified above regarding the status of this EIS and the proposed actions. The process should be documented in the FEIS.

REGIONAL TRADITIONAL KNOWLEDGE ON SUBSISTENCE

The DEIS provides summaries of responses made by local residents and subsistence hunters of communities in the Cook Inlet Planning Area. The source of these responses are from databases developed by the Alaska Department of Fish and Game (ADFG), Division of Subsistence. An important aspect of gathering Traditional Knowledge is to incorporate this information into the NEPA planning process, development of alternatives, Environmental Justice Analysis, identification of cultural and subsistence issues, and agency decision making. Based on our review of this section, it is not clear how the Regional Traditional Knowledge on

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Subsistence is being incorporated into this process and proposed action. Section III.C.3.d. Regional Traditional Knowledge on Subsistence can be strengthened by describing in detail how Traditional Knowledge will be used by DOI/MMS in the Cook Inlet Lease Sale Planning process for agency decision-making.

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The DEIS provides responses from the following communities in the Cook Inlet Region.

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- Central Kenai Peninsula: Kenai*
- Lower Kenai Peninsula - Seldovia, Port Graham, Nanwalek,*
- Kodiak - Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, Port Lions, City of Kodiak,*
- Southern Alaska Peninsula - Chignik Bay, Chignik lagoon, Chignik Lake, Ivanof Bay, Perryville*

EPA recommends that additional responses from the following tribes regarding their Traditional Knowledge on Subsistence be sought and incorporated into the EIS:

- Upper Cook Inlet - Tyonek, Knik, Eklutna, Chickaloon*
- Central Kenai Peninsula - Niniilchik, Kenaitze, Salamantof*
- Lake Iliamna Area - Nondalton, Newhalen, Igiugig, Iliamna, Pedro Bay, and Kokhanok*
- Prince William Sound - Tatitlek, Chenega*

CONSULTATION AND COORDINATION

Section VI.C. *Contacts for Review of the EIS* identifies Federal and State governments who have been contacted during the preparation of the DEIS. This Section identifies Native Organizations as "Local Governments." Local governments in the Cook Inlet Planning Area include the Kenai Peninsula Borough, the Lake and Peninsula Borough, the Kodiak Islands Borough, and the towns and cities within these Boroughs. As indicated above, E.O. 13175 refers to federally recognized Tribes as a sovereign government. EPA recommends that a separate heading entitled "Tribal Governments" be added, and a list of the federally-recognized tribal governments be included. These tribes should include, but not be limited to, the following:

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- Tyonek, Knik, Eklutna, Chickaloon (Upper Cook Inlet Tribes)
- Niniilchik, Kenaitze, Salamantof (Central Kenai Peninsula Tribes)
- Seldovia, Nanwalek, Port Graham (Lower Kenai Peninsula Tribes)
- Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, Port Lions (Kodiak Island Tribes)
- Chignik, Chignik Lagoon, Chignik Lake, Ivanof Bay, Perryville (Southern Alaska Peninsula Tribes)
- Nondalton, Newhalen, Igiugig, Iliamna, Pedro Bay, and Kokhanok (Lake Iliamna Tribes)
- Tatitlek, Chenega (Prince William Sound Tribes)

Native organizations, such as tribal consortia, tribal health and service organizations, or regional ANCSA corporations, may be more appropriately incorporated into the section on "Associations, Companies, and Other Groups."

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CHARACTERIZATION OF OIL SPILLS AND PROBABILITIES

In Appendix A-1 of the DEIS, the Oil Spill Risk Analysis considers three oil spill-size categories: (1) small spills, those less than 1,000 barrels (42,000 gallons); (2) large spills, those greater than or equal to 1,000 barrels; and (3) very large spills, those greater than or equal to 120,000 barrels (5,040,000 gallons). When making assumptions regarding oil spill sizes, EPA believes it is important to explain to the public how these size categories were developed and characterized. Please provide a literature citation or a detailed discussion in the EIS.

018

Table A-1-10 (p A-11) shows the percent chance of one or more spills occurring for Alternatives I, II, III, and IV from a platform and a pipeline. For Alternative 1 (proposed action) the percent chance of one or more platform spills is 2% and the percent chance of one or more pipeline spills is 18%. If this is additive, then the total combined percent chance of one or more spills should be equal to 20% (2% + 18% = 20%). However, Table A-1-10 indicates that this combined percent chance is only 19%. EPA recommends revising Table A-1-10 to include the 20% under the column for "Percent Chance of One or More Spills Total." Otherwise, the EIS should provide further clarification on how this 19% chance of a total platform and pipeline spills was determined.

019

The Oil Spill Risk Analysis (Tables A.2-31 through A.2-33) shows the annual combined probabilities for each alternative. According to the DEIS, the highest values are a 19% chance of one or more spills occurring and contacting land after 30 days. However, other results from the same analysis for the summer conditional probabilities yielded up to 99.5% chance of an oil spill contacting certain Environmental Resource Area after 30 days (Table A.2-12). EPA believes that a 99.5% chance of an oil spill occurring in the summer is significant. The results of this Oil Spill Risk Analysis may be confusing to the reader. Please provide additional clarification in the FEIS to allow for better public understanding on interpreting these tables.

020

The DEIS characterizes a 19% chance of a large oil spill as "unlikely" or "low probability." During our discussions with your office, we were told that the DOI/MMS Pacific Region Office developed an internal guidance document which provides the word definition to characterize the probability of an oil spill as follows:

021

- "Frequent" - occurs more than once a year on average
- "Likely" - probably will occur during the project lifetime (25% or greater).
- "Unlikely" - Events not predicted to occurring during the project lifetime (< 25%).
- "Rare" - An event that has occurred on a worldwide basis once or twice.
- "Extraordinary" - An event that is theoretically possible but has never occurred.

EPA is concerned that whenever a significant statement is made in the DEIS, there is no supporting documentation (e.g., citation of literature) or a discussion for the basis of that statement. The characterization of a large oil spill as "unlikely" or "low probability" given that the Oil Spill Risk Analysis model projects a 19% probability, which is a 1 in 5 chance of occurring, would require further explanation and discussion in the EIS. To share our perspective, EPA would characterize an event with a 19% probability of occurring as "likely." In light of this information, we recommend that the FEIS provide a detailed explanation for how oil spills are

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characterized based on the Oil Spill Risk Analysis results.

STANDARD STIPULATIONS AND INFORMATION TO LESSEES (ITLs)

Four standard lease stipulations and six information to lessees (ITLs) are identified and considered part of the proposed action and other alternatives for the Cook Inlet multiple sale DEIS. EPA has concerns that the DEIS characterizes the stipulations and ITL clauses as "mitigating measures." It is our understanding that the ITLs are purely advisory in nature, are not enforceable by MMS, and do not provide substantive mitigation. In particular, the DEIS states that the standard stipulations and ITLs "may not be completely effective to avoid potential seasonal noise and disturbance effects on the behavior of sensitive components of humpback whale populations" (p. IV-98). The FEIS should clearly describe to the public both the strengths and weaknesses of these lease stipulations and ITLs in mitigating adverse impacts to the resources of the Cook Inlet Planning Area.

022

To strengthen the effectiveness of ITL clauses certain ones should be converted to standard lease stipulations. For example, ITL No. 3 (Sensitive Areas to be Considered in the Oil Spill Response Plans) and ITL No. 5 (Oil-Spill-Response Preparedness) both address Oil Spill Response Planning and Preparedness. Lessees are required to submit oil spill response plans to DOI/MMS for review and approval pursuant to 30 CFR 254. As a standard stipulation, DOI/MMS would require lessees to address fisheries and biological resources, endangered and threatened species, environmental justice issues, etc. into the oil spill response plans. Therefore, certain ITLs identified above are better suited as standard lease stipulations. By including as a stipulation, we believe that important environmental and biological resources will receive greater protection than presently proposed.

023

The stipulations and ITLs do not address all the environmental, social, and economic resources evaluated in the DEIS. In particular, Section IV, indicates that the stipulations and ITLs do not provide effective mitigating measures to resources such as air quality, endangered and threatened species, and environmental justice. EPA strongly believes that additional consideration be given to ensure that these resources are provided adequate mitigation. We understand that DOI/MMS is consulting with the USFWS and NMFS under Section 7 of the Endangered Species Act (ESA) regarding the need for further mitigation to protect listed species. EPA recommends that DOI/MMS adopt these additional mitigation measures to endangered and threatened species identified during the consultation process be adopted as standard stipulations to the lease and reported in the FEIS.

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The EIS should further describe to the public the post lease sale actions taken by MMS and/or the federal government to ensure that the lessee(s) meets the intent of each stipulation and ITL. For each stipulation and ITL, the FEIS should describe any reports, studies, surveys, plans, etc. that must be provided to DOI/MMS for review and approval in order to mitigate potential impacts to fish and wildlife habitats and subsistence resources. In addition, the FEIS should describe the post lease effectiveness monitoring program: the steps taken to ensure compliance with the stipulations, the corrective actions necessary to achieve compliance, reporting requirements, frequency of inspections and meetings, submittal of reports from the lessee, etc.

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Furthermore, the FEIS should describe opportunities for the public to be involved in post lease sale actions, such as through citizen oversight committees, development plan reviews, effectiveness monitoring, participation in hearings and meetings, etc.

026

SIGNIFICANCE THRESHOLDS

Significance thresholds have been defined for all resource categories on page IV-2 of the DEIS. The significance thresholds for each resource category are defined qualitatively and quantitatively. In order for the public to fully understand the basis for these significance thresholds, EPA recommends further explanation on how they were developed and how they are being used. These significance thresholds may have been developed based on research, literature review, expert testimony, personal communication, best professional judgement, etc. We believe that it is important to document the basis for these significance thresholds in the EIS.

027

Based on our review of the DEIS, EPA has concerns that for certain resources, the prescribed significance threshold may be exceeded over the lifetime of the project. For example, the significance threshold for Threatened and Endangered Species is "an adverse impact that results in a decline in abundance and/or change in distribution requiring one or more generations for the indicated population to recover to its former status." The Environmental Consequences section indicates that the existing mitigation measures for the proposed action are not sufficient to avoid impacts from noise and disturbance to endangered and threatened species in the Cook Inlet Planning Area. To date, additional conservation measures have not been identified. EPA recommends that the conservation measures proposed by NMFS and USFWS under Section 7 of the Endangered Species Act be adopted as a lease stipulation and included in the EIS

028

Furthermore, to ensure that these significance thresholds are appropriate or adequate for the resource category, EPA recommends that post lease sale effectiveness monitoring be conducted to ensure that the proposed action will not cause or contribute to exceedence of the significance threshold for these resources over the lifetime of this project. Effectiveness monitoring is an important tool that could determine whether adjustments are necessary and/or if additional measures are needed to adequately protect the resources.

029

030

ENDANGERED, THREATENED, OR CANDIDATE SPECIES AND THEIR CRITICAL HABITAT

Within or near the Cook Inlet Planning Area, the DEIS identifies 10 species that are listed as either "Threatened" or "Endangered" and two (2) species that are "Candidates" for listing under the Endangered Species Act. In addition, there are designated "Critical Habitat" for Steller sea lions in the Cook Inlet area, including rookeries, haul outs, and marine foraging areas. The DEIS indicates that, "the existing mitigating measures may not be completely effective to avoid potential seasonal noise and disturbance effects (e.g., seismic surveys, and platform construction) on the behavior of sensitive components of humpback whale populations in the areas near the Barren Islands, Kennedy and Stevenson Entrances" (p. IV-98). In addition, the standard stipulations and ITLs for "Steller sea lion critical habitat may not be sufficient to ensure that disturbance and related potential mortality does not occur as a result of helicopter traffic related

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to exploration and development that could occur following the proposed lease sales. The critical habitats in two general location are especially vulnerable to such disturbances: the Barren Islands and the Cape Douglas region." (p. IV-98).

EPA understands that DOI/MMS is formally consulting with NMFS and USFWS under Section 7 of the Endangered Species Act because the proposed action may affect listed threatened and endangered species and their designated critical habitat. We are encouraged that NMFS and USFWS will be providing Biological Opinions, which includes conservation measures and recommendations to minimize and avoid the adverse effects of the proposed action on listed species and their designated critical habitat. We strongly recommend that these conservation measures and recommendations be adopted by DOI/MMS as additional standard stipulations.

031

ALASKA STATE CRITICAL HABITAT AREAS

The DEIS identifies four (4) State Critical Habitat Areas (CHAs) that potentially could be affected by the proposed project. These CHAs include: *Redoubt Bay*, *Kalgin Island*, *Clam Gulch*, and *Kachemak Bay*. To our knowledge, there are seven (7) designated State CHAs in the Cook Inlet Planning Area. The three (3) CHA's that have not been mentioned in the DEIS include: (1) Anchor River and Fritz Creek, (2) Fox River Flats, and (3) Tugidak Island. These seven (7) State Critical Habitat Areas deserve full consideration and discussion in the EIS regardless of ownership status. Critical Habitat Areas are established by the Alaska State Legislature to protect the land and resources necessary to support essential life functions or large concentrations of one or more fish and wildlife populations. CHA's may be complete biotic systems or well-defined areas specifically needed by fish and wildlife for certain functions such as nesting, spawning, or overwintering. The FEIS should provide detailed descriptions regarding important habitats for fish and wildlife for all seven (7) CHAs in the Cook Inlet Planning Area and the environmental consequences associated with each alternative. A map or diagram identifying the locations and boundaries of the State Critical Habitat Areas should also be included in the Appendix.

032

FISHERIES RESOURCES

The DEIS identifies the Cook Inlet region as a migratory and early rearing area for all five species of Pacific salmon (e.g. pink, chum, coho, sockeye, and chinook) and steel head trout. The DEIS discusses the life history of salmon but fails to discuss or identify the important habitat, rivers, and streams these anadromous fish rely on to spawn. The Alaska Department of Fish and Game (ADFG) has developed a catalogue of waters that are important for the rearing, migration, or spawning of anadromous fish in the Cook Inlet Planning Area. These anadromous water bodies are marked on USGS topographic maps. The FEIS should provide a detailed list of all anadromous water bodies (e.g., streams, lakes, intertidal areas) in the Cook Inlet Planning Area, the latitude and longitude, and the species of anadromous fish they support. If available, information should be included regarding their abundance and counts. In addition, the list should identify whether the water body supports spawning or rearing habitat for anadromous fish. A map or maps should be provided that identifies these anadromous water bodies as important

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environmental resource areas.

COASTAL BIRDS OF PREY

The bald eagle and the peregrine falcon are two major coastal birds of prey that inhabit the Cook Inlet Planning Area. The DEIS fails to mention the protection of bald eagles under the Bald Eagle Protection Act (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712). These Federal laws prohibit the "taking" of bald eagles, their eggs, nests or any part of these birds, and should be discussed in Section III.B.5.d. The Bald Eagle Protection Act should be identified and discussed in *Section I.B. List of Legal Mandates* (p I-3) and *Appendix E: Applicable Federal Laws, Regulatory Responsibilities, and Executive Orders* (p. E-1).

034

Exploration activities near nesting bald eagles and peregrine falcons may result in harassment, disturbance, displacement, and possibly abandonment of nest sites. EPA recommends further discussion in this section regarding how exploration activities (e.g., blasting, seismic activities, noise, etc) may adversely affect nesting bald eagles and peregrine falcons and their habits. Exploration and development activities should avoid conflicts with the timing of nesting. Impacts to fishery resources may result in adverse impacts to bald eagles and peregrine falcons. Our reading of the DEIS is that the standard stipulations and ITLs may not adequately address nesting bald eagles and peregrine falcons. Therefore, additional mitigation measures may be necessary to reduce impact thresholds below significant. In order to adequately evaluate impacts to nesting bald eagles and peregrine falcons, bald eagle/peregrine falcon nest surveys for the Cook Inlet Planning Area should be conducted. The survey should include locations of active and inactive nest sites. The locations of these nests should be depicted in a map of the Cook Inlet Planning Area and provided in the EIS. The U.S. Fish and Wildlife Service (USFWS) has jurisdiction and expertise in conducting such surveys. USFWS may require additional studies and surveys to mitigate impacts to these resources.

TERRESTRIAL MAMMALS

The DEIS indicates that approximately 38 species of terrestrial mammals occur in the lower Cook Inlet region, with about 20 of these species present on the Kodiak Archipelago. According to the DEIS, because the river otter, brown bear, and Sitka black-tailed deer use the coastal marine environment to a significant degree, effects on only these three terrestrial mammals have been evaluated in the EIS. We recommend that the Appendix include a species list for all 38 terrestrial mammals, including a description of their habitat and range in the Cook Inlet Planning Area. The species list should include both common and scientific names. The Appendix should include a map that identifies the habitat, range, and feeding area for the river otter, brown bear, and Sitka black-tailed deer.

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FISH HATCHERIES AND AQUACULTURE FARMS

The DEIS does not provide any information regarding local fish hatcheries and aquaculture farms in discussion on social systems. There are a number of commercial fish hatcheries that are owned by the State of Alaska and the Cook Inlet Aquaculture Association (CIAA). These fish hatcheries raise salmon, such as sockeye, coho, chinook, and chum, as well as rainbow and steel head trout. Fish hatcheries are located in Big Lake, Ft. Richardson, and Elmendorf (owned by the State) and Eklutna, Trail Lakes, Crooked Creek, Tutka Bay, and Port Graham (owned by the CIAA). The potential impact of the proposed action to fish hatcheries should be discussed in the environmental consequences section of the FEIS. A map and/or table designating the location of these fish hatcheries should be provided in the Appendix. The standard lease stipulations should include mitigation to fish hatcheries.

036

The majority of commercial aquaculture farms in the Cook Inlet Planning Area are concentrated in Kachemak Bay. These aquaculture farms raise mussels and oysters. Aquatic farms are vulnerable to potential oil spills. Kachemak Bay is within the path of the oil spill trajectory. EPA recommends further discussion of aquatic farms in the EIS and potential impacts from oil spills. The Appendix should provide a map and/or table identifying the location of these commercial aquaculture sites. The standard lease stipulations should identify aquaculture farms as needing further mitigation.

037

ENVIRONMENTAL RESOURCE AREAS

In Appendix A-1, Map A-2 and Table A.1-7 describe 31 Environmental Resource Areas (ERAs) used in the Oil Spill Trajectory Model. The DEIS indicates that these ERAs were designated by MMS analysts and represent concentrations of wildlife, subsistence-hunting areas, and subsurface habitats that are vulnerable to oil spills. EPA believes that it is important to describe in the FEIS the basis for designating these 31 areas as Environmental Resource Areas. The DEIS does not provide any discussion or information regarding ERAs. Based on our review, EPA can not determine if these ERAs include: Steller sea lion Critical Habitat Areas (rookeries, haulouts, feeding areas), subsistence areas, salmon spawning areas, bear feeding areas, bird nesting areas, etc. We recommend that for each of the 31 Environmental Resource Areas, a detailed description be provided in the EIS regarding their environmental significance and vulnerability to oil spills.

038

AIR QUALITY

Table III.A-22 provides national ambient air quality standards relevant to the Cook Inlet Program Area for different criteria pollutants, such as total suspended particulates, carbon monoxide, ozone, nitrogen dioxide, PM10, lead, sulfur dioxide, and reduced sulfur compounds. EPA recommends that additional quantitative discussions are needed in the EIS to demonstrate how ambient air quality impacts caused by each of the alternatives will meet these standards.

039

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The DEIS does not provide any information, in summary or tabular form, regarding estimated criteria air pollutant emissions generated by the proposed alternative or other alternatives. Therefore, it is difficult for EPA to determine the applicable regulatory requirements that would be needed to be addressed and reviewed.

039

Air quality modeling was conducted to estimate air quality impacts at the Tuxedni National Wildlife Refuge, which is designated a Wilderness Area and is the only Class I area in the Cook Inlet Planning Area. It appears that model predicted air quality impacts below the Class I Prevention of Significant Deterioration (PSD) increment thresholds. We recommend that the Appendix of the EIS provide more detailed discussion and rationale for how the air quality modeling was conducted.

040

Furthermore, the DEIS does not provide any baseline or existing air quality monitoring data to support the conclusion that the Cook Inlet Planning Area is not impacted by any adverse air pollution issues. EPA requests that the available air quality monitoring data be presented in the FEIS in order to disclose the area's existing air quality levels. We recommend searching this information in EPA's website at: www.epa.gov/ttn/naaqs/ozone/areas/state/stakik.htm (For ozone pre-cursor pollutants) and Alaska Department of Environmental Conservation (ADEC) ambient air monitoring files/data bases (for other pollutants and local impacts). Please provide a summary of this information in the FEIS. Furthermore, the locations and types of emission sources and levels of emissions should be provided to the public.

The cumulative air quality effects in the surrounding area from past, present, and future foreseeable projects are not presented or discussed in the DEIS. This information should be provided in the FEIS for the proposed action and other alternatives.

041

WATER QUALITY

National Pollutant Discharge Elimination System (NPDES)

Presently, the EPA has a general permit (GP) for NPDES discharges into Cook Inlet for oil and gas exploration, development, and production activities. The GP authorizes discharges of drilling muds and cuttings during exploration. The GP does not authorize coverage of any new source discharges from oil and gas facilities in Cook Inlet. Any new developmental drilling or production from the Cook Inlet Planning Area Lease Sales 191 and 199 is considered a new source.

For new sources that reinject drilling muds and cuttings and produced water into a Class I or Class II injection well, EPA will require the completion of an Environmental Assessment (EA) under the NEPA process with a finding of no significant impact (FONSI) in order to obtain an individual NPDES permit. For example, the requirements under the existing GP for new individual permits would be similar to the requirements for Forest Oil's Osprey Platform, which allows for discharges of deck drainage, sanitary wastes, etc. but no discharge of produced water, or drilling muds and cuttings.

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Where it is infeasible for a facility to construct a Class I or Class II injection well (e.g., for some locations in upper Cook Inlet), the discharge of produced water or drilling muds and cuttings could be authorized, but would require the completion of an EIS under the NEPA process with a record of decision (ROD) in order to obtain an individual NPDES permit that would include a very stringent monitoring program. In other words, for new sources, reinjection of produced waters and drilling muds and cuttings is the practice and discharge is the exception.

Since the discharge is dependent on specific site characteristic, circumstances where the applicant has asked to discharge would have to be analyzed in the environmental analysis that accompanies a development and production plan. The information provided in DOL/MMS's Lease Sale EIS would not be sufficient to make a determination.

The current NPDES GP for Cook Inlet will expire April 2004. EPA has initiated the planning process to reissue the general permit prior to the expiration of the existing permit. We expect to include new sources that do not discharge produced water, and drilling muds and cuttings. EPA would only require an EA under the NEPA process for these new source facilities. However, new source facilities that prefer to discharge produced waters, and drilling muds and cuttings would require an EIS under the NEPA process prior to obtaining an individual NPDES permit. These individual permits would include conditions for extensive environmental monitoring and studies which would be specific to the area of discharge in Cook Inlet.

COOK INLET ECONOMY

Section III.C.1. (p. III-147) provides economic data for the Kenai Peninsula Borough. There are two other local boroughs and a municipality in the Cook Inlet Planning Area that may be affected by the proposed lease sale. We recommend that the FEIS describe the economy and provide economic data for the Lake and Peninsula Borough, the Kodiak Islands Borough, and the Municipality of Anchorage in order to have a more holistic economic analysis for the Cook Inlet Planning Area.

042

In order to accurately depict the economic situation for the Cook Inlet area, EPA believes that it is important to estimate revenues from tourism that are generated by the local Kenai Peninsula Borough, Lake and Peninsula Borough, and the Kodiak Islands Borough. Tourism is a major industry in Alaska and the Cook Inlet area. For example, in the City of Homer, local shops, restaurants, vendors, tour companies, fishing guides, etc. are dependent on the seasonal tourism to support their economy. Tourism may be a good indicator of the impacts (positive or negative) from the proposed lease sales. Economic data and trends from tourism may be a useful tool in evaluating the level of impacts to recreation and visual resources.

043

MARINE TRANSPORTATION

The DEIS identifies and describes several port facilities in the Cook Inlet Planning Area. The major port facilities are located in Anchorage, Homer, Nikiski, Drift River Terminal, and the Christy Lee Loading Facility. EPA is aware of one other port facility being developed by the

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Matanuska Susitna Borough at Point MacKenzie. The Point MacKenzie Deep Draft Dock and Port facility is constructed and may be utilized in the reasonably foreseeable future for oil and gas transportation and distribution. We recommend contacting the Matanuska Susitna Borough for more information. The FEIS should provide a description of the Point MacKenzie Port and Dock facility and identify its location on Map 19. Table V-12 should also be updated to include the Point MacKenzie Port and Dock facility. An analysis of potential effects from the use of this facility should be included in the FEIS.

044

SPECIFIC COMMENTS

Abbreviations, Acronyms, and Symbols

This section is very useful to the reader. Additional work needs to be done to clarify the different units that are used in the DEIS and to provide consistency. Certain sections of the document uses both metric and English weights and measures or only metric or only English. To ensure consistency in the document, we recommend that both units be included.

045

Conversion Factors

Early in the EIS, we recommend a section on "Conversion Factors." This section should include the conversion of weights and measures from metric to English units, and vice versa (e.g., 1 kilometer = 0.6 miles and 1 mile = 1.6 kilometers). In addition, there should be a conversion factor for characterizing oil spills (e.g. 1 barrel = 42 gallons).

046

Appendix E

Federal Laws and Regulatory Responsibilities

Please insert the following under each heading:

A.3. National Environmental Policy Act

Under Section 309 of the Clean Air Act, EPA has responsibilities to review and comment in writing on the environmental impact of agency proposals.

A.11. Marine Protection, Research, and Sanctuaries Act (MPRSA)

Title I of the MPRSA is the Ocean Dumping Act, which provides authority to the EPA to designate ocean disposal sites under Section 102. The regulations are at 40 CFR 220-230.

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Additional Federal Regulations and Executive Order that are not listed:

047

Federal Regulations

Bald Eagle Protection Act
Fish and Wildlife Coordination Act

Executive Orders

E.O. 11990 Protection of Wetlands
E.O. 11988 Protection of Floodplains

Map A-2. Environmental Resource Areas Used in the Oil-Spill-Trajectory Model

048

In addition to the identification number (I.D.), this map should include the names of the Environmental Resource Areas (e.g., 1. Tuxedni Bay, 2. Chimitna Bay, 3. Outer Kachemak Bay, etc). This would be helpful to the reader from having to refer back to the tables.

Water Quality (p III-12)

This sections uses the term "contaminants," which may not be accurate to characterize the NPDES regulatory program of the Clean Water Act Section 402. The Act allows EPA to regulate the discharge of "pollutants" into waters of the United States. This program does not regulate the discharge of "contaminants." We recommend substituting the word "contaminants" for the word "pollutants." These words have different regulatory definitions.

049

Salmonids (III-38)

The EIS should include a discussion of the life cycle of Cutthroat Trout and Dolly Varden char in Cook Inlet.

050

Commercial fisheries (III-149)

On a map, provide the locations of shellfish fisheries (e.g., crab, shrimp, scallops, clams, crab pots), herring fishery, salmon fishery, and groundfish fishery.

051

Environmental Justice (p. VI-150)

We recommend revising the three income tables for communities in the Kenai Peninsula Borough, the Kodiak Island Borough, and the Lake and Peninsula Borough (p IV-151 to 152) to eliminate apparent inaccuracies. The income table for the community of Karluk in the Kodiak

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Islands Borough indicates "0(0\$)" under "Number of People in Poverty" column. Since the data are is not yet available from the 2000 Census, it would be more accurate to indicate that the information is "Not Available", rather than indicating zero for the "number of people in poverty." Also on pages IV-151 to 152, the descriptive paragraphs following each table actually describes the table below it, rather the table above it. This seems to be a formatting/spacing problem.

**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.

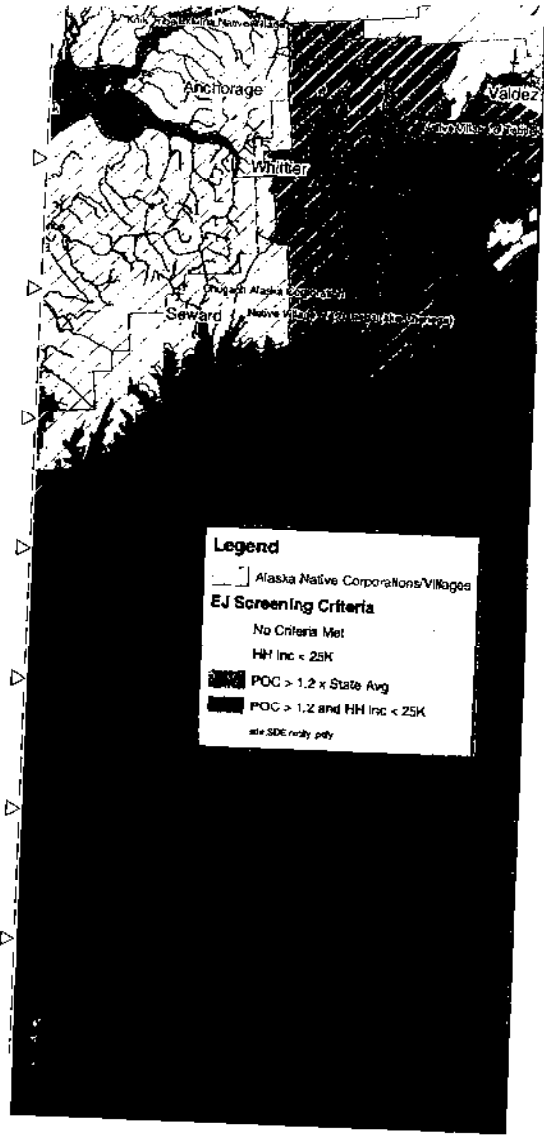
* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment, February, 1987.

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MMS Response to Comment Document 006

Response 006-001.

As the MMS indicated to the EPA in a meeting between our agencies on January 8, 2003, the MMS believes that the analyses presented in Alternatives III and IV are complete and that the addition of another alternative that combines the areas deferred under each alternative as the fifth alternative is not necessary. As we explained, this would merely be a combination of the analyses done for Alternatives III and IV, which we believe would unnecessarily lengthen and complicate the presentation of the analysis. Alternatives are not mutually exclusive. The following language has been added to the Executive Summary and Section I.F to highlight this fact: "If the Secretary of the Interior decides to proceed with each of the sales (191 and 199), by not choosing Alternative II - No Lease Sale, the Secretary may choose one, all, some combination, or part of the deferral option to comprise the Final Notice of Sale for Sale 191. The Secretary will have the full suite of options available for Sale 199 when that decision is made in 2006. The Secretary may choose the same options selected for Sale 191 or different options." Finally, we examined the combination of Alternatives III and IV and determined that effects were additive, not synergistic.

Response 006-002.

The text has been changed in Section IV.B.1.p(2) - Effects of Sale 191 on Environmental Justice to include MMS's method for determining minority population and its justification for the criteria used. Percent minority population figures were taken from the 2000 Census Tiger files. The definition for a minority population is based on the Council on Environmental Quality's 1997 guidance that defines minority population as exceeding 50% of the population of the affected area. In most cases, unless otherwise specified, we are assuming the affected area is a community and the percent minority population is a measure of the minority population of that community.

Response 006-003.

The text now refers the reader to Appendix A-1, Oil Spill Information, Models, and Assumptions, for an explanation of OSRA land segments.

Response 006-004.

The criteria used to determine low income communities in the Cook Inlet Planning Area was based on 2000 Census data, which determined that the median household income for the State of Alaska in 2000 was \$50,746. Any median income that fell below this threshold for any community was considered low income. This explanation has been included in the text of Section IV.B.1p(2).

Response 006-005.

The MMS believes that the explanation in Section IV.B.1.p(2) is adequately detailed as to the criteria used to produce Figure IV.B-1. This explanation is in keeping with Executive Order 12898 for Environmental Justice (1994), Council on Environmental Quality Environmental Justice Guidance Under the National Environmental Policy Act (Council on Environmental Quality, 1998), and Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (Environmental Protection Agency, 1998) for assessing disproportionate impacts on low income, minority populations. The MMS questions the EPA scrutiny using EPA's older draft guidelines, which have never been finalized and have not been circulated, reviewed, and adopted by agencies other than EPA.

Response 006-006.

The MMS believes that the environmental justice analysis of effects in Section IV.B.1.p and its summation of concerns and issues raised in subsection IV.B.1.p(8) - Mitigation Initiatives Related to Sociocultural Impacts provides the public with an adequate linkage between issues raised by communities and the effects analysis presented in the EIS. Current environmental justice guidance does not require that every effects

analysis section relating to potential subsistence or sociocultural effects summarize environmental justice concerns.

Meaningful public participation by potentially affected low income, minority communities is discussed in Section III.C.7 - Environmental Justice and again in subsection IV.B.1.p(8) - Mitigation Initiatives Related to Sociocultural Impacts. Subsections IV.B.1.p(7) - In-Place Mitigation and Ongoing Mitigation Initiative and IV.B.1.p(8) - Mitigation Initiatives Related to Sociocultural Impacts both discuss how the MMS is addressing community concerns. See Sections I.C.2.a(3) and I.C.2.a(4) for discussion of Alternative III - Lower Cook Inlet Deferral and Alternative IV -Barren Islands Deferral. Both deferrals, which make up the agency-preferred alternative, were included in response to local community concerns about protecting subsistence resources and harvest areas within these deferrals. Section I.C - Results of the Scoping Process further discusses the connection between community concerns and the deferral areas.

Because the EIS is not a decision document, and, in fact, must be completed before a decision is made, there is no way for it to reflect final decisions made about the lease-sale process.

Major environmental justice concerns are listed in environmental justice discussions in Sections III.C.7 and IV.B.1.p. A reference has been added to the text after each concern directing the reader to the specific section where that concern is discussed; thus, an additional table would be redundant.

Response 006-007.

The historical discharges of muds and cuttings are described in Section III because they are part of the existing, affected environment. The environmental effects of those discharges are discussed in Section V.C - Analysis of Cumulative Effects by Resource. Essentially, those effects are negligible and undetectable for water and sediment quality. Also, for the proposed action, the scenario and Appendix B assume injection of drilling muds, cuttings, and produced water from production wells.

Response 006-008.

The MMS has reviewed the analysis of small spills and added information to the routine effects sections for air quality (IV.B.1.b), fisheries (IV.B.1.d), commercial fishing (IV.B.1.k), economy (IV.B.1.j), sociocultural systems (IV.B.1.m), sport fishing (IV.B.1.o), environmental justice (IV.B.1.p), recreation and tourism (IV.B.1.n), and national and State parks (IV.B.1.r). However, small spills are not given the same treatment as large spills, because to do so would be contrary to CEQ guidance that the EIS focus on major issues.

Response 006-009.

The EIS clearly indicates that stipulations and ITLs apply to the proposed action and the alternatives. Section II.F states: "Standard Stipulations (Section II.F.1) and ITL clauses (Section II.F.2) are evaluated and factored into the effects analysis as part of the proposed action and the alternatives." Section II.F.1 notes: "the following standard stipulations are considered part of the proposed action and Alternatives III and IV." Section II.F.2 states: "ITL clauses 1 through 6...are considered part of the Proposed Action and other alternatives for the Cook Inlet multiple-sale EIS for analytical purposes." For a general discussion of the use of stipulations as mitigating measures, please see Appendix E, Section C.

Response 006-010.

The timing of exploration activities is given in Section II.B.2 - Timing of Activities, II.B.3 - Activities Associated with Exploration and Production, and Appendix B. Section IV.A.2 explains the basic assumptions regarding noise from exploration and production. Analyses of possible effects from noise are included, where they apply, in the analyses in Sections IV.B.1 a through IV.B.1.s. Similarly, the effects from turbidity also are discussed, where appropriate, in these sections. As to the "potential effects of smothering critical subsistence shellfish..." platforms would not be sited so that discharge would suffocate these important resources. Also, because the footnotes to Table B-4 and other sections of the EIS clearly state that development drilling muds and cuttings will not be discharged into the marine environment, an assumption based on the EPA information on water quality in Document 006. Therefore, the discharge into the marine environment envisioned by the commenter is not expected. However, should the commenter

want to review this information, the effects of discharges into the marine environment was analyzed in the EIS for Sale 149.

Response 006-011.

“Short term” has been quantified where possible.

Response 006-012.

This information has been added to Section I.D of the EIS.

Response 006-013.

Although a Tribe may be “interested” in the proposed action, the MMS is guided by the definitions of consultation as to which Tribe(s) should be contacted to initiate Government-to-Government consultation. Consultation takes place with a potentially affected Tribe(s) when it is determined that a Federal action “*may have a substantial direct effect (from E.O. 13175)*”(emphasis added) and from the USDOI-Alaska Policy on Government-to-Government Relations with Alaska Native Tribes: “Consultation means the timely process of meaningful intergovernmental dialogue between Departmental Bureaus and/or Offices and federally recognized Tribes in Alaska regarding a proposed Federal action(s) that *will have a substantial, direct effect on the resources or rights of the Tribes...*”(emphasis added). Therefore, the MMS reviewed the proposed lease-sale area and determined that although a number of Tribes historically may have used Cook Inlet for subsistence activities, they would not be “uniquely, directly, or substantially affected” by the proposed sales. However, it was determined that the following four Native villages potentially may be affected: Ninilchik, Seldovia; Nanwalek, and Port Graham.

On December 20, 2002, a letter was sent from MMS’s Alaska OCS Regional Director to the Presidents of the Native Village of Eklutna, the Knik Tribe, Native Village of Tyonek, and Village of Seldovia; the Chief of the Chickaloon Village Traditional Council; and Chairman of the Kenaitze Indian Tribe. The Tribes were notified of the proposed sales and sent copies of the draft EIS and a Notice of Availability that was published in the *Federal Register* Notice. The letter acknowledged the tribes and their proximity to the proposed sale area but explained that we would not be initiating Government-to-Government consultation, because we determined that those Tribes were geographically out of scope in relation to the proposed sales.

The decision not to initiate Government-to-Government consultation with those Tribes was based on the Tribes’ distance from the proposed sale area and a determination that the Tribe would not be substantially or uniquely impacted by the proposed sale.

The letter explained that: “Although we have not scheduled a consultation with your Tribe, we welcome your comments. Comments (oral or written) may be submitted by using any of the opportunities listed on the enclosed *Federal Register* notice and addendum...”

Listed were several opportunities for the Tribe to participate in public hearings, including a teleconference hearing on a toll-free number, during which the caller’s testimony would be recorded and included in a transcription by a court reporter. Also, mailing addresses were provided for written comments to be submitted. Subsequent to the letter, the Village of Eklutna requested a Government-to-Government meeting and we agreed to meet.

The MMS understands and recognizes the difference between a Tribal consultation and a public hearing. The MMS’s Alaska OCS Region conducts Government-to-Government Tribal consultation consistent with the Presidential Executive Memorandum dated April 29, 1994, on Government-to-Government Relations with Native American Tribal Governments; Executive Order 13175 dated November 6, 2000, on Consultation and Coordination with Indian Tribal Governments; and the January 18, 2001, Department of the Interior-Alaska Policy on Government-to-Government Relations with Alaska Native Tribes.

Outreach to the potentially affected Tribes and other Tribes in the Cook Inlet area was initiated with distribution to tribal governments of the Notice of Intent for Oil and Gas Lease Sales 191 and 199. The process involves contacting potentially impacted tribes to try to arrange a mutually agreeable date, time, and length of meeting time for the consultation. The MMS prefers to travel to the Tribal Headquarters to allow for maximum tribal council participation. The MMS has made a practice of always having as lead

for the team an MMS senior manager, for example, the Alaska Regional Director or one of the Regional Supervisors, in recognition of proper protocol and respect in meeting with the Tribal Council. The team travels to the Tribal Headquarters and give an overview of the proposed action to ensure that Tribes are aware of the Federal action and the dates for significant involvement and decisions, answer questions, and listen to and discuss tribal issues and concerns. All members of the MMS team take notes, but the Tribe is encouraged to submit written comments to ensure that their issues and concerns are captured as they intend and not as filtered and recorded by the MMS notetakers.

Government-to-Government meetings were held as part of the scoping process with the Ninilchik Traditional Council (January 28), the Seldovia Village Tribe (February 1); the Native Village of Nanwalek (February 8); the Native Village of Port Graham (February 11); and the Native Village of Eklutna (April 28). Summaries of these meetings were added to Section I.D.

Response 006-014.

Please see Response 006-013.

Response 006-015.

Please see Section I.C.1.b(4) for an overview of the use of traditional knowledge. New text at the end of Section III.C.3.d(4)(e) has been added to direct the reader to Section III.C.7 - Environmental Justice and Sections IV.B.1.p(7) - In-Place Mitigation and Ongoing Mitigation Initiatives and IV.B.1.p(8) - Mitigation Initiatives Related to Sociocultural Impacts, where the use of regional traditional knowledge in the lease-sale planning and decisionmaking processes is discussed. Also, please see Response 006-006.

Response 006-016.

Section I.D describes the process of government-to-government consultation and the MMS solicitation of comments from Cook Inlet Tribes. The MMS considers Knik, Eklutna, and Chickaloon in Upper Cook Inlet; Nondalton, Newhalen, Igiugig, Iliamna, Pedro Bay and Kokhanok in the Lake Iliamna region; and Tatitlek and Chenega in Prince William Sound to be outside the potentially affected area of the lease sale and, therefore, out of scope of the Proposal. Please see Section I.D for a description of the MMS Government-to-Government consultations.

The MMS was unable to identify sources of traditional knowledge for the community of Tyonek and the Ninilchik, Kenaitze, and Salamatof Tribes. The traditional knowledge provided for Kenai identifies a number of concerns for subsistence hunters in Upper Cook Inlet and in the areas used by these Tribes.

Response 006-017.

The Section VI.C listing for Ninilchik, Port Graham, Nanwalek, and Seldovia has been changed to Tribal Government.

Response 006-018.

Citations and a description have been added to the text. Please see Appendix A-1, Section A - Source and Spill-Size Assumptions.

Response 006-019.

The commenter is incorrect on how the probabilities are derived. The probabilities cannot be added. The mean spill numbers are added and the chance of one or more spills is derived from the mean spill number. Table A-10 is correct. We have added a method section to explain the how the Poisson distribution is used to estimate spill-occurrence probabilities.

Response 006-020.

Conditional probabilities were defined in Appendix A, Section C.4.a. A conditional probability is conditioned on the assumption that a spill occurs and the trajectory is then followed to analyze where these oil spills will travel. Because oil spills are not anticipated to occur, we factor in the chance of a spill

occurring. These probabilities are termed combined probabilities. Combined probabilities are joint probabilities; they factor in the chance of a spill occurring and then contacting. We have added a definition for combined probabilities to clarify the differences for the reader.

Response 006-021.

In this EIS, the MMS has defined the likelihood of a large spill of 1,000 barrels or more occurring (if oil is discovered and developed) as 19% over the 20-plus-year life of the potential project. The MMS has chosen to characterize that probability as unlikely. The MMS cannot characterize the likelihood (1 in 5) of such an event as “likely.” For the majority of the land segments and environmental resources, the probability of a spill occurring and contacting a land segment or environmental resource is less than 0.5% (See Appendix A-1, Section D.2.) The most likely event that the MMS expects to occur over the life of the project (over 80% of the time) is that a spill will never occur. The chance that a spill will never occur is the “likely” outcome.

Through the years, the MMS has found that different readers have their own “thresholds” and “preferred” definitions,” and the MMS has tried to present just the information without adjectives and declarations of significance. However, the EPA and others provided comments that the MMS needed to provide additional insight into what the numbers mean.

For an oil spill to occur, a series of events must occur. First, a lease sale must occur. In Cook Inlet, 100 leases have been issued from three OCS sales and one resale. Then, exploration must occur and find oil (there have been 13 exploration wells in Cook Inlet with “ZERO” discoveries to date). If oil is found, it must be developed; to date, only one development in the Alaska OCS has occurred from 83 exploration wells (1,662 leases) Statewide. Then, if development and oil production occur, most projects would not result in an oil spill. The MMS does not believe characterizing such an event as “likely” is providing the public with good information.

Response 006-022.

The ITLs are part of the proposed and final Notice of Sale. They provide information to the lessee about 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 NOAA Fisheries and the USDO, Fish and Wildlife Service (FWS) are the responsible agencies for enforcing the rules and requirements of the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). While ITL clauses 1 and 2 (Bird and Marine Mammal Protection and Information on Endangered Species) do not create a new requirement, they do provide awareness to the lessee to applicable laws and regulations, and that awareness and compliance by the lessee to those laws does provide protection to resources of concern.

As noted by the EPA, the EIS does evaluate the effectiveness of rules, regulations, and mitigation. That analysis is used and considered by NOAA Fisheries and the FWS in their determination of the potential effects under the ESA Consultations (see Appendix C). As noted by Section I.I.F.2, ITL clauses contain “information about the requirements or mitigation required by other Federal or State agencies.” As such, the measures are enforced by the responsible agency. Also, because a standard lease clause requires lessees to comply with all applicable laws, the MMS may have recourse to take action under the provisions of the lease. The effectiveness of stipulations and ITL clauses is discussed in each resource sections, IV.B.1.a through IV.B.1.s.

Converting ITL clauses to lease-sale Stipulations does not provide additional protection, because the protection already exists. It also is not advisable for the MMS to insert jurisdiction into the management of resources that are the responsibility of other Federal Agencies. The MMS should not try to manage endangered species or marine mammals; the applicable Federal Agency (NOAA Fisheries or FWS) is fully capable of managing the species and could request the assistance of MMS, if needed. For example, under our Memorandum of Understanding, MMS conducts inspections of OCS facilities for EPA’s water-quality program.

Response 006-023.

Please see Response 006-022.

The MMS disagrees with EPA's assertion that changing ITL clauses 3 and 5 to stipulations would provide greater protection.

Oil-spill-response plans for exploration and development projects to protect the environment and help contain oil spills are required by 30 CFR 254. Stipulations are not appropriate where a regulation exists. The MMS uses ITL clauses 3 and 4 to advise lessees of particular local concerns that should be addressed in the plan submitted and approved under 250 CFR 254. The ITL clauses 3 and 5 provide the lessees with information they should consider when preparing those plans. The lessee already is required under 30 CFR 254 to identify and consider unique and important biological resources in the development of oil-spill-response plans. The plans, which must be specific to the locations and to the conditions at those locations, must meet the requirements of the 30 CFR 254. The adequacy of the plan will be determined by the MMS during the review process that occurs prior to the approval of any exploration or development plan. Changing those ITL clauses to stipulations would not strengthen the environmental protection or mitigation provided but would only unnecessarily duplicate current regulations.

Appendix E, Section C explains the role of stipulations in the leasing process.

Response 006-024.

The EIS has evaluated the potential effects to the environmental, social, and economic resources that might be affected by the proposed actions. The EIS identifies the likelihood, type, and significance of the effects to the potential resources. The MMS has requested consultation under the ESA from NOAA Fisheries and the USDO, FWS; we have received responses from both agencies that conclude "no jeopardy" to the listed species. In the EIS, the MMS evaluated the effects to air quality, water quality, and environmental justice, and the EIS states the potential effects to these resources.

The EPA declined MMS's invitation to participate in the NEPA process for this proposed lease sale. The EPA, not the MMS, is the Federal Agency with the authority to regulate and permit effects to air and water. In the EIS, the MMS identifies the potential effects to regulate air and water quality as part of the prelease process; however, lessees will need to apply to the EPA for NPDES and Air Quality permits if they decide to explore or develop a lease. If the EPA determines during these permit reviews that additional mitigation is necessary to protect air and water quality, the EPA can require mitigation at that time.

The EIS includes an adequate analysis of potential effects to environmental justice, as required by the Executive Order, including a determination that there would be no disproportionately high adverse effects from planned and permitted activities associated with either of the OCS lease sales evaluated in this EIS. The MMS believes the existing rules and regulations, with the proposed mitigating measures, provide adequate protection to the resources. The only proposed mitigation suggested by the EPA in their letter (see Responses 006-022 and 006-023) was to convert ITL clauses to stipulations. However, as noted previously, the mitigation provided by these ITL clauses already is incorporated by regulation; therefore, no additional mitigation is offered by restating them as stipulations.

Response 006-025.

We have completed consultation with both the FWS and NMFS under Section 7(a)(2) of the ESA. Documentation of this consultation is provided in Appendix C. The FWS concluded that the "...probability of leasing or exploration activities having an adverse effect upon..." Steller's eiders "...is discountable." They concluded also that the candidate population of sea otters "...would not be jeopardized as a result of this proposed action." The FWS did not consider it necessary to consult on any other listed species. Thus, the MMS did not receive any recommended conservation measures or other recommended further mitigation measures from the FWS.

The MMS has concluded formal consultation with the NMFS, and their Final Biological Opinion is included in Appendix C. This biological opinion includes six Conservation Recommendations. Where appropriate, the recommendations resulted in modification of existing information to lessee clauses.

Response 006-026.

All of the Stipulations (1 through 4) require the lessee to take actions during the planning process for exploration and development. The steps and actions taken by the lessee to meet the requirements of these stipulations will be evident in their exploration and development plans. The ITL clause 5 - Oil-Spill-Response Preparedness also requires the lessee to consider the resource areas listed in the ITL in their preparation of their OSCP's, which are due with their exploration and development plans. Any deficiencies by the lessee will be identified by the MMS and the public during the plan's review process, and the lessee will be required to correct any identified deficiencies before the plan is approved. As noted in Stipulation 1, the MMS will contact and distribute copies of the exploration and development plans to local communities and fishing organizations and solicit comments to ensure that the lessee has complied with the stipulation.

Stipulation 3 requires the lessee to provide annual training to employees and to maintain a record of personnel attending such training for 3 years. The MMS inspectors make periodic visits, including unannounced visits, where these records, along with other operating records, are subject to review. If the MMS discovers any noncompliance with this or any other requirement during these inspections, the MMS will take appropriate remedial action.

The ITL clauses 1 through 4 and 6 inform the lessee of requirements by other agencies. The requirements noted in these ITL clauses are enforced by the applicable resource agency and not by MMS. If the MMS inspectors observe that a lessee is not compliant with any Federal law or regulation, the MMS will take appropriate action which, at a minimum, would include notification of the appropriate resource agency.

Response 006-027.

One of the objectives for an EIS is to identify effects and discern which of those effects are significant. However, CEQ NEPA regulations do not specifically identify a threshold for each and every resource. The MMS has been writing NEPA documents since the late 1970's; over that time, the MMS has used several different systems to convey the sizes and types of impact that could occur to resources. We have tried a three-tiered system (low, medium, and high); a four-tiered system (negligible, minor, medium, and major); and a two-tiered system (insignificant and significant). The MMS has found that regardless of the system, each designation requires a specific statement or definition and, inevitably, some readers dislike the definitions. Some comment that the threshold is too high, while others comment that the threshold is too low. Increasing the number of categories of effects does not seem to eliminate or reduce the problem. Hence, the Alaska Region has adopted the two-tiered system.

The MMS thresholds of significance are based on the best professional judgment of the analysts. One of the first things assigned to our analysts is for them to look at the definitions of impacts we have used in recent EIS's and determine if they are still applicable. If not, we then ask the analysts to modify the definitions. We will continue to receive and evaluate comments pertaining to the impacts definitions we use in the EIS and, where justified, we will modify the threshold level. Some of the thresholds, such as the one for biological resources, apply to a wide range of resources; other thresholds, such as for archeology or subsistence, apply only to one resource.

In the impact analysis sections (Sections IV and V), each EIS analyst is required to evaluate the effects to their resource and to summarize those effects into a concise statement. The analysts then compare that summary to the "significant threshold definition" and, if the projected effects exceed the parameters in the significant threshold definition, then the impacts are deemed significant and the analysts note the same in their summary. All significant impacts are specifically noted in the overall effects summaries and in the Executive Summary.

Response 006-028.

Although the EPA states their concern, they do not provide analysis or additional information that supports their concern or that refutes the analysis and conclusions reached by the MMS in their analysis. The MMS consulted with the USDO, FWS and NOAA Fisheries for all listed and candidate species in the Proposed Action; both the FWS and NOAA Fisheries determined the Proposed Action would not jeopardize any of the listed or threatened endangered species (See Appendix C.)

Response 006-029.

Please see Response 006-025.

Response 006-030.

Please see Response 006-028.

The MMS is required to provide additional NEPA review for all exploration and production plans before their approval. This analysis will have site-specific and operation-specific information. At that time, if the plan is approved, the MMS, in conjunction with the other responsible permitting agencies, will determine which specific resources may warrant or need monitoring, what monitoring requirements will be placed on the lessees, and what monitoring will be provided by MMS and/or the other permitting agencies. For example, with the Northstar project in the Beaufort Sea, agencies required monitoring for the potential effects of noise and sedimentation

Response 006-031.

Please see Response 006-025.

Response 006-032.

Section III.B discusses the fish and wildlife populations of the region affected by the Proposed Action. Section IV contains alternative-based effects discussions, including the effects of potential oil spills. Maps A-2 and A-3 have been annotated to identify Critical Habitat Areas (CHA). Map A-2 identifies CHA's in relation to certain biological resources, and Map A-3 shows the relation of the CHA's to various land segments used in the OSRA. Please note that the Clam Gulch, Redoubt Bay, and Kalgin Island CHA's are located on Map A-2 in ERA's 27 and 28. Kachemak Bay, the Fox River Flats, and Anchor River CHA's are covered in ERA 3. Tugidak Island CHA is covered by ERA 93. A brief description of the biological resources of each of these environmental resource areas is included in Table A.1-7b. Regarding the Trading Bay State Game Refuge, the upper Cook Inlet is not part of the Sale 191 area, and OSRA model oil-spill trajectories were not calculated for that area. No impacts to biological resources in the upper Cook inlet are expected to result from the Proposed Action.

Response 006-033.

Map 21 depicting the anadromous waterways used by salmonoids in the region has been added to the EIS. However, the MMS disagrees with the commenter's request to provide a detailed list of all anadromous waterbodies (for example, streams, lakes, intertidal areas) in the Cook Inlet Planning Area, the latitude and longitude, and the species of anadromous fish they support and, if available, information regarding their abundance and counts. Because anadromous fishes heavily use numerous tributaries feeding into Cook Inlet, the MMS assumes that any tributary in the area may or may not be used by anadromous fishes for spawning or rearing or feeding habitat. However, the MMS does not have jurisdiction over such aquatic habitats, because they lie within State boundaries and are regulated by State agencies, including the Alaska Department of Fish and Game, which is the custodian and generator of such information.

Response 006-034.

The EIS does discuss all major U.S. acts and regulations pertaining to resources in the Sale 191 area, including marine and coastal birds. The Migratory Bird Treaty Act is discussed in Section III.B.5.

Additional discussion of potential impacts to bald eagles and Peale's peregrine falcons has been added where appropriate in Section IV.B.1.g of the EIS. Please note that potential impacts from the Proposed Action on American peregrine falcons are discussed in Section IVB.1.f(3)(g)2).

The commenter recommends studies that survey bald eagle and peregrine falcon nest sites in Cook Inlet. Please see Response 009-040 for information regarding the MMS Environmental Studies Program.

Response 006-035.

The MMS does not believe that a list of all 38 species of terrestrial mammals that occur in the Cook Inlet region should be included, because these species and their populations are not threatened by the Proposed Action. They also are not likely to be exposed to the proposed activities. The CEQ regulations require the EIS to focus on resources potentially affected by the Proposal rather than give an encyclopedic description of all resources in the region.

Primary brown bear habitats in Cook Inlet are shown on Map 17. River otter habitats occur along most of the coast. Sitka black-tailed deer coastal habitats on Kodiak and Afognak islands were described in the previous Sale 149 final EIS (USDOJ, MMS, Alaska OCS Region, 1995).

Response 006-036.

Fish hatcheries and aquaculture operations have been added to Map 21.

Response 006-037.

The aquatic farms of Kachemak Bay are entirely within State waters; the OCS begins outside the mouth of Kachemak Bay. The land segments of the OSRA trajectory in the EIS do not encompass the inner portions of the bay. The OSRA indicates LS 47 (Seldovia), where some aquatic farms are located, has a 1-6% chance of being contacted within 30 days in the event of an oil spill. Aquatic farms around Resurrection Bay and in Prince William Sound have a less than 0.5% chance of being contacted within 30 days. In any event, Stipulation 1 - Protection of Fisheries applies to all commercial-fishing activity, although it is unlikely that OCS activities would unreasonably interfere with aquatic farms.

Response 006-038.

Table A.1-7a which shows the Environmental Resource Area, its Identification Numbers (ID), Names, and Spill-Vulnerable Months. We have added Table A.1-7b which shows important Environmental Resource Areas by identification number (ID), geographic area, and where they are discussed in section IV of this EIS.

Response 006-039.

A good discussion of the air quality modeling and estimated criteria air pollutant emissions occurs in the reference cited in Section IV.B.1.b (Herkhof, 2002).

Because this reference is an unpublished document, we have added it to the EIS as Appendix H - Air Quality Modeling and have added a sentence stating that to Section IV.B.1.b.

As was discussed in the deferral alternatives, Sections IV.B.3.b(2) and IV.B.4.b(2), we expect no significant effects different from or other than those discussed in Section IV.B.1.b. We can see no differences in air pollutant emissions under those alternatives.

Response 006-040.

Please see Response 006-039. We have added ITL clause 7 - Air Quality Standards and Regulations to highlight the Tuxedni National Wilderness Area Class I Prevention of Significant Deterioration classification.

Response 006-041.

Section V.C.5.b of the EIS does discuss cumulative air quality effects in the surrounding area from past, present, and future foreseeable projects. Please see that section (pages V-24 through V-27 in the draft EIS; page numbers probably have changed for the final EIS).

Response 006-042.

Section IV.B.1.j analyzes the economic effects on the Kenai Peninsula Borough with respect to revenues, personal income, and employment. We have considered analyzing the effects on the Lake and Peninsula Borough, the Kodiak Island Borough, and the Municipality of Anchorage. The potential effects on these three boroughs in our estimation are so small that they do not merit analysis. Text has been added to Section IV.B.1.j(3), which expands on our reasons for analyzing effects only for the Kenai Peninsula Borough.

Response 006-043.

Section III.C.5 discusses qualitatively the recreation, tourism, and visual resources. Section IV.B.1.n analyzes qualitatively the effects of Sale 191 on recreation, tourism, and visual resources. Analysis is quantified to the degree that data are available. The geographic extent of the analysis surrounding Cook Inlet is for areas where we anticipate effects. Sport fishing is a part of the tourism industry of the Kenai Peninsula for which we have data, and these data are presented and analyzed in Sections III.C.6 and IV.B.1.o. Except for sport-fisheries data, which come from a study done for the MMS, tourism data are not available for the Cook Inlet area.

Response 006-044.

An evaluation of scenario of development for the Proposed Action indicates that the Port MacKenzie area and the port itself would not be affected by the Proposed Action. The port is located at a distance from the proposed sale area and is not envisioned to participate in related activities in any manner. Future oil and gas developments in the lower Cook Inlet are not expected to interact with any present or future facilities proposed for the Port MacKenzie area.

Response 006-045.

Both English and metric units have been included in the text.

Response 006-046.

Conversion factors will be added to the EIS front matter.

Response 006-047.

The changes have been made to Appendix E -Federal Laws and Regulatory Responsibilities. The change suggested for NEPA refers to Section 309 of the Clean Air Act. The pertinent reference and text have been added to A.4. -The Clean Air Act.

Response 006-048.

We have added the names to the map.

Response 006-049.

The section uses the term "contaminants" to indicate both anthropogenic and naturally occurring substances of concern. The term "pollutant" is reserved for anthropogenic substances; that is, those that can be regulated by EPA. We believe this is consistent with the commenter's preference.

Response 006-050.

Additional species accounts have been added to Section III concerning Fisheries Resources for the Pacific sand lance, Dolly Varden, cutthroat trout, razor clam, Pacific weathervane scallop, pandalid shrimp, Alaska king crabs, Dungeness crab, and tanner crabs.

Response 006-051.

During preparation of the EIS, the MMS determined that because commercial fishing occurs throughout the Cook Inlet, preparation of a map showing where fishing occurred would not be clear and would not be useful in the analysis of effects.

Response 006-052.

Poverty data are, in fact, available from the 2000 Census, and the data for Karluk identify no one in the poverty category (see <http://www.dced.state.ak.us/cbd/commdb>). The descriptive paragraphs for the three income tables that appear in Section IV.B.1.p(3) have been reformatted to tie them to their appropriate and respective tables.

From: AKEIS
Sent: Wednesday, February 12, 2003 7:44 AM
To: Childs, Susan
Cc: Goll, John
Subject: FW: Comments on Proposed Lease Sales 191 &

-----Original Message-----

From: Bob Shavelson [mailto:bob@inletkeeper.org]
Sent: Tuesday, February 11, 2003 4:58 PM
To: Goll, John
Cc: Orr, Renee; AKEIS; Cacy, Robin; Gail Norton (E-mail)
Subject: Comments on Proposed Lease Sales 191 & 199

Hi John -

Attached please find Cook Inlet Keeper's comments on the DEIS for proposed lease sales 191 and 199.

I appreciated the opportunity to meet with you and your staff recently, and I look forward to working with you to develop a reasonable leasing strategy for Lower Cook Inlet.

Thanks -

Bob

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VIA EMAIL ONLY

AKEIS@MMS.GOV; JOHN.GOLL@MMS.GOV

February 11, 2003

John Goll, Regional Director
Minerals Management Service
Alaska OCS Region
949 East 36th Avenue
Anchorage, AK 99508-4302

**RE: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR PROPOSED COOK INLET OIL AND GAS LEASE SALES 191 AND 199**

Dear Mr. Goll:

I. INTRODUCTION:

Cook Inlet Keeper is a member supported nonprofit organization dedicated to protecting the Cook Inlet watershed and the life it sustains. Please accept these comments on the above-referenced DEIS on behalf of Keeper's Board, staff and over 650 members residing in the Cook Inlet region and beyond.

As a threshold issue, Keeper will not comment here on all the many deficiencies it has identified in the DEIS. Rather, Keeper will focus on a few substantial technical and legal shortcomings identified in the DEIS, which, if left uncorrected, will render the Final EIS legally deficient and thus subject to challenge.

All documents referenced herein have been cited to facilitate access by MMS, and should be included in the final administrative record. If MMS has problems locating these documents, it may contact Cook Inlet Keeper for assistance.

II. COMMENTS

A. *Scenario & Alternatives Analyses*

The DEIS adheres to a single development scenario, and assesses environmental and socioeconomic impacts flowing only from that one scenario. This shortcoming violates the scoping, cumulative effects and alternatives analysis provisions of NEPA and its implementing regulations:

1. Impermissibly Vague Development Scenario. Pursuant to the National Environmental Policy Act, 42 U.S.C. § 4321et seq., MMS must “provide full and fair discussion of significant environmental impacts” in the DEIS. 40 CFR § 1502.1. Specifically, MMS has an affirmative duty to assess the impacts and effects flowing from “reasonably foreseeable” actions or activities on the Cook Inlet Outer Continental Shelf (OCS). *See, e.g., Id.* at 1502.16.

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Yet MMS has arbitrarily and impermissibly constrained its DEIS analysis to a single development scenario. Specifically, MMS’s entire NEPA analysis rests on a development scenario which includes only one offshore oil and/or gas platform, and one transportation pipeline. Yet MMS cannot reasonably foreclose additional exploration, development and production activities on the OCS in Cook Inlet, and it is reasonably foreseeable this region will experience greater industry interest and activity than presented by MMS in the DEIS.

Scoping comments collected by MMS for this DEIS envision broad development of the Cook Inlet OCS (see DEIS, Appendix F), and cannot be reasonably interpreted to suggest a single platform/pipeline scenario. In the NEPA process for Lease Sale 149 in Lower Cook Inlet, MMS rightly assessed a range of development scenarios, analyzing the environmental consequences in the event of low industry interest in the proposed lease sale area, as well as the effects likely to flow from high industry interest. As a result, the lease sale 149 EIS rightly reviewed a range of development activities, and correctly analyzed a range of environmental consequences.¹ For proposed lease sales 191 and 199, however, MMS has confined its review to only one development scenario, without adequately distinguishing its analyses for lease sale 149 *vis.* lease sales 191 and 199. Without an analysis of reasonably foreseeable development of the Cook Inlet OCS, commentor and the public cannot know the true implications of lease sales 191 and 199.

2. Inadequate Alternatives Analysis. The alternatives to the proposed action are not meaningful and distinct alternatives. According to the Council on Environmental Quality implementing regulations, the NEPA alternatives analysis is “the heart of the environmental impact statement.” 40 CFR § 1502.14. MMS must “[r]igorously explore and objectively evaluate all reasonable alternatives.” *Id.* Yet as discussed in the Executive Summary, Alternatives III and IV represent a Lost Opportunity for resource development of only 1% each (DEIS p. ES-7), surely a negligible amount when the error inherent in these estimates is included. These two alternatives are not meaningful and distinct from the proposed action since they are highly unlikely to affect the outcome of the lease sale or the resources impacted. Because the deferral alternatives are barely different from the proposed action, the draft EIS fails to evaluate a reasonable range of alternatives as NEPA requires.

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Accordingly, MMS must engage in a more rigorous and objective alternatives analysis, which should include the following alternatives:

¹ For example, in the Cook Inlet Oil & Gas Lease Sale 149 EIS, MMS estimated a risk of a large oil spill at 27% for a low range development scenario, and at 72% for a high end development scenario.

- a. Inclusion in the preferred alternative of one or more “high-case” scenarios that cover a much larger oil and gas find than the single-platform scenario contained in the draft EIS. Such scenarios should include export of lease sale area crude oil which would entail additional tankers in Cook Inlet, a waterway where the U.S. Coast Guard does not require tug escorts and assists to be used.
- b. An alternative which considers renewable energy, particularly wind and tidal power, to meet the region’s energy needs.
- c. An alternative that deletes additional environmentally-sensitive, but fossil fuel-containing, areas from the lease sale, including Kennedy and Stevenson entrances, and the areas around Tuxedni Bay, Kamishak Bay (which includes the mouth of the McNeil River and commercial scallop beds), and Katmai and Lake Clark National Parks.²
- d. An alternative that holds a lease sale in 2004 *or* in 2006, but not both. This option can be tied to an eventual decision on whether or not a natural gas pipeline from the North Slope will be built with natural gas accessible to Cook Inlet users; if this does occur, the need for increased natural gas supplies in the region disappears.
- e. An alternative that allows lease sales only for those areas where drilling can be performed from onshore, i.e., directional drilling, to ensure better management of drilling fluids and wastes (including produced water).

Alternatives one through three are discussed in more detail below, however, all these proposed alternatives and their impacts should be analyzed in the final EIS.³

Reasonable Alternative 1 – Realistic Proposed Alternative with High End Development Scenario. Unlike its predecessor EIS for Oil and Gas Lease Sale 149, the draft EIS does not analyze the impacts should greater quantities of oil and gas be discovered than the expected 140 million barrels and the 190 billion cubic feet of natural gas, or should actual exploration and development exceed the minimal, single platform scenario predicted by MMS. The draft EIS approach thus minimizes the possibility of likely impacts. This is a substantial deficiency of the document which only can be remedied by examining “high-case” scenarios. The deficiency is particularly egregious given the current high price of oil (over \$30/barrel) and the fact that MMS’ own analysis shows that at \$20/barrel, there would be 500 million barrels extracted (p. B-5) in the mean case, compared to the 140 million barrels analyzed in the draft EIS. Likewise, with natural gas prices in 2002 over \$2/million cubic feet and rising,⁴ there likely would be 600 million cubic feet or more extracted (Figure B-10) in the mean case, rather than the 190 million cubic feet analyzed in the draft EIS.

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The draft EIS does not include *any* analysis of tanker transportation issues on the presumption that there will not be any new tanker transport from these lease sales. Yet Stipulation No. 4 -

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² Commentors note for the record that Stipulation No. 2 – Protection of Biological Resources, is so riddled with discretionary language as to render it virtually meaningless for protecting biological resources in the proposed lease area. If this stipulation is meant to assure public resource owners that MMS will adequately protect living resources of the Cook Inlet OCS, it utterly fails, and must be re-written to include non-discretionary language mandating studies and reviews prior to any exploratory activities. This stipulation violates the Outer Continental Shelf Lands Act’s requirements to protect biological resources.

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³ Even if MMS decides these alternatives do not warrant additional consideration, the issues raised in this discussion remain relevant to the EIS process generally and must be considered.

⁴ See

Transportation of Hydrocarbons, lays out three conditions which must be met in order to mandate product transport via pipeline, and at least two of these conditions hinge on industry action. As a result, MMS cannot summarily conclude for the purposes of the DEIS that tanker traffic will not increase, because, for example, it cannot presume appropriate rights-of-way will be secured, nor that pipeline placement will be "technologically feasible and environmentally preferable." DEIS p. II-13. Should MMS's faulty presumption prove to be inaccurate - either because lease sales on the west side of Cook Inlet result in new tanker traffic from the Drift River facility resulting from a new offshore pipeline to the west side of Cook Inlet, or because greater quantities of oil are discovered than predicted in the draft EIS, requiring crude export from Southcentral Alaska - one of the greatest potential impacts of the lease sales will have been entirely ignored by MMS in the DEIS.

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Reasonable Alternative 2-Renewable Energy Alternative. Section IV.B.2 on the no-action alternative, and the draft EIS in general, does not contain any analysis of the possibility of utilizing renewable energy alternatives for Southcentral Alaska such as wind and tidal power. This section dismisses these reasonable and cleaner alternatives to oil and natural gas for power generation, stating that the "costs and reliability of these alternative sources make them less viable than oil and gas resources." (p. IV-187) Yet MMS bases this conclusion on a 43-page report written in 1996,⁵ which contains only one page on wind power, one paragraph on tidal power, and no Cook Inlet region-specific analysis.

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In reality, wind power has made great strides in becoming cost-effective in recent years compared to fossil fuel alternatives. Not only are onshore wind power systems in place in numerous states, offshore wind power generation is now under development in the northeastern part of the country.⁶ Chugach Electric Association, a major power provider in Southcentral Alaska, even has a wind power specialist on staff looking at the possibility of wind power providing electricity for the region in the near future.⁷ Additionally, a recent U.S. Department of Energy Wind Energy Resource Map⁸ shows that a good portion of coastal Alaska, including a substantial portion of the Cook Inlet watershed, is economical for wind turbines. It's notable that the two largest power plants in the state, the Beluga and the George M. Sullivan plants, which both are located in the Cook Inlet watershed and supply the Anchorage area, are powered by natural gas and petroleum;⁹ development of wind power turbines in the Cook Inlet region thus can directly substitute for a substantial percentage of the region's fossil fuel power generation, thus mitigating the need for additional oil and natural gas drilling.¹⁰

⁵ *Energy Alternatives and the Environment*, Minerals Management Service, MMS 96-0049, revised August 1996.

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⁶ Letter from Richard M. Kessel, Chairman, Long Island Power Authority, to the New York Times, printed January 16, 2003 (<http://www.nytimes.com/2003/01/16/opinion/1.16LIPA.html>). This letter should be included in the EIS record.

⁷ Steve Gilbert, Chugach Electric Association, Inc., personal communication with Lois Epstein, Cook Inlet Keeper, February 7, 2003.

⁸ http://www.eere.energy.gov/wind/we_map.html. This map should be included in the EIS record.

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⁹ See http://www.eia.doc.gov/cneaf/electricity/st_profiles/alaska/ak.html#t1. Note that the Anchorage 1, Bernice Lake, and the International power plants also are located in the Cook Inlet watershed and powered by natural gas and petroleum, meaning that 5 of the top 10 power plants in the state are in the Cook Inlet watershed and powered by natural gas and petroleum.

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¹⁰ Commentors note the DEIS fails completely to properly analyze the reasonably foreseeable effects of fossil fuel combustion in local and regional facilities and generators which will consume Cook Inlet OCS resources. For example, OCS oil and gas may reasonably affect emissions from the Tesoro Refinery, the Conoco Phillips LNG plant, the Agrium Petrochemical Facility, the Beluga Power Plant and other facilities which will burn or process Cook Inlet Keeper

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Similarly, the draft EIS fails to discuss the fuel savings attainable through increased use of gasoline and diesel hybrid vehicles, an important and growing phenomenon in recent years and for the near future. Likewise, the draft EIS makes no mention, and performs no analysis, on the reduced risk of terrorism impacts by increasing our nation's reliance on decentralized, smaller-scale renewable power generation such as wind power compared to centralized, fossil fuel extraction, transport, and storage infrastructure. The final EIS needs to discuss the increased security attainable through decentralized, renewable power generation, as a side benefit to the decreased environmental impacts.

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Reasonable Alternative 3-Sensitive Habitats Alternative (No Rigs Zones). While MMS is considering withdrawing from its lease sale certain areas with little oil and gas development potential near the southern portion of the Kenai Peninsula (i.e. Alternatives III and IV), Cook Inlet Keeper advocates designating several additional, environmentally-sensitive areas as "no-rig zones," including Kennedy and Stevenson entrances, and the areas around Tuxedni Bay, Kamishak Bay (which includes the mouth of the McNeil River and commercial scallop beds), and Katmai and Lake Clark National Parks, where surface entry and infrastructure would be prohibited. In fact, one of the most prudent alternatives to protect habitat and living resources MMS could develop would be the final sale boundary for Lease Sale 149, which offered only those tracts north of Anchor Point. Keeper supports the withdrawal of the areas contained in Alternatives III and IV, and urges MMS to initiate a credible process to identify additional environmentally sensitive areas, especially public lands and resources, which require similar protection.¹¹

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B. Spill Volume Analysis

1. Large Oil Spill Analysis. The "large oil spill" quantity used in the draft EIS to determine environmental impacts represents the historic median pipeline release size rather than the historic average pipeline release size for the years 1985-1999. By utilizing the median size release, MMS arbitrarily and unnecessarily minimizes the impact of a large spill, since the release data in Anderson and LaBelle (2000) show that the average size for an OCS pipeline spill greater than 1,000 bbls (6,700 bbl) is higher than the median size (4,600 bbl) by 46%. The 1995 final EIS for Lease Sale 149, in contrast, used average spill size to analyze large spill impacts (p. IV.A-5). The final EIS should use the average size for an OCS pipeline spill to assess large oil spill impacts. In addition, to properly communicate the inherent risks of subsea oil transportation, MMS must include in the final EIS a sensitivity analysis of spill impacts using different size spills, so the public can understand the effect spill volume has on predicted impacts.

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2. Analysis of Spill Impacts. In its impact analyses in the final EIS, MMS needs to strengthen discussion on sublethal and chronic effects from oil and gas activities, including

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Cook Inlet OCS products. Air pollution, atmospheric deposition, and water quality and habitat impacts are but a few of the effects likely to flow from these connected actions, which will clearly produce impacts which must be analyzed for cumulative and other effects in the EIS process for lease sales 191 and 199.

¹¹ This requirement for additional efforts to identify and protect sensitive habitats is engrained in the Tri-Borough Agreement between the Lake Peninsula, Kenai and Kodiak Borough governments, and in deference to those governmental bodies and their local sovereignty, the DEIS should include additional binding requirements to protect habitat.

mercury discharges, as discussed below. Additionally, wherever possible and appropriate, MMS should utilize the many studies analyzing the effects of the *Exxon Valdez* spill, to supplement its modeling of impacts.

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C. *EVOS & Other Science*

The DEIS considers oil in the environment almost exclusively as the result of a spill or other episodic event. And while the DEIS confidently presumes no discharge of produced waters or production drilling wastes will occur, nothing in the DEIS or MMS rules mandates such an outcome.¹² Accordingly, the EIS must consider – for both episodic spill events and recurring chronic discharges – the implications of existing scientific research on living resources in and around the proposed sale area.

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1. EVOS Science. The DEIS completely fails to consider and analyze important research by federal agency scientists stemming from the *Exxon Valdez* Oil Spill. Specifically, research conducted by the National Marine Fisheries Service (NMFS) and others reveals that polycyclic aromatic hydrocarbons (PAH) - which are components of crude oil, produced water and drilling wastes – are significantly more toxic to pink salmon and other pelagic and benthic species than previously thought.¹³ Importantly, this research reveals that chronic toxicity pathways differ significantly from traditional acute toxicity analyses, and as a result, population-level effects can occur to fish, shellfish and other species at PAH levels considered insignificant in the DEIS by MMS.¹⁴

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¹² In fact, MMS completely defers the issue of toxic exploration and production discharges to the EPA. Yet EPA Effluent Guidelines for the oil and gas point source subcategory in offshore waters allows such discharges, and as a result, there is no binding commitment that industry will not continue to dump toxics into sensitive and productive marine systems, as is the norm in Upper Cook Inlet operations.

¹³ See, e.g., Rice, S. D., R. E. Thomas, M.G. Carls, R. A. Heintz, A. C. Wertheimer, M. L. Murphy, J. W. Short, A. Moles. 2001. Impacts to Pink Salmon following the Exxon Valdez Oil Spill: Persistence, Toxicity, Sensitivity, and Controversy. *Rev. Fish. Sci.* 9(3):165-211; Heintz, R. M. Wiedmer, and S. Rice. 1996. Laboratory evidence for short and long-term damage to pink salmon incubating in oiled gravel. Pg. 142-146 in *Proceedings of the 17th Northeast Pacific Pink and Chum Salmon Workshop*, March 1-3, 1995, Bellingham, WA.; Heintz, R. A., S. Rice, and B. Bue. 1996. Field and laboratory evidence for reduced fitness in pink salmon that incubate in oiled gravel. Pg. 91-94 In: *Proceedings of Contaminant Effects on Fish Symposium, International Congress on the Biology of Fishes*. San Francisco State Univ. July, 1996.

¹⁴ For a good overview of this paradigm shift in ecotoxicology, see *Exxon Valdez Oil Spill (EVOS) Legacy: Shifting Paradigms in Oil Ecotoxicology*. Ott, R.; Peterson, C.; and Rice, S., located at <http://www.alaskaforum.org> and attached herein as Appendix A. The article cites the following studies which pertain to, or are relevant to, cumulative effects analysis for proposed lease sales 191 and 199, and which must be analyzed and incorporated by MMS in the Final EIS: Rice, S.D., Thomas, R.E., Carls, M.G., Heintz, R.A., Wertheimer, A.C., Murphy, M.L., Short, J.W., and A. Moles. 2001. Impacts to pink salmon following the Exxon Valdez oil spill: persistence, toxicity, sensitivity, and controversy. *Rev. Fish. Sci.* 9: 165-211. 2. Rice, S.D., Moles, A., Karinen, J.F., Korn, S., Carls, M.G., Broderson, C.C., Garrett, J.A., and M.M. Babcock. 1984. *Effects of petroleum hydrocarbons on Alaskan aquatic organisms: a comprehensive review of all oil-effects research on Alaskan fish and invertebrates conducted by the Auke Bay Laboratory, 1970-1981*. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS F/NWC-67. 3. Peterson, C.H. 2001. The "Exxon Valdez" oil spill in Alaska: Acute, indirect and chronic effects on the ecosystem. *Adv. Mar. Biol.* 39: 1-103. 4. Wolfe, D.A., Hameedi, M.J., Galt, J.A., Watabayashi, G., Short, J., O'Clair, C., Rice, S., Michel, J., Payne, J.R., Braddock, J., Hanna, S., and V. Salel. 1994. The fate of the oil spilled from the Exxon Valdez. *Environ. Sci. Tech.* 28: 561A-568A. 5. Marty, G.D., Short, J.W., Dambach, D.M., Willits, N.H., Heintz, R.A., Rice, S.D., Stegeman, J.J., and D.E. Hinton. 1997. Ascites, premature emergence, increased gonadal cell apoptosis, and cytochrome P4501A induction in Cook Inlet Keeper

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2. Produced Water & Fish. The DEIS fails to consider research from Norway's Institute of Marine Research which shows that other constituents of produced water (i.e. alkylphenols) have estrogenic effects on cod fish.¹⁵ Specifically, this research found that male cod take on female characteristics, and female fish produce smaller eggs and spawn earlier than normal, when exposed to alkylated phenols, which occur naturally in underground oil reservoirs and are released during spills and production discharges. Importantly, this research shows the endocrine systems of cod are upset by amounts of alkylphenols as low as 0.02 parts per million. Again, the DEIS impermissibly fails to consider the sublethal, chronic effects from spills and regular discharges.

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3. EPA Contaminants Study

The DEIS fails to adequately analyze the EPA study on subsistence resources around the villages of Port Graham, Nanwalek, Seldovia and Tyonek.¹⁶ MMS makes no attempt to incorporate the

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pink salmon larvae continuously exposed to oil-contaminated gravel during development. *Can. J. Zool.* 75: 989-1007. 6. Heintz, R.A., Short, J.W., and S.D. Rice. 1999. Sensitivity of fish embryos to weathered crude oil: Part II. Incubating downstream from weathered Exxon Valdez crude oil caused increased mortality of pink salmon (*Oncorhynchus gorbuscha*) embryos. *Environ. Tox. Chem.* 18: 494-503. 7. Murphy, M.L., Heintz, R.A., Short, J.W., Larsen, M.L., and S.D. Rice. 1999. Recovery of pink salmon spawning areas after the Exxon Valdez oil spill. *Trans. Am. Fish. Soc.* 128: 909-918. 8. Bue, B.G., Sharr, S., and J.E. Seeb. 1998. Evidence of damage to pink salmon populations inhabiting Prince William Sound, Alaska, two generations after the Exxon Valdez oil spill. *Trans. Am. Fish. Soc.* 127: 35-43. 9. Wertheimer, A.C., and A.G. Celewicz. 1996. Abundance and growth of juvenile pink salmon in oiled and non-oiled locations of western Prince William Sound after the Exxon Valdez oil spill. *Am. Fish. Soc. Symp.* 18: 518-532. 10. Willette, M. 1996. Impacts of the Exxon Valdez oil spill on the migration, growth, and survival of juvenile pink salmon in Prince William Sound. *Am. Fish. Soc. Symp.* 18: 533-550. 11. Willette, M., Cooney, R.F., and K. Hyer. 2000. Predator foraging-mode shifts affecting mortality of juvenile fishes during the subarctic spring bloom. *Can. J. Fish. Aquat. Sci.* 56: 364-376. 12. Garrott, R.A., Eberhardt, L.L., and D.M. Burn. 1993. Mortality of sea otters in Prince William Sound following the Exxon Valdez oil spill. *Mar. Mamm. Sci.* 9: 343-359. 13. Piatt, J.F., Lensink, C.J., Butler, W., Kendziorek, M., and D.R. Nysewander. 1990. Immediate impact of the Exxon Valdez oil spill on marine birds. *Auk* 107: 387-397. 14. Frost, K.J., Lowry, L.F., Sinclair, E., Ver Hoef, J., and D. McAllister. 1994. Impacts on distribution, abundance, and productivity of harbor seals. In *Marine mammals and the Exxon Valdez* (T.R. Loughlin, ed.), pp. 97-118. Academic Press, San Diego, CA. 15. Matkin, C.O., Ellis, G.M., Dahlheim, M.E., and J. Zeh. 1994. Status of killer whales in Prince William Sound, 1985-1992. In *Marine mammals and the Exxon Valdez* (T.R. Loughlin, ed.), pp. 141-162. Academic Press, San Diego, CA. 16. Spraker, T.R., Lowry, L.F., and K.J. Frost. 1994. Gross necropsy and histopathological lesions found in harbor seals. In *Marine mammals and the Exxon Valdez* (T.R. Loughlin, ed.), pp. 281-311. Academic Press, San Diego, CA. 17. Matkin, C.O., Scheel, D., Ellis, G., Barrett-Leonard, L., and E. Saulitis. 1997. Comprehensive killer whale investigation. *Exxon Valdez Oil Spill Restoration Project Annual Report (Restoration Project 96012A-1)*, North Gulf Oceanic Society, Homer, AK. 18. Monson, D.H., Doak, D.F., Ballachey, B.E., Johnson, A.M., and J.L. Bodkin. 2000. Long-term impacts of the Exxon Valdez oil spill on sea otters assessed through age-dependent mortality patterns. *Proc. Natl. Acad. USA* 97: 6562-6567.

¹⁵ Hormonal effects of C4-C7 alkylphenols on cod (*Gadus morhua*), Meier, S.; Andersen, T.E.; Hasselberg, L.; Kjesbu, O.S.; Klungsoyr, J. and Asbjorn Svardal, Institute of Marine Research, P.O. Box 1870, N-5817 Bergen, Norway (2002), located at:

http://www.imr.no/Dokumentarkiv.php?SessionId=2&i_lovedsideValgt=1&startPunkt=21

¹⁶ It should be noted that this study resulted from litigation by Port Graham, Nanwalek and Cook Inlet Keeper in 1997, under the Alaska Coastal Management Act, and required the State of Alaska to study oil and gas impacts to Cook Inlet Keeper

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data into a meaningful analysis of subsistence resource health, nor does it try to understand potential implications on Native Alaskans under realistic subsistence consumption regimes. Instead, MMS relies on entirely on a preamble to the draft study which erroneously (and without substantiation) concludes the data do not reveal concerns. Significantly, MMS has refused Keeper's requests to conduct necessary sampling to validate or disprove the EPA study, and instead, embarked on a ludicrous study on sediment quality hundreds of miles away from known effluent points.

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The data from this study indicate that oil and gas activities may indeed be contributing to contaminant concentrations in important traditional marine foods. Forty-three of the 161 chemicals measured in the study have been found in waste streams of the oil and gas industry. Of these, many were detected with existing human health toxicity values, including arsenic, barium, cadmium, chromium, mercury, selenium, fluorene, phenanthrene, naphthalene, and 2-methylnaphthalene. Additionally, EPA identified scabass, snails, chiton and octopus as containing toxics above "levels of concern" for subsistence consumers. Yet MMS makes no attempt to analyze this data in the context of its cumulative effects analysis or elsewhere. Native Village members increasingly feel disenfranchised by MMS's refusal to honestly and openly discuss and analyze this data, and to pursue research which will help protect subsistence cultures.

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Table 1 (below) illustrates data from the EPA study, with footnotes denoting the number of meals per week using (conservative) EPA subsistence consumption figures and risk factors. This information must be thoroughly analyzed in the cumulative effects analysis to understand the reasonably foreseeable effects on subsistence resources and users for past, current and anticipated activities.

Table 1. Contaminant levels in select species in Kachemak Bay and Cook Inlet with Concentrations Next to Each Chemical (EPA, 1998).

Species Chemical	King Salmon	Chum Salmon	Sockeye Salmon	Sea Bass	Halibut	Cod
PCB's (ng/kg)	1,243	2,733		4,961 ¹⁷		
Chlordane (ng/kg)	2,749	1,425	1,884	6,378	3,121	603.7
DDE (ng/kg)	5,186	1,534	3,062	5,990	2,528	1,297.0
DDT (ng/kg)	1,549	849	1,630	632	675	649.0
Hexochlorobenzene (ng/kg)	1,786	697	1,095	629	1,265	624.3
Transnonachlor	1,391	893	729.4	5,980	1,175	267.7
Total all pesticides (ng/kg)	16,721	5,941	11,707	21,366	10,890	4,376.2
Dioxin/furans (pg/kg)	4.75					
Total PAH's (µg/kg)	166.54	40.46	30.62	45.86	28	
Methylmercury (µg/kg)	37.30		14.80	74.50	32.50 ¹⁸	38.30 ¹⁹
Barium (µg/kg)	44	802	220	593.8	89.3	442.7
Chromium (µg/kg)	128.5	417	1,519.3 ²⁰	385.3	226.1	543

subsistence resources. The state deferred, due allegedly to funding limitations, to EPA, yet EPA failed to design a study which could show links between oil and gas activities and subsistence resource health. Accordingly, the current NPDES permit for Upper Cook Inlet remains in violation of the ACMP, and any new or revised NPDES will have to show no serious impacts to subsistence resources.

¹⁷ 9 meals per month (EPA suggested maximum dietary limitation from original data report based on 8 oz meals.)

¹⁸ 28 meals per month

¹⁹ 24 meals per month

Inorganic Arsenic				10		
Organic Arsenic (O.A.)					1,289	4,190
Total trace metals w/o O A	680.2	1,831	2,402	1,702	855	1,592

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Chemical	Species	Butter Clam	Octopus	Snail	Blue Mussel	Chiton	Mussel
Endrin (ng/kg)						183.3	
Hexachlorobenzene (ng/kg)				233.3			181
Total all pesticides (ng/kg)				305.97		339.14	181
Dioxin/furans (pg/kg)							
Total PAH's (µg/kg)		10.45	3.1	23.02	7.09	7.72	
Methylmercury (µg/kg)							
Barium (µg/kg)		694	202	301	352.7	948.6	
Cadmium (µg/kg)			1,231	4,493²¹	465.3²²	769.1²³	
Chromium (µg/kg)		2,230²⁴			187.7	612.0	
Inorganic Arsenic (µg/kg)				41			
Organic Arsenic (µg/kg)		3,660	2,740	2,879	1,195.0	1,690.0	
Total trace metals w/o O. A.		3,350	1,948	5,740	1,312.8	2,487.9	

4. Other Research. Additionally, MMS failed to consider important new information regarding the persistence of oil in the environment, which has been catalogued extensively by NMFS scientists working in Prince William Sound and by others.²⁵ The DEIS also failed to consider important information relevant to the proposed sales, including the effects of water-based drilling muds and cuttings on living resources,²⁶ and other documented effects from offshore oil and gas production.²⁷ Furthermore, the DEIS fails to adequately consider the effects of heightened photo-toxicity from weathered oil on benthic, intertidal and other habitats and systems, which has been studied in Prince William Sound and elsewhere. Finally, MMS has failed to analyze the chronic effects on benthic communities from the use of dispersants in spill response scenarios.

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²⁰ 30 meals per month

²¹ 2 meals per month

²² 20 meals per month

²³ 12 meals per month

²⁴ 21 meals per month

²⁵ See, e.g., Reddy, C. M., T. I. Eglinton, A. Hounshell, H. K. White, L. Xu, R. B. Gaines, G. S. Frysinger. 2002. The West Falmouth Oil Spill after Thirty Years: The Persistence of Petroleum Hydrocarbons in Marsh Sediments. *Environ. Sci. Technol.* 36:4754-4760; see also <http://www.oilspill.state.ak.us> for information on enhanced photo enhanced toxicity, oil persistence; see also <http://www.pwsrca.org/protection.html> for studies relating to photo enhanced toxicity and dispersants.

²⁶ Muddied Waters: A Survey of Offshore Oilfield Drilling Wastes and Disposal Techniques to Reduce the Ecological Impact of Sea Dumping. Wills, J.; for *Ekologicheskaya Vahkta Sakhalina (Sakhalin Environment Watch)* (2000). available at: <http://www.offshore-environment.com/drillingwasteconclusion.html>.

²⁷ Environmental impact of the offshore oil and gas industry. Patin, S. (Translator: Elena Cascio) (2002), available at: <http://www.offshore-environment.com/synopsis.html>. See also "Mercury contamination at some rigs on par with Superfund sites," Raines, B., *Mobile Register*, Apr. 14, 2002, and the studies referenced therein.

C. Government-to-Government Consultations

Pursuant to Executive Order 13175 and the Executive Memorandum of April 29, 1994, on Government-to-Government Relations with Native American Tribal Governments, MMS has an affirmative duty to engage in "regular" and "meaningful" consultations with recognized federal tribes potentially affected by leasing and subsequent activities on the Cook Inlet OCS. Furthermore, it is the policy of the United States to "recognize[] the right of Indian tribes to self-government and [the U.S. government] supports tribal sovereignty and self-determination." E.O. 13175.

The DEIS concedes that subsistence resources in Cook Inlet could be impacted substantially by oil and gas exploration and production activities, yet MMS has not established government-to-government consultations with numerous tribes whose resources could be affected, including the Knik, Salmatoff, Kenaitze, Chickaloon, and Eklutna Tribes. For example, these tribes rely on salmon subsistence resources in the proposed sale area, and in light of the EVOS science discussed herein as well as information discussed in the DEIS, MMS's leasing program could have substantial, population-level effects on subsistence resources throughout the Cook Inlet region. Yet these Tribes have had little or no substantive dialog with MMS on lease sales 191 and 199.

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Furthermore, for those tribes with which MMS has met, the meetings have come nowhere near the "regular and meaningful" standard established in the E.O. For example, MMS spent approximately 2 hours in the Native Village of Nanwalek, with little opportunity for substantive exchanges on complex issues such as revenue sharing, zero discharge and other issues. In fact, only one person in Nanwalek even understood why MMS wanted to meet with them, and then no one in the Village had read – or could understand - the two volume DEIS.²⁸ Commentor understands MMS has worked with at least one Tribe to establish a framework for consultations, but that framework should have been completed prior to the lease sale 191 and 199 EIS process. Until such a regular and meaningful framework has been established between the various impacted Tribes around Cook Inlet and the MMS, then MMS will continue to violate federal law.

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Additionally, pursuant to the E.O., MMS has made no effort to compensate the Tribes for their direct costs accrued as a result of this leasing program. Although the MMS sets a significance threshold at 1-2 years for lost subsistence resources in the DEIS, there is no concomitant commitment to compensate the Tribes for these losses should a spill or regular discharges adversely effect subsistence resources. The DEIS must therefore identify a discrete mechanism whereby affected Tribes can obtain financial recourse for any subsistence resource or habitat impacts flowing from leasing and subsequent activities on the Cook Inlet OCS.

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Additionally, the DEIS section on effects to subsistence resources is, like much of the DEIS, a superficial, impermissibly vague effort pointed toward a predetermined outcome of little or no impacts. For example, MMS claims the seismic impacts to fisheries resources are "not estimated

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²⁸ In fact, Mr. Goll stated at the Nanwalek meeting on January 30, 2003, that he "did not expect anyone to actually read" the DEIS. So with that expectation coming from the agency pressing a proposed alternative which would open 2.5 million acres of offshore subsistence habitat to heavy industry, it is clear MMS has a heightened duty to communicate the proposal, and prompt a more meaningful dialog, pursuant to the E.O.

to be measurable.” Yet subsea air gun and other acoustic disturbances would certainly have a measurable effect on surrounding fisheries resources; yet MMS attempts to write them off with no supporting science or documentation. Similarly, MMS impermissibly presumes no spill will occur during exploratory activities, despite the risks of blow-outs and other episodic events. In short, MMS has failed to meet its NEPA obligations with regard to reasonably foreseeable cumulative effects on subsistence resources, and it will engender no confidence in the Native community until it does so in a forthright and meaningful way.

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D. Significance Thresholds

The significance thresholds identified at DEIS pp. IV-2-3 are impermissibly high in many cases. NEPA regulations define significance to include both the context and the intensity of the proposed action. 40 CFR § 1508.27. Context refers to the affected region, affected interests and the locality. *Id.* Intensity refers to the severity of the reasonably foreseeable impacts, and includes, *inter alia*, whether the action threatens a violation of state law, and the degree to which the effects on the environment are highly uncertain or involve unique or unknown risks.

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1. Terrestrial Mammals and Fisheries. The DEIS sets the threshold at three generations for determining significance, and even if the definition of “generation” hinges on sexual maturity, the DEIS permits impacts which are significant in both context and intensity. For example, Tanner, King and Dungeness crab harvests are all restricted through state regulation in Lower Cook Inlet pursuant to state fisheries management plans, and presuming an average age of sexual maturity of 5-8 years,²⁹ 10-16 year impacts to shellfish resources would not be deemed “significant” under the DEIS. In light of the considerable attention paid to commercial and personal use shellfish populations in Lower Cook Inlet, and the state rules protecting them, this is clearly an arbitrary implementation of the NEPA regulations. Similarly, brown bears reach sexual maturity at 4.5-7 years,³⁰ and the DEIS would permit population level effects between 9 and 14 years, which, again, violates NEPA rules for “significance.”

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2. Subsistence Harvest Patterns & Environmental Justice. The DEIS sets a significance threshold for subsistence resources at 1-2 years, and for the purposes of this comment, the outer range of two years shall apply. On its face, two years is clearly a significant length of time -- when considering context and intensity - to deny Native Villagers access to one or more important subsistence resources. Native cultures reliant on regular access to subsistence resources cannot be expected to endure such prolonged gaps in subsistence harvests with their cultures and traditions intact. Native traditional knowledge shows marked effects from the 1989 Exxon spill in Kachemak Bay starting days after the spill and enduring today,³¹ and MMS estimates show as much or more oil could hit Native subsistence resources under the preferred alternative. Thus, the chronic disruptions cited in the DEIS are arbitrary and entirely too conservative. Additionally, while MMS portends to analyze risks from spills, it has made no effort to quantify or understand sublethal, population level effects to subsistence resources, which can be done using the EVOS science cited herein.

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²⁹ Personal communication with Richard Gustafson, Alaska Department of Fish & Game, February 11, 2003.

³⁰ *See, e.g.*, <http://www.bears.org/animals/brown>

³¹ Personal communication with Chief Pat Norman, Native Village of Port Graham, January 28, 2003.

3. Commercial and Sports Fisheries. The DEIS allows a 20% decrease in commercial fish resources for three years, or a 60% decrease in one year to determine significance, with similar reductions allowed for sports fisheries. These designations are clearly arbitrary in light of the important socioeconomic roles which sport and commercial fishing play in Lower Cook Inlet, and are particularly shortsighted in light of potential population level fisheries effects which could flow from chronic and acute oil inputs over the course of oil and gas activities on the Cook Inlet OCS. In both context and intensity, these presumptions violate NEPA.

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D. Lease Stipulations

As a general matter, the Information to Lessees (ITL) have no binding effect on lessees, and therefore cannot be expected to leverage compliance with environmental and other standards, rules and laws from prospective operators on the OCS. Because stipulations carry the enforceability of a contract provision, and because MMS has a duty under the Outer Continental Shelf Lands Act, 43 USC § 1301 et seq. to balance development with resource protection, the only way MMS can assure this balance is struck is through better and more numerous stipulations.

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1. Zero Discharge. According to Section II.B.3.b(2) which addresses oil and gas production, “[D]rilling fluid wastes will be reinjected. Muds and cuttings will be processed and injected into wells or barged to onshore disposal sites.” If true, this would be the most environmentally-friendly way to manage drilling fluids and wastes (including produced water) which contain toxic constituents such as heavy metals (e.g., lead, cadmium, and mercury), hydrocarbons, and various toxic drilling additives. Unfortunately, there are no U.S. Environmental Protection Agency (EPA) requirements that ensure such management. So, without a stipulation of its own placed on lessees, anticipating such management of production wastes is fanciful on MMS’ part. MMS has broad authorities and responsibilities under the Outer Continental Shelf Lands Act, 43 USC § 1301 et seq. to oversee and manage oil and gas activities on the OCS, and deferring to another agency, EPA, in an area where MMS already has the authority to act simply adds uncertainty to the permitting process. Industry repeatedly has called for increased predictability and permit streamlining in oil and gas exploration and development, so it makes little sense to promote contentious permitting proceedings with EPA when the issue can and should be addressed up front through an MMS lease stipulation.

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As for *exploration* fluids and wastes, MMS acknowledges in Section II.B.3.a(2) that EPA allows disposal of these materials into the marine environment; MMS also needs to stipulate that lessees must reinject or barge to onshore disposal sites all *exploration* fluids and wastes, which have a composition similar to production fluids and wastes. Discharges of drilling fluids and wastes are an ongoing concern to subsistence users of Cook Inlet’s resources, as well as to commercial and sport fishers, because of their known toxic constituents.

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As shown on Table IV.B.4, should MMS not require zero-discharge from Lease Sales 191 and 199 for both exploration and production activities, anthropogenic inputs into Cook Inlet would increase by at least:

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- 39% for arsenic (0.213 tonnes/year),
- 28% for cadmium (0.15 tonnes/year), and
- 10% for mercury (0.0035 tonnes/year).

Note that lead data are not included in this table and need to be included in the final EIS. Additionally, Keeper requests that MMS also analyze in the final EIS the discharges to Cook Inlet of radioactive materials from oil and gas activities versus other anthropogenic discharges into the Inlet. Without such information, the EIS will be deficient. Cook Inlet Keeper also supports zero-discharge of the following platform-generated wastes: deck drainage, sanitary wastes, domestic wastes, boiler blowdown, and excess cement slurry, which, as demonstrated at the Redoubt Shoals Unit in Upper Cook Inlet, are technologically and economically practicable. Keeper requests that MMS develop a Stipulation which prevents such discharges offshore.

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2. Past Stipulations. Additionally, Cook Inlet Keeper requests that Stipulations 5 (Restriction on Multiple Operations), 6 (Seasonal Drilling Restriction), and 7 (No Surface Entry During Development and Production) from Lease Sale 149 be included in Lease Sales 191 and 199, and the DEIS will be deficient without adequate explanation why such stipulations have been removed from the previous leasing process. Keeper sees no reason why these Stipulations would not apply equally to the current lease sale as to the earlier lease sale, particularly as there is the possibility of a "high-case" drilling scenario, as discussed above.

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3. Geographic Response Strategies & Local Community-Based Spill Response. GRS's have proven to be practical and effective tools for efficiently utilizing limited spill response capabilities in and around particularly sensitive habitats. Additionally, locally trained and equipped spill responders, based in communities most at risk from spills, are the best way to ensure local knowledge and expertise will be utilized to protect local resources. Together, these two elements should be added as a stipulation for any proposed drilling activities on the OCS, with at least \$10,000 per drill site committed to such GRS's and local community based spill responder groups.

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4. Tug Escorts and Docking Assists. Cook Inlet's notoriously rough and icy waters present extreme navigational hazards to laden tankers, both during transit and during docking and undocking activities. The Glacier Bay spill, coupled with more recent incidents where ice damaged vessels and docks in Nikiski, clearly demonstrate the need to promote better spill prevention activities on the OCS. With state of the art vessel traffic systems and high powered tractor tug capabilities in Prince William Sound, the technology clearly exists to prevent more spills in Cook Inlet. The DEIS fails to adequately address these important issues, and MMS should include a stipulation requiring tractor tug escorts and assists for all tankers carrying OCS products. Furthermore, MMS must address the Tri Borough Agreement, which calls for no offshore tanker loading.

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E. Need

Though MMS presumes the need exists for Lease Sales 191 and 199, the draft EIS provides little evidence to support it. Section 1.A. ("Purpose, Need, and Description") discusses how for each successive lease sale in Lower Cook Inlet, fewer tracts were leased with only two tracts leased during the most recent sale in 1997. There is no discussion in the draft EIS of new geologic information collected by either industry or government, to warrant reopening this area to leasing, especially given the limited industry interest in recent lease sales in this area, and the historically strong local opposition to such development. As for Southcentral Alaska's need for additional

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natural gas resources in upcoming years, there is a strong possibility that this need can be met by either:

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1. The wind or tidal power alternatives discussed above, as well as conservation, hybrid vehicles, and other appropriate strategies to reduce fossil fuel consumption, and/or
2. Natural gas resources from the North Slope, should a transport mechanism become available in future years.

F. Miscellaneous Comments About Pipelines, Mercury, and Air Quality Issues

1. Pipelines. The draft EIS also is deficient in that it fails to analyze the impacts of the onshore oil pipeline that would need to be built to transport Lower Cook Inlet oil to the Tesoro refinery in Nikiski. As discussed in Cook Inlet Keeper's recent pipeline report, *Lurking Below: Oil and Gas Pipeline Problems in the Cook Inlet Watershed* which is cited in the draft EIS, there are numerous gaps and deficiencies in federal and state regulatory oversight of pipelines that inevitably result in unnecessarily high spill rates, including for onshore pipelines. These problems need to be acknowledged in the final EIS, and the likely spill rate for the onshore pipeline determined, as well as onshore pipeline spill consequences. As a separate action, MMS also should recommend changes to federal and state requirements to address the gaps and deficiencies in their respective land-based pipeline regulations -- such an action would give MMS more credibility with the public, rather than merely saying that those regulatory problems are not under its jurisdiction.

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2. Mercury. The EIS needs to include an extensive discussion on the connection between mercury, offshore drilling, and nearby biota. This issue was recognized by MMS last spring when it formed an independent advisory group to review data on mercury levels in water and sediments related to oil and gas activities in the Gulf of Mexico. A resulting report (which should be included in the EIS record) shows that the level of methylmercury near offshore platforms that discharge mercury appears to be correlated with "anoxic sediment[s] with sulfide-poor interstitial water and sufficient levels of biodegradable organic matter and nutrients."³² Just as it did in the Gulf of Mexico, MMS needs to initiate a study near existing Cook Inlet platforms to determine how widespread methylmercury-forming conditions are in Cook Inlet, including determining the methylmercury levels near those platforms.

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3. Air quality issues. In the draft EIS, MMS includes limited information on air quality, partly because there has been very little air quality monitoring in Alaska in general. Keeper believes there is a need for more extensive air quality monitoring in the parts of Cook Inlet potentially affected by industrial activities and in Anchorage. Before MMS can certify that these lease sales will not significantly impact air quality, MMS should collect additional air quality monitoring data in the affected region.

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Along these lines, Keeper believes that an analysis performed for Cook Inlet's Redoubt Shoals field in 1993-94 represents the only ozone monitoring data available for Southcentral Alaska. This monitoring found that ozone levels were nearly one-half the National Ambient Air Quality

³² *Concentrations of Total Mercury and Methylmercury in Sediment Adjacent to Offshore Drilling Sites in the Gulf of Mexico,* Final Report to the Synthetic Based Muds (SBM) Research Group, Trefry, John H., et al., Florida Institute of Technology, October 25, 2002, p. 3.

Standard when measured near Beluga on the west side of Cook Inlet. Given the remoteness of this location from industrial and transportation sources of air pollution, the age of the data, and the lack of an adequate safety margin with respect to ozone levels, this information shows the extreme lack of critical air quality monitoring data in the affected area.

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Additionally, given that Tuxedni Wilderness Area (now part of Alaska Maritime National Wildlife Refuge) has a PSD Class I classification (the most restrictive, with tighter ambient and visibility standards – see 18 AAC 50.020 and 50.025), it is particularly important that MMS or another governmental entity undertake air quality monitoring in the area around Tuxedni Bay. According to the April 12, 1995 comments submitted by the U.S. Fish and Wildlife Service (FWS) Air Quality Branch on Lease Sale 149, Tuxedni Wilderness Area (WA) is “a very important sea bird sanctuary.” These comments state that using the VISCREEN model “at a 10 km distance from the wilderness area using a 100-km background visual range...the potential exists for plume impacts at Tuxedni WA. Plume impacts would constitute an adverse impact to the Class I area and, therefore, would be unacceptable.” FWS goes on to state that it supports deletion of 52 blocks near Tuxedni WA to reduce impacts to this Class I area. The draft EIS discusses use of VISCREEN only for exploration projects located at least 12 km distance from the Tuxedni National Wilderness Area (p. IV-31) and concludes that the screening criteria would be exceeded less than 1% of the time. In areas less than 12 km from the Tuxedni National Wilderness Area, presumably the screening criteria would be exceeded on a more frequent basis. The final EIS needs to address this issue. If MMS verifies FWS findings, blocks that constitute an adverse impact to Tuxedni National Wilderness Area need to be withdrawn from the lease sale.

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Finally, the statement on p. III-33 that “[t]he 8-hour average concentration of carbon monoxide in Anchorage violated the ambient standard in 1996, but no violations have occurred since then” is untrue. In fact, Anchorage violated this standard once in 2001.³³

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G. Cumulative Effects

The DEIS cumulative analysis section fails to consider the research identified in section C, above. This relevant and important information sheds new understanding on chronic, long term population effects to episodic and regular oil discharges and contamination. Accordingly, the EIS must consider these studies and their findings when assessing cumulative effects.

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H. Beluga Whales

Recent population studies by the National Marine Fisheries Service (i.e. summer 2002) indicate the Cook Inlet beluga whale is not rebounding as expected after the cessation of Native subsistence takes. Only one effort (Becker) has ever been made to analyze tissue samples in Cook Inlet belugas, and that study examined smaller, younger whales which may not bioaccumulate contaminants to the degree larger, older whales do. Thus, in the 40+ years of industry activity in Cook Inlet, there has not been a single study undertaken to understand the effects of oil industry noise and toxic effluents on beluga behavior, mating, birthing or weaning

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³³ Available at <http://oaspub.epa.gov/airsdata/adaqs.monvals?geotype=st&geocode=AK&geoinfo=%3Fst%71:AK%7EAlaska&pol=CO&year=2001&fld=monid&fld=address&fld=city&fld=county&fld=stabbr&fld=regnrpp> 25.
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behavior. MMS has been requested to conduct such studies but has refused. Thus, while it is convenient for the DEIS to state information does not exist to gauge industry impacts to this cultural icon of Cook Inlet, the lack of information is an indictment of MMS's scientific research objectivity.

I. Unique Flora

The Cook Inlet Regional Citizens Advisory Council has or will submit comments with an Attachment A, entitled "Potential Relict Arctic Fauna on the west side of Cook Inlet." This document highlights significant findings which have largely escaped review in the DEIS, and which must be reviewed for cumulative, direct and indirect effects stemming from the proposed leasing and other oil and gas activities. Significantly, at least 15 of the species identified in Cook Inlet have not been identified elsewhere, and because geographic isolation may have led to distinct speciations for some of these animals, extinction caused or facilitated by anthropogenic activities cannot be ruled out. As a result, these resources require special consideration and assessment in the final EIS. CIRCAC's Attachment A is incorporated herein by reference.

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J. Plain Language

Pursuant to an Executive Memorandum, all federal agencies, including MMS, are required to present public documents in "plain language," so citizens can understand federal agency proposals and information. This policy was reiterated in a 1998 memorandum from then-MMS Director Cynthia Quarterman to MMS Associate Directors, and remains MMS policy today. Furthermore, NEPA implementing regulations place a non-discretionary duty on MMS to publish an EIS which is "concise, clear, and to the point." 40 CFR § 1502.1.

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However, the DEIS for the proposed lease sales in Cook Inlet is one of the most illegible EIS's commentor has ever reviewed. For example, it is extremely difficult to read and understand the table of contents, and to find relevant information in a timely manner. Keeper has responded to countless calls and inquiries from citizens regarding the confusing, vague and convoluted nature of the DEIS text. In fact, MMS heard testimony in Homer, Seldovia, Port Graham and Nanwalek on this issue, and more than one Native Alaska commentor said his people could not understand the document. If the public cannot understand the DEIS, than it fails to satisfy the overlying objectives of NEPA. Furthermore, in advertisements announcing the public hearings on the proposed lease sales, MMS told the public to attend a public hearing on the "Cook Inlet Multi-Sale EIS." Again, few if any members of the general public would understand this jargon.

K. Public Comments & Opposition

Keeper has worked with Environmental Defense to encourage concerned citizens to express their sentiments on the proposed Cook Inlet lease sales via the Internet. At last count, over 1,400 individuals in Alaska and across the nation took the time to respond to MMS. Due to the standard formatting, MMS may prefer to discount these comments. However, it should be recognized in the Final EIS that these comments, along with petition signatures submitted by Keeper under separate cover, evince an overwhelming opinion from a diverse array of citizens that leasing in Lower Cook Inlet is not in the public interest.

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L. Economic Effects

The Kenai Peninsula Borough has embarked on an aggressive campaign to brand and market Cook Inlet salmon under the label "Kenai Wild." This program is meant to spur demand for Cook Inlet wild salmon in the face of global market gluts caused by farm-raised fish. The DEIS fails to consider the chronic toxicity science discussed herein, the effects on local communities should the market perception of Cook Inlet salmon get sullied with the presence of new OCS development, and the economic losses which may be experienced by local and borough governments.

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III. CONCLUSION:

As the United States prepares for war with Iraq, the role of oil in global and domestic politics cannot be understated. Despite the fact that known and projected domestic oil reserves cannot come close to meeting this Nation's voracious energy needs, and despite irrefutable evidence that fossil fuel combustion is facilitating global warming, the Bush Administration has worked closely with its supporters in industry to craft a national energy strategy which emphasizes enhanced production over alternative energy and energy conservation.

The science stemming from the *Exxon Valdez* Oil Spill paints a compelling picture for taking a precautionary approach to oil spills and permitted drilling and production discharges. MMS is charged with protecting the living resources of Cook Inlet for future generations, and it must assume this duty with the understanding that some of the most affected interests, habitats and people in and around the proposed leasing area do not have a viable seat at the negotiating table.

Thank you for the opportunity to comment, and please feel free to contact us if you have any questions or comments: Bob Shavelson, Cook Inlet Keeper, P.O. Box 3269, Homer, AK 99603; ph: (907) 235-4068 ext 22; fx: (907) 235-4069; bob@inletkeeper.org; Lois Epstein, Cook Inlet Keeper-Anchorage Office, 1026 West 4th Avenue, Suite 201. Anchorage, AK 99501; ph: (907) 276-4244 ext. 119; fx: (907) 276-7110; lois@inletkeeper.org.

Very truly yours,

/s/

/s/

Bob Shavelson
Cook Inlet Keeper

Lois Epstein, P.E.
Senior Engineer & Oil and Gas Industry Specialist

Cc: Secretary Gail Norton, DOI
Tribal Coalition for Cook Inlet

MMS Response to Comment Document 007

Response 007-001.

The scenario prepared by MMS is appropriate and reflects the agency's best estimate of the types and level of activities we expect from the proposed lease sales. The MMS acknowledges that past EIS's prepared by MMS for the Cook Inlet Planning Area estimated higher levels of resource development and activity. The final EIS for Sale CI in 1977 assumed over 1 billion barrels of oil would be produced from 23 platforms and 84 exploration wells and the construction of 300 miles of pipeline. The 87 leases issued from the sale resulted in 10 exploration wells and no development. The final EIS for Sale 60 assumed 670 million barrels of oil and 1,173 billion cubic feet of gas would be produced from 4 platforms, with 16 exploration and delineation wells, and the construction of over 200 miles of pipeline. There were 13 leases issued, which resulted in 3 exploration wells and no development. Several other Cook Inlet EIS's (Sales 88 and 114) were scheduled during the 1980's and EIS's were prepared; however, those sales were never held. The final EIS for Sale 149 evaluated the impacts of exploring and developing between 100 and 300 million barrels of oil from 3-5 platforms, with 3-24 exploration and delineation wells. Two leases were issued, and they currently are part of the combined State/Federal Cosmopolitan unit. To date, two exploratory wells have been drilled from onshore into State leases. Obviously, the MMS estimated potential resources and estimates of activities that were far greater than those that actually occurred. The level of resources estimated to be discovered and developed is the basis for the development of a lease-sale scenario and the oil-spill models used by the MMS. It stands to reason that as the estimate of resources expected to be leased, explored, and discovered decreases, the estimate of effects and disturbances likewise would decrease over time.

While industry is interested in leasing the Cook Inlet area, there is nothing in the scoping comments or the comments to the draft EIS that indicates industry expects a different scenario for development. As noted by the commenter, NEPA, 42 U.S.C. 4321 et seq., requires an EIS to "provide full and fair discussion of significant environmental impact." Adding a low and high range to the current scenario would not provide a significant different level of effects. The low case would result in the issuance of leases, but the level of resources would not be economic to develop and, therefore, it becomes the "no sale" alternative. For the high case, the likelihood of finding a commercial quantity of oil would be greater, but it still would be developed from a single development. More wells may be drilled from the single platform, but the remaining effects would occur on approximately the same timeframes and at the same locations. The potential adverse effects from a potential oil spill and the resource affected essentially would be the same, but the likelihood of a single oil spill greater than 1,000 barrels would increase by a small amount. Adding a range of resource levels to the analysis is not necessary if it does not add or change the level of effect.

Response 007-002.

The alternatives evaluated in this EIS do provide meaningful alternatives to the Proposal. These alternatives were based, in part, on input received during the scoping process and on analysis of alternatives considered in prior lease sales. In Sale 149, nearly every alternative to the Proposed Action was evaluated as a method of minimizing conflicts between fishing gear and OCS activity. A better approach was embodied in Stipulation 1, which calls for specific plans to minimize conflict, and was developed in lieu of geographic exclusions. Alternative III is designed to provide a measure of protection to the resources in the lower Kenai Peninsula, especially for subsistence uses. Alternative IV is designed to provide a measure of protection to the biological resources around the Barren Islands. Comments from the USDO, FWS; NOAA Fisheries; the EPA; the State of Alaska; and the Kenai Peninsula Borough agree that the deferrals offered by the alternatives do provide valuable protection. Even comments from the Cook Inlet Keeper advocate the deferral of areas identified within the alternatives. There would be no point in advocating their adoption, if they offered no protection to the resources.

The Proposal and all alternatives include our standard stipulations and ITL clauses that were developed from past proposed lease sales and environmental assessments. These mitigating measures provide

effective mitigation and protection to resource areas. The fact that other very large alternatives were not identified during the scoping process by the public or other agencies reflects the positive nature of the standard mitigation that has been developed by MMS over time for the planning area.

The request for consideration of additional alternatives for a high-end development scenario is discussed in Response 007-003; for a renewable energy alternative in Response 007-006; and Sensitive Habitat - No Rig Zones in Response 007-012. Alternative energy options are discussed as part of Alternative II - No Lease Sale.

The comment also requests “an alternative that holds a lease sale in 2004 or 2006, but not both.” Section II.C shows that we already have considered this option as part of the analysis of Alternative I. The proposed action examines the effects of activities resulting from two sales and one discovery. However, as indicated by Sections IV.B.1.a through Section IV.B.1.s, to evaluate the difference in effects between one sale versus two sales, we evaluated the difference in effects from Sale 191 Alternative I activities compared to Sale 199 Alternative I activities. That is, what would the effects be if only one sale were held. Also, the no-action alternative also examines the impacts of neither sale being held.

The comment requests analysis of “lease sales only for those areas where drilling can be preformed from onshore, i.e., directional drilling, to ensure better management of drilling fluids and wastes (including produced water).” The scenario for Alternative I already assumes reinjection of drilling fluids and wastes from development and production instead of discharge into the marine environment. The analysis also determined no adverse effects from currently permitted discharges from exploration drilling envisioned under the scenario. These factors make the requested alternative essentially the same as Alternative I, for the purposes of managing drilling-fluid waste from production. This proposal also has many of the aspects discussed in the “no-rig zone” alternative addressed by Response 007-012. Much of the sale area would be put off limits to onshore drilling, because the distance from onshore locations to the OCS may exceed the capability of extended-reach drilling, as applied to Cook Inlet, and the lack of onshore drill sites especially in national parks in other designated management areas whose regulations preclude the placement of the infrastructure within the unit’s boundaries.

The decisionmaker has a full range of alternatives. The following language has been added to the Executive Summary and Section I.F to highlight this fact: “If the Secretary of the Interior decides to proceed with each of the sales (191 and 199), by not choosing Alternative II - No Lease Sale, the Secretary may chose one, all, some combination, or part of the deferral option to comprise the Final Notice of Sale for Sale 191. The Secretary will have the full suite of options available for Sale 199 when that decision is made in 2006. The Secretary may choose the same options selected for Sale 191 or different options.” This EIS provides a full and rigorous analysis of environmental benefits and costs of each of the alternatives.

Response 007-003.

The development scenarios used for environmental analysis are based on the undiscovered petroleum potential of the area and a professional judgment of industry’s interest and ability to discover and develop these resources. Although our petroleum resource assessment has not changed significantly between the analysis used for Sale 149 and the analyses for Sales 191 and 199, several trends in industry activity prompted us to modify our estimates of future production. Recent industry interest in exploration for gas, prompted by declining reserves in the Cook Inlet region, have led us to expand the development scenario to include future gas production to supply the local Alaskan market. This possibility was not thoroughly evaluated in the Sale 149 EIS, but it is considered reasonably foreseeable now. In contrast, the resource production estimated for Sale 149 (140-300 million barrels) has been revised downward to range from 0-140 million barrels (base and high cases) as a result of weak industry leasing and exploration activities in the Cook Inlet OCS. In fact, only two leases were purchased by one company in Sale 149, and those leases partially cover a prospect originally discovered in 1967. At present, there are no exploration drilling rigs in the Cook Inlet.

Regarding current high oil prices, our analysis is based on long-term real (inflation-adjusted) averages, not on price spikes that might occur over a period of a few years. It is not realistic to base development scenarios that may occur a decade in the future on short-term price spikes. Also, industry does not base investment decisions on anomalously high prices; instead, they tend to use conservatively low base prices

corresponding to long-term averages. This means that industry decisions, and correlations to our price-supply resource analysis, are more likely to use oil prices below \$20 per barrel.

As explained further in Appendix B, the development scenario generated for environmental analysis purposes is optimistic compared to historical trends. An optimistic development scenario ensures that the environmental analysis covers the potential effects at the high end of possible petroleum activity levels. We believe that 140 million barrels developed from a single platform represents the optimistic “high case” for activities in the Cook Inlet OCS in the near term. If a commercial discovery leads to an increase in industry development and production activities beyond this timeframe, future environmental analysis will be revised to support future regulatory decisions in this area.

Response 007-004.

The scenario assumes that production from the OCS platform would be sent by pipeline to shore on the east side of Cook Inlet for processing, and that OCS crude would not be transported by tanker. The three conditions listed in Stipulation 4 that must be met for requiring pipelines are reasonable. The MMS sees no impediment to obtaining pipeline rights-of-way in Cook Inlet; the installation of pipelines in Cook Inlet is technically feasible and acceptable under State of Alaska and Kenai Peninsula Borough coastal management policies. The EIS does discuss tanker operations in Cook Inlet as part of the description of Oil and Gas Infrastructure (Section III.D). The potential cumulative impact of ongoing tanker operations from non-OCS production and other activities is discussed in Section V. Please see Section V.B.8 for a discussion of transportation and infrastructure, including that from the Drift River Terminal, for the cumulative analysis.

Response 007-005.

The intent of Stipulation 2 - Protection of Biological Resources is to ensure that if a previously unknown area of biological significance is discovered during any OCS activity on the lease, the area will be protected until the area can be evaluated and, if warranted, protective measures developed. Stipulation No. 2 requires that if any area of biological significance should be discovered during the conduct of any operations on the lease, the lessee shall immediately report such findings to the MMS and make every reasonable effort to preserve and protect the biological resource from damage until the MMS has given the lessee direction with respect to its protection. Based on any surveys that the MMS may require of the lessee or on other information available to the MMS on special biological resources, the MMS has a suite of actions that it may require of the lessees. These actions are listed in Section II.F.1.b.

Stipulation 2 is patterned after the stipulation that applied to previously undetected cultural resources discovered during OCS activities. (The so-called “Archaeology standard stipulation” was discontinued after regulations were changed to incorporate the requirements for archaeological surveys and reports.) The very discovery of the previously unknown resource is enabled through the postlease activities, usually remote-sensing surveys.

Response 007-006.

The MMS lease program is built on a tiered system of decisions and environmental assessments. The highest level is at the 5-year program stage. The MMS has determined that this is the appropriate level to discuss and evaluate alternative energy and development, including the environmental costs and benefits of such developments. The information provided in the 5-year EIS, which is incorporated by reference, provides additional detailed information. (See Section 4.7 - No Action Alternative and Section 4.7.3.2.1 - Electric Generation and Alternative Fuels in USDOJ, MMS, 2002). The conclusion reached in that document is applicable: “In the short run, oil and natural gas are essential elements in the U.S. energy equation. Within the next few years, even vigorous government action could only shift the mix on energy alternatives to a minimal degree. Any major change in the energy mix also would require changes in behavior by individuals and institutions not under direct control of the U.S. system. In an intermediate time period, other energy options like wind-powered electricity generation and hybrid electric cars can begin to make inroads on hydrocarbon use if government gives these alternatives a sufficient boost.” It goes on to conclude that: “The most likely and largest available alternatives to OCS production are imported oil and LNG.” Furthermore, these conclusions are consistent with the current National Energy Policy and support

the decision of the Secretary of the Interior to offer the proposed Sales 191 and 199 in the Cook Inlet Planning Area.

Response 007-007.

The MMS is aware of the proposed project to install wind turbines offshore of Long Island, New York and other areas off the U.S. east coast, as well as discussions regarding its potential in Alaska and the Cook Inlet area. The proposed project raised the promise of alternative energy and a number of environmental issues, including effects on birds, visual resources, and other coastal resources. The OCS production assumed by the EIS is one component of the energy stream that satisfies the anticipated future aggregate demand for energy in Southcentral Alaska. This demand is created by power plants, industrial users, home heating, and other activities. Wind power, tidal power, or other forms of alternative energy also may be components of the energy stream.

The comment makes specific reference to a 1996 report. The information in this document was updated and included in them 5-year Outer Continental Shelf Oil and Gas Leasing Program Final EIS (USDO, MMS, 2002).

Response 007-008.

The MMS is aware that Chugach Electric Association, Inc. is examining the potential for wind power. Power from wind turbines may be especially well suited for communities far removed from the power transmission and distribution grid, such as some communities in the lower Kenai Peninsula. Anchorage and much of the Kenai Peninsula are served by the interconnected power grid that serves the central portion of the State, including Fairbanks. Power plants that feed the grid primarily are natural gas fired, with hydroelectric sources providing a small share of the power. The OCS production assumed by the EIS is one component of the energy stream that satisfies the anticipated future aggregate demand for energy in Southcentral Alaska. This demand is created by power plants, industrial users, home heating, and other activities. Wind power, tidal power, or other forms of alternative energy also may be components of the energy stream.

Section III.A.2.c of the EIS describes the wind regime for the area of the Proposed Action, including the variation in wind across the area.

Response 007-009.

The comment notes the number of power plants in the area fueled by petroleum products. The OCS production assumed by the EIS is one component of the energy stream that satisfies the aggregate demand for energy in Southcentral Alaska. This demand is created by power plants, industrial users, home heating, and other activities. The scenario makes no assumption as to who the end user of OCS production could or would be.

Response 007-010.

The scope of the EIS does not include the end use of the product. Fossil-fuel combustion in local and regional facilities and generators certainly would consume some Cook Inlet OCS oil and gas resources, should such resources be found and produced. Obviously, any such oil and gas used there reasonably would affect emissions from the various industrial facilities burning or processing that oil and gas. The MMS believes that such use of Cook Inlet OCS oil and gas primarily would replace other oil and gas currently being used at those facilities and would have no significant adverse effect on regional air quality, which remains superior to that set by the National Ambient Air Quality Standards and Alaska air quality laws and regulations. Cumulative effects on air quality in the Cook Inlet area are discussed in Section V.C.5.b. The MMS believes that concentrations of criteria pollutants in the ambient air would not approach the limits specified in the air quality standards and, therefore, that only a minimal effect on air quality is expected.

Response 007-011.

This also responds to Comment 086-003.

Discussion of this topic is beyond the scope of the EIS. The reduced threat of terrorism or other security issues are not issues that are inherently environmental in nature. Security and confidentiality are important in planning for security for any energy resource (oil, gas, wind power, etc.); however, an analysis of security issues in a publicly distributed document is not warranted.

Response 007-012.

Please see Response 026-003.

Response 007-013.

The development of an EIS is a very credible and very public process. Section I.C of the EIS describes scoping, the public process under which the major issues examined by the EIS and Alternatives III and IV were developed. The commenter advocates the deferral of the areas identified by Alternatives III and IV, which we developed in our process that identified environmentally sensitive areas. Conversely, no other areas were identified during scoping, and the management agencies of public lands did not identify specific sensitive habitats or request additional deferrals in their comments. In addition to scoping, there are other public processes to identify sensitive habitat in the Cook Inlet that the MMS is either an active participant in or uses in the evaluation of the resources of the Cook Inlet. These efforts include the Cook Inlet Regional Advisory Council's shoreline mapping project and geographic response strategy development.

Response 007-014.

The MMS analyzes a range of spill sizes in the EIS. There are several categories of small spills, two sizes of large spills, and a very large spill. These spill sizes cover a broad range. The commenter assumes that spill size and impact have a parallel relationship. This is not always the case, depending on the conditions at the time of the spill. The exact conditions at the time of the spill will have the greatest influence on what the impacts of that spill are. Even a small spill in a sensitive location can cause serious environmental and property damage. In terms of relative magnitude, a 100,000-barrel spill is estimated to have greater effects than a 1,500-barrel spill. We can say that with clarity. However, the final exact outcome of a 4,600-barrel spill versus a 6,700-barrel spill is much more difficult to quantify. The intent of this document is to provide the decisionmaker with the relative order-of-magnitude impacts.

If we look to production in State waters, the largest recorded industry spills are 1,000 and 1,400 barrels in the late 1960's. No spills greater than or equal to 1,000 barrels have been reported since that time from oil-production operations. This does not mean that large spills cannot occur; it just means that the record of large spill sizes in Cook Inlet is limited.

Response 007-015.

The discussions in the EIS of sublethal and chronic effects from oil and gas activities, including mercury discharges, are based on measured and projected levels of Cook Inlet water quality as described in Sections III.A.4, IV.B.1.a, and V.C.5.a. Discharges from past, current, or projected Federal oil and gas activities have not, are not, and are not projected to measurably affect Cook Inlet water quality. Therefore, few ongoing or potential sublethal or chronic effects on biota could be discussed. In particular to mercury, with one exception, concentrations in Cook Inlet are at background, natural levels, consistent with natural concentrations and loads found in regional rivers. The one exception is Kachemak Bay, which has elevated mercury levels in sediments (Boehm, 2001a:Figure 4-7). However, the present-day levels of mercury in Kachemak Bay are similar to those in sediments deposited in the bay early in the 20th Century, prior to industrial development. The consistently elevated concentration of mercury through time implies a local natural mercury source in Kachemak Bay.

Response 007-016.

Where appropriate, the MMS has made extensive use of the studies conducted on effects in the aftermath of the *Exxon Valdez* oil spill in the Description of the Affected Environment (Section III), Effects of the Proposed Action and Alternatives (Section IV), and the Analysis of Cumulative Effects (Section V). For example, the classification of villages, towns, and cities is used to organize the description of the

sociocultural systems of the area in Section III.C.4, and the description of the effects on those systems in Section IV.B.1.m makes extensive use of postspill research.

Response 007-017.

Please see Response 008-003.

Response 007-018.

Recent published studies concerning environmental impacts of the *Exxon Valdez* oil spill have been added to the fisheries resources and essential fish habitat sections of the EIS. These studies have demonstrated adverse effects of oil to intertidal fish and habitat at levels below the water quality guidelines of 15 parts per billion, including mortality to pink salmon embryos at 0.1 part per billion (Heintz et al., 1999). Their study found a 25% reduction in survival during incubation of brood fish exposed to less than 18 parts per billion. Between the end of the exposure and maturity, survival was further reduced by another 15%, resulting in the production of 40% fewer mature adults than the unexposed population. Thus, the true effect of the exposure on the population was 50% greater than was concluded after evaluating the immediate effects. Additional research found fewer exposed fish from one experimentally exposed egg brood that survived the marine environment and returned as mature adults compared to unexposed fish (Heintz, 2000). Moreover, Heintz et al. (2000) experimental data show a dependence of early marine growth on exposure level; unexposed fish increased their mass significantly more than fish exposed to crude oil as embryos in eggs. Heintz et al. (2000) concluded that exposure of embryonic pink salmon to PAH concentrations in the low parts per billion produced sublethal effects that led to reduced growth and survival at sea. Studies indicate, therefore, that the examination of short-term consequences underestimates the impacts of oil pollution (Heintz et al., 2000). When oil contaminates natal habitats, the immediate effects in one generation may combine with delayed effects in another to increase the overall impact on the population. If oil spills enter small areas of intertidal habitats, small-scale impacts to affected egg and larval habitats could last for one or more generations of a subpopulation in Cook Inlet.

Numerous marine fish species have pelagic egg and larval stages within Cook Inlet and may be adversely impacted by oil spills. Juvenile fish, floating eggs, and larvae may be killed when contacted by oil (Patin, 1999). Pelagic eggs and larvae inhabiting the project area and exposed to low levels of oil may experience sublethal effects similarly described for intertidal resources. However, the numbers of impacted individuals may be lower, because organisms inhabiting intertidal habitats may receive repeated, long-term exposure, while pelagic eggs and larvae are believed more prone to acute spill exposures.

The distinction between population-level effects versus cohort or subpopulation-level effects is important. Fisheries populations generally are abundant and distributed across the northern Gulf of Alaska, including various bays and estuaries as is Cook Inlet. Cook Inlet provides habitat to subpopulations of the larger fisheries populations. Depending on the species, various cohorts may or may not occupy microhabitats of the larger Cook Inlet ecosystem. Consequently, oil-spill impacts resulting from a spill of 1,500 or 4,600 barrels, as assumed in the EIS, are not likely to have a measurable impact on fisheries resources at anything greater than for the subpopulation occurring in Cook Inlet. Similarly, essential fish habitat may be degraded or reduced for months, years, or decades; however, it is not sufficient to impact three generations of the entire population inhabiting the larger region.

The MMS is sensitive to the potential impacts and has in place a variety of regulatory measures that greatly minimize the potential for a large oil spill. Additionally, other Federal and State agencies share concern regarding the environmental impacts of marine oil spills. Hence, there is considerable coordination and cooperation that is undertaken among agencies to minimize such accidents from occurring, as well as in responding promptly and effectively should they occur.

Response 007-019.

Preliminary research by Dr. Lars Foyn of Norway's Institute of Marine Research indicated that long-term effects of alkyl-phenols (a substance that can be found in produced waters) on cod may include hormone disturbances, gender confusion, and fertility reduction. Dr. Foyn acknowledged that Norway's concern was with the mature fields that are **not required** to reinject produced water.

In addition, the EPA's Best Available Technology for Offshore Subcategory Effluent Limitations for Produced Water requires no discharge (of produced water) if the maximum for any 1 day exceeds 48 milligrams per liter and the monthly average exceeds 29 milligrams per liter. Pollutant parameters designated by the EPA for produced waters are oil and grease. Presently, no parameter is set for alkyl-phenols in produced waters. Re-injection of produced waters is considered no discharge.

Response 007-020.

The commenter uses the data from the draft EPA study on contaminants in subsistence foods as if it were definitive and final. The commenter's source is EPA (1998), and we wonder if there is not some error here because a revised draft appeared in 2001. The MMS has no clear message from the EPA that it intends to release the report in any final form because of a number of glaring discrepancies that the commenter fails to note. While the actual concentrations provided in the revised draft are accurate, the analysis remains flawed because, with these corrected concentration levels, overall risks are not high.

Fundamental concerns with the study rest with the study's basic statistical validity arising from the low number of samples and their nonrandom or systematic collection. Another problem is the comparison of whole fish samples in Cook Inlet with tissue samples from other areas. A whole fish sample measures contaminants in the meat when, in fact, contaminants are actually stored in the fat. Such miscomparisons render the statistics invalid. Indeed, when whole fish samples from Cook Inlet are compared to whole fish samples from other areas, Cook Inlet contaminant values are actually lower.

We take exception to the commenter's characterization of our recent sampling study in lower Cook Inlet as "ludicrous," because it made an important contribution to the knowledge regarding the fates and effects of contaminants in Cook Inlet. For a thorough discussion of the full range of contaminants and their sources in Cook Inlet, including MMS-sponsored research on the subject, see Section IV.B.1.a - Water Quality.

The MMS is committed to a thorough analysis of these data when and if the EPA publishes a final report. As to the MMS pursuit of research that will help protect subsistence cultures, we refer the commenter to Sections IV.B.1.p(7) - In-Place Mitigation and Ongoing Mitigation Initiatives and IV.B.1.p(8) - Mitigation Initiatives Related to Sociocultural Impacts.

Response 007-021.

Please see Response 010-003 regarding the unpublished draft EPA study. The MMS study (Boehm, 2001a) cited as ludicrous by the commenter addressed one of the major concerns of the environmental community during the most recent renewal of the general Cook Inlet NPDES permit. The MMS was specifically requested by Greenpeace to do the study, following earlier recommendations from CIRCAC, and even earlier suggestions, in the 1970's and 1980's from OCSEAP researchers in Cook Inlet. The commenter misstates the area of coverage of the report. The report does include stations in lower Cook Inlet, including Kachemak and Kamishak bays. This study and its predecessor, University of Alaska, ENRI (1995), bracket upper and lower Cook Inlet and downcurrent depositional zones that could capture and concentrate any oil-industry contaminants. These two MMS studies provide data relative to current offshore oil development, whereas the EPA study was not designed to do so. Sites in the EPA study were chosen in response to Native village interests and not as part of a statistical regional sampling design to detect potential oil-industry contamination in Cook Inlet (see also Environmental Protection Agency, 1997).

Response 007-022.

Please see Response 007-020.

Response 007-023.

The long-term persistence of a portion of some oil spills is not a new concept. The MMS discussed this issue in numerous previous EIS's (for example USDOJ, Alaska OCS Region, (1987, 1990a, 1990b, 1995, 1996). We have summarized information on persistence from Sale 149 in Appendix A and added the new citations supporting the existing evidence that some spills persist under certain conditions for decades.

A discussion on new information regarding the phototoxicity of Alaska North Slope crude has been added.

Response 007-024.

The MMS contributed to the survey listed in the commenter's footnote 26, and we are well aware of the survey's content. The EIS authors cited the original source information provided to the survey rather than the unpublished survey itself. The Patin citation in footnote 27 is a 1999 translation of a Russian book and is superseded by multiple information sources more recent or more relevant to Cook Inlet and cited in the EIS. (For example, review the 31 more recent documents cited in the draft EIS discussions on water quality.) The EIS emphasizes Cook Inlet specific data and oil and gas discharges that can occur under State of Alaska and Federal regulations and permits.

The theme of risk from mercury in oil and gas discharges in the Gulf of Mexico in the Raines newspaper article cited in footnote 27 has not been supported by subsequent studies conducted by MMS or others in the Gulf of Mexico. The authors of OCS studies cited by Raines—and requested by the commenter to be used in the EIS—disagree with Raines' interpretation of their data and disagree that their reports indicate a mercury risk from oil and gas discharges. Furthermore, the potential for a significant mercury “problem” similar to concerns raised by Raines in the Gulf of Mexico does not exist. Unlike the Gulf of Mexico, sport and commercial fishing in Cook Inlet are not concentrated around the oil platforms. Unlike in the Gulf of Mexico, anthropogenic mercury loading **has not** increased mercury levels in Cook Inlet or downcurrent (Boehm, 2001a). High levels of mercury are not showing up in Cook Inlet fish populations (Boehm, 2001a). Unlike in the Gulf of Mexico, Cook Inlet does **not** have an anoxic “dead zone” with the potential to enhance methylmercury formation. To the contrary, the finer grained, depositional sediments most likely to undergo anoxic conditions downcurrent of ongoing and proposed oil and gas development in Cook Inlet are healthy with a well-developed, oxygenated surface zone (Boehm 2001a; Arthur D. Little and EVS Environmental Consultants (1998).

Response 007-025.

The effects of heightened phototoxicity of oil on plankton is assessed in Section IV.B.1.c(2) and Section IV.B.1.c(3)(b). The sections note that petroleum doubled the toxicity of ultraviolet radiation in laboratory experiments. The effects of phototoxicity on benthic organisms are not discussed, because toxic ultraviolet radiation penetrates only a couple of meters into turbid water, such as found in Cook Inlet. The EIS analysis of the effects on intertidal communities is not based on laboratory experiments without natural sunlight. It is based primarily on field observations from the *Exxon Valdez* oil spill—a situation in which phototoxicity would have occurred.

Response 007-026.

Information on the effect of dispersants has been added to Section IV.B.1.c(6) about the general effects of oil-spill-response measures. However, dispersed oil is unlikely to affect Cook Inlet benthic communities because of the dispersant-application guidelines (www.akrrt.org). The relevant website sections are entitled “plans” and “Cook Inlet.” The sections note that the Coast Guard has authority to approve the use of dispersants on spills in general (for example, from ships), but that use is not recommended in shallow water where dispersed oil could mix down to benthic communities. Use is recommended only in water deeper than 5-10 fathoms (30-60 feet), where dispersed oil is unlikely to mix deep enough in the water column to affect benthic communities. The Coast Guard will be reviewing the application guidelines in the near future; this comment might be helpful to that review.

Response 007-027.

The EIS evaluates the potential effects of the proposed lease sales to water quality (pages III-12 to III-32, IV-12 to IV-28, V-19 to V-24 in the draft EIS); fisheries resources and essential fish habitat (pages III-36 to III-48, IV-41 to IV-61, V-28 to V-38 in the draft EIS); subsistence and sociocultural systems (pages III-157 to III-187, IV-131 to IV-141, V-74 to V-86 in the draft EIS); and to environmental justice (III-189 to III-190, IV-149 to IV-172, V-92 to V-94 in the draft EIS). The EIS concluded there would be no significant effects to any resource from routine permitted activities.

The EIS evaluates the potential effects for a large oil spill from either a platform (1,500 barrels) or pipeline (4,600 barrels). The thorough EIS analysis concluded that a spill of this size temporarily could degrade water quality with no measurable loss to fish resources at the population level. The effects to EFH would be low, but some local beaches could be heavily impacted. The effects to subsistence resources, including harvest areas and harvest patterns in traditional communities could be affected with tainting concerns for one harvest season or longer, making a large array of subsistence resources unavailable for use. The effects of such a spill would not alter the fundamental long-term relationship between subsistence and the sociocultural systems. If a large spill occurred and contaminated subsistence resources, making them unavailable for use and leading to a disruption of sociocultural practices, a disproportionately high adverse effect on Alaskan Natives could result. However, neither such a spill (a 19% chance of 1,000 barrels or more over the life of the project) nor the effects describe above are expected to occur.

Please see also Response 006-013 for the determination of Tribes geographically out of scope and definition of consultation to tribes that may be “significantly or uniquely” impacted.

Response 007-028.

The MMS contacted the Native Village of Nanwalek and scheduled the meeting after sending copies of the draft EIS to the Tribal government upon publication of the document to allow time for the Tribe to read and become familiar with its contents. The meeting was facilitated by a person appointed by the Tribal government, and it was he who decided that the meeting was over. The MMS has a policy that it will stay and meet with a Tribe as long as they have issues or concerns that will be addressed or clarified by continued dialogue.

“Revenue sharing” and “zero discharge” are issues that the MMS can discuss, but we do not make the final decision on either issue. We discuss revenue sharing in the EIS in Sections I.C.1.b(1) and IV.B.1.p(8). Distribution of revenue is set by Federal law, and zero discharge is the jurisdiction of the EPA. Also, the quote attributed to Mr. Goll appears to be taken out of context. Mr. Goll’s statement recognized the diversity and complexity of the issues and resources addressed by the document and encouraged people to concentrate on parts that are most important to them.

Response 007-029.

Information regarding the Coast Guard administration of compensation claims for subsistence resources in the event of an oil spill is included in Section IV.B.1.p(7). As explained in Section IV.B.1.p(8), the MMS cannot provide or require industry to provide compensation unless specifically authorized by law to do so.

Response 007-030.

Use of the term “measurable” with respect to impacts to fisheries resources refers to qualitative and/or quantifiable impacts at the population level of fishes. Additional information has been added to the EIS concerning the impacts of seismic-airgun emissions to fishes.

Studies cited in Section IV.B.1.d(3)(a)3) found that airguns used in seismic surveys disturbed and/or displaced individual adult fishes. Studies also found that airgun emissions displaced some, but not all, fishes, and such displacement was limited to proximate surroundings. Studies also demonstrated that seismic surveys did not render the areas tested uninhabitable to fishes. Seismic surveys are fleeting activities in time and space and, therefore, fishes potentially displaced by an approaching seismic sound source likely will backfill the area within minutes to hours after the sound source and hazard has passed.

Studies also showed that airguns may cause limited injury to auditory hair cells, thereby potentially impacting their ability to hear. It is worthwhile noting that partial or total hearing loss in fish does not preclude the use of other sensory systems such as vision and chemoreception, which greatly influence individual fitness levels. Studies did not find that typical seismic airgun emissions caused fish kills; conversely, they showed that they did not kill adult fish. Studies did not present data showing any measurable population-level impacts.

To show a measurable impact at the population level requires the juxtaposition of a significant portion of the population within very close proximity (approximately 5-15 meters) of seismic airguns during multiple

passes of the array. Populations of managed fish species inhabiting Cook Inlet generally are wide-ranging, abundant in waters beyond Cook Inlet, and have life cycles that extend across multiple years. These factors result in the widespread distribution of the population; although some individuals of the population may inhabit a portion of Cook Inlet during part or all of a year, the remainder of the population inhabits different habitats or areas beyond Cook Inlet. Given the few postlease seismic surveys expected, and limited spatial (i.e., 62.3 square miles surveyed over 4 years) and temporal (i.e., 14-35 days over 4 years) scope of surveys, it is exceedingly improbable for a significant portion of a population to co-occur in the same time and space with an offshore seismic survey in Cook Inlet. Additionally, these individuals would have to be exposed to and experience sublethal impacts from airgun emissions that confidently decreased each individual's fitness to the point of their inability to contribute to the gene pool of the population.

Response 007-031.

The MMS analyzes the impacts of a blowout in Section IV.F. A blowout is analyzed separately, because it is a low probability event. The MMS would not consider a blowout to be reasonably foreseeable, although it is possible. Using these assumptions about spills during the exploration phase of the project does not constitute a failure to meet NEPA analytical expectations. As to cumulative effects on subsistence-harvest patterns, the conclusion states that if "...a large oil spill occurred and contaminated essential subsistence resources and harvest areas, major additive (but not synergistic) significant effects could occur when impacts from contamination of the shoreline, food-tainting concerns, cleanup disturbance, and disruption of subsistence practices are factored together. Effects would be one or more important subsistence resources becoming unavailable or undesirable for use for at least 1-2 years or longer, which would be a significant adverse effect." This conclusion is based on data gathered after the *Exxon Valdez* spill, and we do not believe it deviates from "forthright and meaningful" analysis.

Response 007-032.

Please see Response 006-027.

Response 007-033.

The significance threshold for fisheries resources is "a decline in the abundance and/or change in distribution requiring three or more generations for the indicated population to recover to its former status" (Section IV.A.1). Our analysis concludes via induction that routine operations (seismic surveys, construction activities, and operational discharges) would not have a measurable adverse effect at the population level of fisheries resources in the study area. The MMS finds no evidence to conclude that routine operations, if performed within the scope of the analysis and existing requirements, would significantly impact even one generation of a fisheries resource population. The MMS does have reason to believe that the placement of the platform may benefit some fisheries resource populations by providing refuge and additional substrate for reef organisms to colonize. Because the proposed sales may result in the placement of the platform in OCS waters of Cook Inlet, any benefits experienced would be localized and not likely to result in fisheries regime shifts or community reorganization within Cook Inlet.

The significance threshold for commercial fishing is "effects that would cause important and sweeping changes in the commercial fishing in the region. Commercial fishing in the region is diminished by 20% or more for at least 3 years or 60% for 1 or more years." The commenter specifically cited tanner, king, and Dungeness crab harvests in Cook Inlet. Crab fisheries in Cook Inlet are suspended mainly because of past overharvesting in addition to an ocean climate regime shift occurring in 1977 (Anderson and Piatt, 1999). In the unlikely event that a large oil spill occurred as a result of the Proposed Action, it would not constitute an important and sweeping change in the economic well-being of commercial crabbers, because no harvest of crabs in Cook Inlet is permissible. Based on surveys conducted by the State of Alaska, Department of Fish and Game, it is unlikely that crab populations would support commercial harvesting in the near future.

Significance thresholds for fisheries resources and commercial fisheries were adopted based on professional assessment and internal discussions. None of the Federal and State environmental/natural resource agencies commenting on the draft EIS took issue with the significance thresholds for fisheries resources or commercial fisheries; also, commenters did not suggest a different threshold. The MMS will

consider other significance thresholds for fisheries resources and/or commercial fisheries if suggested and based on the best available science.

Response 007-034.

Coastal brown bear females in Alaska generally reach maturity in 3-4 years. The 4.5-7 years is an estimate generation time for grizzly-brown bears in general. Arctic grizzly bears on the North Slope of Alaska have poor and unreliable food sources compared to coastal brown bears. Arctic grizzly bear generation time is about 7 years. Although 3 or more generations (9-12 years) is a long time for an effect to last, the effect on habitat use-distribution due to oil contamination of coastal habitat can occur from a large spill such as the *Exxon Valdez* spill. However, the 1,500- or 4,600-barrel spill assumed from the Proposal is not likely to affect enough coastal habitat to affect the distribution of the brown bear population in the Cook Inlet region. Habitat use by individual brown bears that use habitats that may be contaminated by the assumed spill could be affected for several years, but the population would not be affected.

Response 007-035.

The comment stated that “the outer range of two years shall apply.” The conclusion for Section V.C.5.p - Environmental Justice (cumulative effects) reads: “In the unlikely event that a large accidental oil spill did occur and contaminate essential subsistence resources and harvest areas, major effects on subsistence-harvest patterns and sociocultural systems would occur when impacts from contamination of the shoreline, food-tainting concerns, cleanup disturbance, and disruption of subsistence practices are factored together. Effects from such an event would be one or more important subsistence resources becoming unavailable or undesirable for use for at 1-2 years or longer. If a spill did occur and oil low-income communities on the Kenai Peninsula identified above, subsistence-related effects would be experienced because many non-Native residents supplement their diet with some subsistence resources. Nevertheless, residents of these communities would be expected to experience effects similar to the majority of residents in the Kenai Peninsula Borough.... Consequent sociocultural effects of distress, loss, and community disruption would accompany such an impact on subsistence practices. The additive subsistence and sociocultural impacts would be considered a significant adverse effect. This level of impact would be considered a disproportionate, high-adverse effect on Alaskan Natives....”

The thrust of this conclusion is that if such effects from a potential oil spill persisted for as little as 1 year (one harvest season), the subsistence and sociocultural impacts would be considered a significant adverse effect and the level of impact would be considered a disproportionate, high-adverse effect on Alaskan Natives. If subsistence consumers experienced even a single season of harvest disruption it would be considered a significant effect. The MMS does not believe this assessment is too conservative.

The MMS does not believe that the OSRA for any alternative predicts a spill that could release “as much or more oil” as the *Exxon Valdez* spill. The subsistence effects analysis tiers off of the biological resource assessments. If they find no sublethal population effects, then it is difficult for the subsistence analysis should not arrive at such a conclusion.

Response 007-036.

The selection of significance thresholds involves professional judgment. Professional opinions may vary. We agree that commercial and sport fisheries play an important socioeconomic role in lower Cook Inlet. We addressed the potential effects of large oil spills on commercial and sport fisheries in Sections IV.B.1.k and IV.B.1.o, respectively. We do not believe low-level chronic oil releases will have an effect on the environment (see Section IV.B.1.a - Water Quality). The significance thresholds for commercial-fish resources or sport fisheries are reasonable and do not violate NEPA guidelines. Please see Responses 006-002 and 007-033 for additional information regarding the selection of significance thresholds.

Response 007-037.

Please see Response 006-022 regarding enforceability and effectiveness of ITL clauses.

Response 007-038.

Please see Response 008-003.

Response 007-039.

Please see Response 008-003.

Response 007-040.

The proposed lease sales could increase anthropogenic loadings by the significant percentages (10-38%) listed by the commenter without zero discharge, only because both existing and potential anthropogenic inputs are so negligible. The amounts of metals that potentially could be discharged as a result of the proposed lease sales are equivalent to 0.04% of the mercury, 0.1% of the cadmium, and 0.002% of the arsenic loads coming from natural sources in the three major Cook Inlet rivers. Also in Table IV.B-4 in the draft EIS, the column header "Iron" should have read "Lead." This typographical error has been corrected in the final EIS.

Response 007-041.

The requested discussion of radioactive materials has been added to the water quality analysis in the EIS.

Response 007-042.

The EPA has jurisdiction over discharges through the NPDES discharge system. Please see Response 008-003 regarding discharges of wastes from current and potential future exploration and production platforms in the Cook Inlet. The MMS believes that a stipulation on discharge of other wastes is not warranted at this time.

Response 007-043.

The final EIS for Cook Inlet Sale 149 (USDOJ, MMS, Alaska OCS Region, 1995) added three potential stipulations—No. 5 - Restrictions on Multiple Operations, No. 6 - Seasonal Drilling Restrictions, and No. 7 - No Surface Entry During Development and Production—as a means to “reduce potential space-use conflicts between the oil and gas exploration and development and production activities and commercial fishing activities.” The EIS also noted that “use of these measures is likely to continue unless more effective mitigation measures are in place.” A potentially more effective mitigation measure was developed for Sale 149 and is considered for Sales 191 and 199. Stipulation No. 1 - Protection of Fisheries accomplishes the intent of three potential stipulations by requiring lessees to reduce the potential conflicts with commercial, sport, and subsistence fishing. The stipulation mandates the ends, not the means for achieving the ends. The strategies embodied by the past potential stipulations still could be employed. Testimony from commercial-fishing organizations on the draft EIS for Sales 191 and 199 indicated a willingness to work with the lessees within the framework of Stipulation 1 to eliminate conflicts.

Response 007-044.

For community-based oil-spill response, see Response 008-002.

For geographic response system, see Response 008-001.

Response 007-045.

This also responds to Comments 014-001, 016-002, 023-002, 025-001, 028-002, 029-002, 030-002, 044-004, 047-009, 054-004, 064-002, 096-003, 097-006, 103-006, and 104-002.

Use of tankers to transport OCS crude from production platform to processing plant is not part of the scenario that assumes pipelines will be used. See Response 007-004 for a discussion of the EIS analysis of tanker transport of crude oil. Tanker safety and whether or not tugs should be used to escort tankers in the Cook Inlet are the responsibility of the U.S. Coast Guard. The Coast Guard has studied the issue of requiring an escort tug for Cook Inlet crude tankers and has conducted navigation safety meetings with

Cook Inlet operators, concerned State and Federal agencies and citizens' advisory groups to review tanker operations practices. In March 1997, the Coast Guard found that there is "no historical justification for an escort system for Cook Inlet, nor is there sufficient risk posed by the tanker fleet that presently operates... (and) went on the say that a standby tug for lower Cook Inlet would be welcome to benefit navigational safety and fire fighting capability for all marine traffic, however it should not be provided by and for only crude oil shippers. The Coast Guard indicates that tramp ships, not crude oil tankers, tend to have the most frequent problems" (State of Alaska, Dept of Natural Resources, 1999).

Response 007-046.

Please see Response 005-027.

Response 007-047.

This also responds to Comments 058-007, 011-004, and 055-002.

Section IV.A.2 notes that many factors influence where leasing, exploration, and development might take place, such as the price of oil, the availability of high-grade onshore oil and gas leases, company goals, and perspectives about Alaska and offshore development. As explained in Section I.A, a Call for Information and Nominations was published in the *Federal Register* to gather preliminary information and nominations from interested parties on oil and gas leasing, exploration, and development and production within the area. From this process, the MMS determined that sufficient interest existed. While industry interest in the Cook Inlet OCS has varied over the years, there has been a response, and the results of past OCS lease sales are not necessarily the only indicator of future interest. For example, the projected shortage of natural gas in the Cook Inlet region has spurred industry interest in the area.

Response 007-048.

As outlined in the EIS, the demand for additional gas resources in Southcentral Alaska is fairly certain. Production from the Cook Inlet OCS could make a valuable contribution to satisfying that demand, but no single project or source will completely satisfy the demand. For example, according to Comment 021-001, the Agrium plant presently uses 53 billion cubic feet of natural gas per year to develop the value-added exports of ammonia and urea fertilizer. Under the scenario in Appendix B, maximum annual production of sales gas would be 17.9 billion cubic feet per year.

The comment suggests a strong possibility that this demand can be met from alternative energy sources (wind, tidal, conservation measures, hybrid cars) or from Alaska North Slope sources. Like natural gas from the OCS, these sources could make a contribution to addressing the energy needs of the country. Several of these options have their own environmental consequences or depend on untested assumptions about consumer choice and market demand, which will need to be more fully explored before they can be deployed. The adverse and beneficial effects of these sources would be included in the cumulative analysis, if they are a reasonable foreseeable future development in the next 20 years. The MMS was unable to identify any preliminary plans or proposals to site wind, solar, or tidal power in the area, although there have been feasibility studies and expressions of interest in doing so. As explained in Section V.B.4, we consider natural gas resources from the North Slope to be a speculative development, one that could be in-place after 20 years, but which we do not include in the analysis of cumulative effects.

Response 007-049.

This also responds to Comment 086-008.

Section IV.A.2 - Basic Assumptions for Effects Assessment notes that if exploration leads to development and production, impacts could occur from noise from pipeline construction and physical disturbance from the physical placement, presence, and removal of pipelines. As noted in Section IV.A.3, these activities are subsumed under the category of disturbances, with the industrial activity of pipeline construction resulting in noise and habitat alteration.

The scenario estimates that 75 miles of new onshore pipeline would be constructed, and the 5 miles of onshore gas pipeline would be constructed with landfall occurring north of Anchor Point. We assume that

the landfall would avoid sensitive aquatic habitat. The route for the pipeline would be sited inland from shorelines and beaches; pipeline crossings of anadromous fish streams would be minimized and consolidated with other utility and road crossings of such streams. The pipelines would be buried wherever possible and would be sited in existing rights-of-way for other utilities or transportation systems wherever possible. The pipelines would not interfere with the migration of wildlife. The pipeline would be designed, constructed, and maintained to minimize risk to fish and wildlife habitats from a spill, pipeline break, or other construction activity.

Information on the construction of the onshore pipeline has been added to the scenario. The information assumes that a state-of-the-art pipeline would be constructed that will comply with State of Alaska and Borough policies regarding pipeline placement, use of existing corridors and facilities, and other policies discussed in Section IV.B.1.s. The comment contends that "...there are numerous gaps and deficiencies in federal and state regulatory oversight of pipeline that inevitably result in unnecessarily high spill rates, including onshore pipelines. These problems need to be acknowledged in the final EIS..." Analysis of implementation of oversight regulations is beyond the scope of the environmental analysis performed in the EIS. If development were to occur, specific design of the onshore and offshore pipelines would be evaluated at that time.

Response 007-050.

Further information has been added, and onshore pipeline spills are analyzed in Section IV.

Response 007-051.

The MMS is a credible member of the pipeline regulatory community and, as such, we must respect our jurisdictional boundaries and the boundaries of other pipeline regulatory authorities. We do participate in pipeline regulatory organizations such as the Joint Pipeline Office, which was created to help facilitate solutions to regulatory jurisdictional issues related to pipelines. We provide information from our Technical Research and Assessment Program and coordinate with other agencies on pipeline issues.

Response 007-052.

We have confirmed with Dr. Trefry (2003, pers. commun.) that the commenter has taken his paper and findings out of context. Dr. Trefry believes "the commenter's requested study is a very low priority." The Trefry et al. (2002) paper actually states:

Higher values of MeHg [methyl mercury] are found in a few nearfield stations where levels of TOC [total organic carbon] are higher and where Eh [redox potential] are about 0 mV (anoxic, moderately reducing). These observations are consistent with previous studies that suggest that optimum conditions for formation of methylmercury are in anoxic sediment with sulfide-poor interstitial water and sufficient levels of biodegradable organic matter and nutrients.

Such anoxic conditions do not occur in Cook Inlet waters or surface sediments, as discussed in Section III.A.4.b and Responses 007-024 and 007-015.

Trefry et al. also state:

Statistical comparisons of MeHg levels in near field versus farfield sediments at six drilling sites...suggest that elevated levels of MeHg in sediments around drilling platforms are not a widespread phenomenon in the Gulf of Mexico"... "The data presented in this report also make a reasonable initial argument for the conclusion that Hg introduced with barite during offshore drilling cannot be directly linked to enhanced levels of MeHg in nearfield sediments.

Response 007-053.

Please see Response 009-040.

Response 007-054.

This also responds to Comments 002-001, 002-002, and 005-013.

Section IV.B.1.b of the draft EIS (page IV-28) states, in part: “Air pollutants discussed include nitrogen oxides, carbon monoxide, sulfur dioxide, particulate matter (PM), and volatile organic compounds. Ozone is not emitted directly by any source but is formed in a series of complex photochemical reactions in the atmosphere involving volatile organic compounds and nitrogen oxides. Nitrogen oxides consist of both nitric oxide and nitrogen dioxide. The nitrogen oxides are formed from the oxygen and nitrogen in the air during combustion processes, and the rate of the formation increases with combustion temperature. Nitric oxide, the major component of the combustion process, will slowly oxidize in the atmosphere to form nitrogen dioxide; nitrogen dioxide and volatile organic compounds perform a vital role in the formation of photochemical smog. Nitrogen dioxide breaks down under the influence of sunlight, producing nitric oxide and atomic oxygen. Nitric oxide and atomic oxygen then combine with diatomic oxygen to form ozone or with volatile organic compounds to form various gaseous and particulate compounds that result in the physiological irritation and reduced visibility typically associated with photochemical smog.”

The MMS agrees that additional air quality monitoring in the Cook Inlet area may be desirable. Section IV.B.1.b(2) of the EIS states, in part: “If the projected emissions from a proposed facility exceed 250 tons per year, the operator would be required to apply to the EPA for a Prevention of Significant Deterioration (PSD) permit. This would involve an air quality impact analysis using a regulatory air quality model. In addition, if the proposed facility is located within 100 kilometers (62 miles) of the Class I area, the project would be reviewed by the FWS. The FWS would evaluate the proposal in terms of the PSD Class I increments as well as impacts of air quality related values, including effects on visibility. If the predicted pollutant concentrations exceed any of the Class I significance levels, an increment consumption analysis would be required. This analysis would include any other emission sources in the area that could contribute to the consumption of the maximum allowable increases in concentration. Such a cumulative analysis would not be appropriate during the pre-lease stage because of the lack of site-specific information at this time.” The EPA and the FWS would look very closely at operators’ applications for the required air quality permits. Part of this process could include additional air quality monitoring requirements.

Response 007-055.

We have added ITL clause 7 - Air Quality Standards and Regulations, to highlight the Tuxedni National Wilderness Area class I PSD. Also, please see Responses 111-002, 002-001, 002-002, 005-013, 009-012, and 007-054.

Response 007-056.

We acknowledge the one exceedance of the carbon monoxide standard in Anchorage in 2001. However, no violation occurred that year, because the standard must be exceeded more than once before there is a violation of the standard. We have modified the text of Section III.A.5 clarify this condition.

Response 007-057.

The cumulative analysis tiers from the previous analysis. The cumulative analysis was not meant by NEPA and the CEQ to be a stand-alone document. Those effects that are identified in Section C of the comment letter (Gov. to Gov. consultations) are analyzed further for cumulative effects from other perturbations that could produce an additive, synergistic or countervailing effect with any new references accordingly.

Response 007-058.

In addition to the study by Becker et al. (2000) (which included contaminant analyses of samples of beluga whales from the Cook Inlet stock, the eastern Chukchi Sea stock, and the eastern Beaufort Sea stock and is part of a larger study known as the Alaska Marine Mammal Tissues Archival Project), the MMS has provided funding for and, in many cases, identified the need for and initiated numerous studies that contribute to understanding the effects of oil-industry noise and toxic effluents on beluga whales. While some, but not all, of these studies have been focused in the Beaufort Sea, their findings are relevant to belugas in other parts of their range. These studies include, but are not limited to the following:

- Distribution of Cook Inlet Beluga Whales...in Winter (1997);
- Satellite Tracking of Eastern Chukchi Sea Beluga Whales in the Beaufort Sea and Arctic Ocean
- Monitoring the Distribution of Arctic Whales (this is a long-term study that includes surveys of beluga whales)
- Analysis and Ranking of the Acoustic Disturbance Potential of Petroleum Industry Activities and other Sources of Noise in the Environment of Marine Mammals in Alaska; Marine Mammal Habitat Use in the North Aleutian Basin, St. George Basin, and Gulf of Alaska (1985, 1986, and 1987)
- Marine Birds and Mammals of Unimak Pass; Beluga Whale Tagging Studies
- Study of the Effects of Oil on Cetaceans
- Expanded Studies of the Effects of Oil on Cetaceans
- A Review of Effects of Oil on Marine Mammals
- The Alaska Frozen Tissue Collection, Alaska Marine Mammal Health and Contaminants Website

The MMS has initiated and funded numerous other studies related to understanding the impacts of OCS oil and gas development on belugas (and other cetaceans), such as studies on oil-spill modeling; the fate and distribution of PAH's in marine systems; ecological studies of fish in Southcentral Alaska, the Bering Sea, and the Alaska Peninsula, etc. These related studies are too numerous to detail here, but we refer the commenter to the MMS's Alaska Annual Study Plans for the past 10 years, the Annual Reports from the Coastal Marine Institute, and the Proceedings from our Annual Information Transfer Meetings.

Response 007-059.

Please see Response 008-006.

Response 007-060.

The EIS presents information regarding the many resources of Cook Inlet, covering all relevant aspects of the complex physical, biological, and human environment. We make the composition and presentation as understandable as possible, keeping in mind the diverse audience for the document, without oversimplifying the analysis. The length of the document and the detail of the analysis also reflect the requests that we receive to include numerous resources.

Response 007-061.

The MMS has examined the comments submitted by e-mail and the petition submitted by Cook Inlet Keeper. Those comments that reflected concerns about the content of the EIS were identified and analyzed, and a response was drafted. While the opinion of the public regarding the lease sale—whether for, against, or ambivalent—is considered by the decisionmakers, it is not a topic that can be analyzed within the context of the EIS. Section VII explains the criteria and process by which we identify, evaluate, and respond to substantive comments.

Response 007-062.

The commenter notes that the Kenai Peninsula Borough has embarked on an aggressive campaign to brand and market Cook Inlet salmon under the label "Kenai Wild." Further, the commenter notes that the program is meant to spur demand for the Cook Inlet wild salmon in the face of global market gluts caused by farm-raised fish. We have not considered this in the analysis of effects, because it is very difficult to determine how successful this campaign will be. We have assessed the effects of Sale 191 on commercial fishing in Section IV.B.1.k

The commenter states that the EIS fails to consider the "chronic toxicity science discussed herein." We do not think low-level chronic oil releases will have an effect on the environment; see Section IV.B.1.a - Water Quality.

The commenter states the EIS fails to consider "the effects on local communities should the market perception of Cook Inlet salmon get sullied with the presence of new OCS development." We do not

anticipate that the market perception will be any different than what has existed for the last 30-plus years with the existence of producing oil wells on the west side of Cook Inlet.

The commenter states that the EIS fails to consider the economic losses that may be experienced by local and borough governments. We do analyze the potential economic effects of Sale 191 on sport fishing in Section IV.B.1.o and on commercial fisheries in Section IV.B.1.k. We analyze qualitatively potential effects on tourism in Section IV.B.1.n.



"The mission of the Council is to represent the citizens of Cook Inlet in promoting environmentally safe marine transportation and oil facility operations in Cook Inlet."

February 10, 2003

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**REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA**

John Goll, Regional Director
Minerals Management Service,
Alaska OCS Region
949 E 36th Ave., Rm. 308,
Anchorage, AK 99508-4363

Re: Comments on the Cook Inlet Planning Area Oil and Gas Lease Sales 191 & 199,
Draft Environmental Impact Statement-OCS EIS/EA MMS 2002-06

Dear Mr. Goll:

These comments are submitted in response to the Mineral Management Service (MMS) call for comments on the Cook Inlet Planning Area Oil and Gas Lease Sales 191 & 199, Draft Environmental Impact Statement-OCS EIS/EA MMS 2002-06. Cook Inlet Regional Citizens Advisory Council (RCAC) strongly urges lease stipulations requiring successful bidders on any tracts in any lease sales in this planning area to fund site-specific oil spill response plans and community-based oil spill response teams. In addition, we urge MMS to continue to aggressively fund physical oceanographic studies in Cook Inlet as well as to support intertidal studies in areas of particular concern as described in Attachment A.

The mission of the Cook Inlet RCAC is to represent the citizens of Cook Inlet in promoting environmentally safe marine transportation and oil facility operations in Cook Inlet. We will continue with our mission through the process of this lease sale and through any post-lease activities in Cook Inlet and look forward to a continued strong working relationship with the MMS OCS staff.

We appreciate the opportunity to provide our recommendations on this lease sale action. We welcome the chance to discuss these matters in person so if you have questions please contact me at the number below. I also recommend that you contact our staff, Mike Munger (Director of Operations) or Susan Saupe (Director of Science and Research) to discuss our comments in more detail.

Sincerely,

James E. Carter, Sr.
Executive Director

Attachments: Comments and recommendations provided by the Cook Inlet
Potential Relict Arctic Fauna on the west side of Cook Inlet

cc: Protocol Control Committee, CIRCAC

Members

*Alaska State
Chamber of
Commerce*

*Alaska Native
Groups*

*Environmental
Groups*

*Recreational
Groups*

*Aquaculture
Associations*

*Fishing
Organizations*

City of Kodiak

City of Kenai

City of Setdovia

City of Homer

*Kodiak Island
Borough*

*Kenai Peninsula
Borough*

*Municipality
of Anchorage*

Cook Inlet RCAC Comments on the Cook Inlet Planning Area Oil and Gas Lease Sales 191 & 199, Draft Environmental Impact Statement-OCS EIS/EA MMS 2002-06.

Cook Inlet RCAC recommends that the MMS make the following stipulations part of any individual leases issued:

1. Site-specific oil spill response plans

Commencing on the date of any drilling activities under a lease, holders should be required to provide annual funding for the continued development of Geographic Response Strategies (GRS) for lower Cook Inlet, Kodiak Island and the Alaska Peninsula. GRS will provide protection strategies for environmentally sensitive areas and areas of public concern that may be impacted by oil spills from the development of the area covered by these lease sales.

001

GRS are oil spill response plans tailored to protect a specific sensitive area from impacts following a spill. These response plans are map-based strategies that can save time during the critical first few hours of an oil spill response. They show responders where sensitive areas are located and where to place oil spill protection resources¹. Once developed, a GRS becomes part of the State/Federal Unified Subarea Contingency Plan.

To date, the GRS developed for Cook Inlet have been facilitated through a Industry/State/Federal working group and a contract managed by Cook Inlet RCAC. In the past, funding has come from several sources, but there is currently a long list of sensitive areas for which strategies should be developed but for which funding is not currently available. Any oil exploration or development in the proposed lease area could pose risks to additional sensitive areas.

Cook Inlet RCAC recommends that the successful bidder of each tract be required to fund \$10,000, annually, towards the development of these important oil spill protection strategies. This amount would allow for GRS to be developed for four sensitive sites to be selected by the natural resource management agencies. It is important to begin this planning activity as soon as drilling activities have been approved, in order for the plans to be developed and tested before exploration activities begin. We believe that the risk posed to sensitive areas downstream of any future oil industry operations in lower Cook Inlet or upper Shelikof Strait provides strong justification for this request.

As described in the DEIS, we know that a portion of the Alaska Coastal Current, as well as upwelled deeper water, enters Cook Inlet via Kennedy Entrance in southeast Cook Inlet. A significant volume then flows north along the east side of Cook Inlet, then turns west to join the southward flow along the west side of Cook Inlet, with

¹ More information about GRS may be found at the following web site:
<http://www.state.ak.us/dec/dspar/perp/grsswd/>

much of the water sweeping by Cape Douglas, through Stevenson Entrance and into northern Shelikof Strait where it continues southwest along the Alaska Peninsula and west side of Kodiak Island. Surface oil can be carried by these net currents to areas downstream and the Alaska Coastal Current was key in transporting oil out of Prince William Sound and to the Kenai Peninsula, Cook Inlet, the Alaska Peninsula, and Kodiak Island² and, as shown by the oil spill trajectories conducted for this DEIS, these net currents most likely will also move spilled oil from future OCS activities to areas downstream of discharge points.

001

Cook Inlet RCAC has unpublished data from drift cards released along transects perpendicular to the shorelines along eastern Cook Inlet that support the general surface circulation pattern described above. As for most drift card studies, the return rate was low (<5% of ~10,000 drift cards released). However, we received reports of drifts cards that were released in eastern Cook Inlet found in various bays on the west and east sides of Shelikof Strait.

Although the oil spill trajectory model predicts that the majority of the coastal regions have less than a 20% chance of being contacted within 30 days should a large oil spill occur, we believe that it is vital to have pre-planned protection strategies, via the GRS process, in place for areas downstream of oil operations.

2. Community-based oil spill response teams

The lease sale should also stipulate that lease holders provide annual funding to the community-based oil spill programs in the communities of Lower Cook Inlet and Kodiak Island. This funding should begin on the date of any active drilling and should continue throughout drilling for exploration purposes as well as throughout the time when any crude oil is produced from these leases.

002

Many tidelands and communities in the lease sale area were impacted by the Exxon Valdez oil spill and many of the fishermen of the area were also impacted by the Glacier Bay oil spill. Since the early 1990s the communities of the lease sale area have organized community-based oil spill response. The best example of this home-guard for oil spill response is the Seldovia Response (SOS) Team.

Formed in 1990 by donations from the City of Seldovia, the Kenai Peninsula Borough and the local members who had cleaned oil the previous summer, the SOS Team's mission is protecting the environment through oil spill education, prevention, readiness and response. The SOS Team has established an equipment depot and trained local volunteers in oil spill response. These local response teams are the likely response force to implement the GRS discussed above.

CIRCAC recommends that the successful bidder of each tract be required to annually fund \$10,000 when any drilling commences, to be divided among the community-based response teams in the communities in Lower Cook Inlet and Kodiak Island.

Again, resources that these communities depend on either economically or for quality of life could potentially be impacted by oil operations upstream.

As described above, the communities on Kodiak Island rely on resources that are downstream of potential oil spills as a result of future activities resulting from this OCS lease sale. However, it is important to keep in mind that net currents are not the only way that oil can be distributed to shorelines in the near- and far- afield of an oil spill. Seasonal storms can have a strong influence on surface currents and can potentially drive oil to shorelines in the opposite direction of net currents. Thus, it is important that all communities in lower Cook Inlet also have this protection.

3. NPDES discharges from OCS exploration and production activities

Through discussions with MMS staff and at public hearings, we understand that MMS will not require zero discharge as a stipulation to the sale of their leases and will rely on the Environmental Protection Agencies authority for determining discharges to Cook Inlet. We request that the MMS, through their MOU with the EPA's Region 10 office, fulfill their promise in the DEIS to work with the EPA to examine the technically and economically feasible methods for disposal of drilling fluids and cuttings and their environmental effects during post-lease activities. In addition, if not specifically required through EPA's NPDES process, we request that MMS consider "restricting the rate of drilling fluid discharge, prescribe alternative discharge methods, or restrict the use of components which could cause unreasonable degradation to the marine environment."³ Currently, Cook Inlet has an exclusion from zero-discharge for produced waters and water-based drilling fluids for existing production platforms in the coastal subcategory and *for future exploratory operations in Cook Inlet north of the line between Cape Douglas on the west, and Port Chatham on the east*. In other words, post-lease exploratory wells for Lease Sales 191 and 199 could be covered under the current general permit. [These discharges, however, would not be considered an "exclusion" as they fall into the offshore subcategory which allows the discharge of water-based and synthetic-based fluids nationwide.]

The coastal subcategory exemption from zero-discharge for water-based drilling fluids and cuttings in coastal Cook Inlet was based on several factors, including the small volumes of discharges expected, weather and logistics problems, economic considerations, and other factors. The exemption from zero-discharge for produced water in coastal Cook Inlet was based on the technical infeasibility of reinjecting produced waters (due to the inappropriate geological formations, scaling and hydrogen sulfide formation in piping, reservoir plugging and souring) and economic considerations (lack of cost-effective alternative to reach zero-discharge)⁴.

³ In accordance with 30 CFR 250.300(b)(1).

⁴ Prentki, R. T. 1995. The "Alaska Exemption for Offshore Oil and Gas Industry Discharges under National Pollutant Discharge Elimination System (NPDES). Alaska OCS Region Briefing Paper. Federal Register. 1996. Final Effluent Limitations Guidelines and Standards for the Coastal Subcategory of the Oil and Gas Extraction Point Source Category. 61 Federal Register 242, 66085-66130. Federal Register. 1999. Final NPDES General Permit for Oil and Gas Exploration, Development and Production Facilities in Cook Inlet, [AL] (AKG285000). 64 Federal Register 46, 11885-11098.

Since the ruling that provided for the Cook Inlet exemption, there has been additional information available that has led the EPA to not provide for the standard Cook Inlet exemption for the discharge for synthetic-based drilling fluids to coastal waters⁵. The EPA identified that many Cook Inlet operators in Coastal waters are successfully using cutting reinjections for oil-based and synthetic-based drilling fluids. In addition, the exploratory Osprey platform in Cook Inlet is reinjecting drilling fluids and will reinject produced water during production. The technology is clearly available for zero-discharge in many instances and all future post-lease activities should employ re-injection well technology, either on-site or on-shore.

003

In the event that reinjection is not required or is not feasible, we recommend that the MMS, through its authorities under Section 20 of the Outer Continental Shelf Lands Act, either conduct or require lessees to conduct "...such additional studies to establish environmental information ...in a manner designed to provide time-series and data trend information which can be used for comparison with any previously collected data for the purpose of identifying any significant changes in the quality and productivity of such environments, for establishing trends in the area studied and monitored, and for designing experiments to identify the causes of such changes." There are several studies that have provided or will soon provide information that can be considered background or baseline to any post lease oil and gas activities associated with this particular lease sale.

004

The benefit to on-going sediment monitoring downstream of operations is that it will provide Cook Inlet-specific information on potential effects of drilling muds and cuttings on benthic communities and may validate a prior Cook Inlet study at an OCS well⁶ that concluded there were no statistically significant differences in benthic communities near the drilling platform compared to control locations. More detailed studies will provide the statistical power to make broader statements regarding discharge impacts, or lack thereof, to Cook Inlet's biological resources.

4. Additional studies

The Cook Inlet RCAC recommends that the MMS support additional studies in the areas of the lease sale. These include a continuation of the physical oceanography studies that have recently been or are currently being supported by the MMS, either through their Environmental Studies Program or through the Coastal Marine Institute. As described in the DEIS, "...our knowledge of the complex circulation and weather patterns in Cook Inlet upon which the model is based is rudimentary. For example, our knowledge of tide rip location...and even more our knowledge of how to model the complex mixing of oil into and out of the rips is rudimentary." It is imperative

005

⁵ Federal Register. 2001. Effluent Limitations Guidelines and New Source Performance Standards for the Oil and Gas Extraction Point Source Category; OMB Approval under the Paperwork Reduction Act: Technical Amendment Final Rule. 66 Federal Register 14, 6850-6919.

⁶ Dames and Moore. 1978. Drilling Fluid Dispersion and Biological Effects Study for the Lower Cook Inlet C.O.S.T. Well. Anchorage, AK; Atlantic Richfield Company, 109 pp.

that we continue to develop tools and collect data that will allow us to improve our ability to evaluate surface oil and dispersed plume trajectories in Cook Inlet. Strong consideration should be given to focusing significant long-term efforts to physical oceanographic studies in Cook Inlet and incorporate the most recent technology for obtaining the highest quality and most useful data. These technologies should include ADCP, surface and drogued satellite drifters, HF surface current radar, basic hydrographic surveys, and the support of remote sensing via satellites such as SAR, RadarSat, SeaWIFs, etc...

005

Additional information that the Cook Inlet RCAC would like the MMS to evaluate and consider in their decisions for environmental studies in the lease area is included as Attachment A. This information should be incorporated into ITL No. 3. In order to truly evaluate these intertidal habitats, further surveys should be conducted to determine the species composition and distribution of these assemblages and we recommend that MMS consider supporting these efforts through their Environmental Studies Program.

006

General Comments on the DEIS:

Final Environmental Impact Statements often provide good summaries of the general ecological knowledge in the area and, thus, the bibliographies and references to studies should be as comprehensive as possible. The requirements for drafting an EIS include numerous species, habitats, ecological parameters, and potential risks and we realize that it is impossible in a document this large to be able to provide summaries and integration of all of the data that has been collected. However, there are a few areas of the DEIS where the summaries are weak relative to the amount of data available. Some of these are described below for parameters that we have specific knowledge of and we hope that the various state and federal agencies as well as experts in each field will help you by providing detailed information for other parameters or areas of expertise. The comments below also provide several recommendations for correcting discrepancies or errors or for clarifying issues in the DEIS.

007

IIIB.1.b Benthic and Intertidal Habitats

Given the volume of information that is available on the intertidal and subtidal habitats within Cook Inlet, this section is especially weak. As recognized in the DEIS, intertidal habitats are at risk to oil spills given that any floating oil that contacts land will hit between high and low water and thus will interact with the intertidal environment. We know from beaches in Prince William Sound that oil from the Exxon Valdez oil spill has continued to contaminate intertidal habitats, thirteen years after the spill, and may continue to be bioavailable to intertidal predators⁷. Many of the shorelines that have been identified through the scoping process as being areas of concern include areas that have been rated as highly vulnerable as they are semi-permeable mud substrates that are

008

⁷ Rice, J., J.W. Short, and M. Lindeberg. 2003. Bioavailability of PAH from oil patches and impacts to prey species. In: *Marine Science in the Northeast Pacific: Science for Resource Dependent Communities. Proceedings for Joint Scientific Symposium*. EVOS Trustee Council, Anchorage, AK.

sheltered from wave energy and strong tidal currents. The DEIS should provide a stronger background of the intertidal assemblages found in Cook Inlet and provide information on the link from intertidal zone to higher predators. In addition, given that there is the potential for discharge of drilling muds and cuttings, and the incredible public concern that this has always drawn, we think there should also be a stronger description of subtidal benthic community.

008

Given that there have been past claims by some members of the public that oil industry operations caused the crash of shellfish fisheries in Cook Inlet, it is especially important that a description of these habitats be provided under a description of Biological Resources. References should be made to the recent information that has been provided through the EVOS Trustee agencies that gives us a better understanding of the potential for major shifts in the benthic communities of Cook Inlet; a regime shift caused by multi-decadal changes in physical oceanographic parameters that resulted in major shifts of benthic populations⁸.

009

There were also several subtidal benthic surveys conducted for federal offshore leases during the 1970s that targeted areas also included in this lease sale. If nothing else, the EIS should provide a fairly comprehensive bibliography of where more detailed information could be found for benthic habitats in the intertidal and subtidal environments⁹.

010

Section III. B.2.b. Groundfish

This section is missing a body of work that provides good information on the use of Cook Inlet by juveniles of many flatfish species. These studies¹⁰ were in part funded by MMS and should be described here as they provide good information on species associations with specific bottom types even though much of the data is from areas of Cook Inlet to the east of the lease sale area.

011

Currently, a trend of increasing returns of certain sharks has been observed in the Cook Inlet waterways and we believe that a mention of potential interactions with development is warranted. This is another example where as much information as possible should be presented up-front in the EIS, before any lease activities take place. This is especially important in light of how some populations or assemblages can dramatically change as a

012

⁸ Anderson, P. J. and Piatt, J. F. 1999. Community reorganization in the Gulf of Alaska following ocean climate regime shift. *Marine Ecology Progress Series* 117-123.

⁹ The Cook Inlet RCAC can provide a list of data sources that could be incorporated here, that will most likely include reference to the Kachemak Bay Research Reserve's Ecological Characterization database as well as several more recent reports on epifaunal and infaunal invertebrate and algal assemblages in Cook Inlet.

¹⁰ Abookire, A. A. and Norcross, B. L. 1998. Depth and substrate as determinants of distribution of juvenile flathead sole (*Hippoglossoides elassodon*) and rock sole (*Pleuronectes bilineatus*) in southcentral Alaska. *Journal Sea Research* 39: 113-123.

Abookire, A. A., Piatt, J. F., and Norcross, B. L. 2001. Juvenile groundfish habitat in Kachemak Bay, Alaska, during late summer. *Alaska Fishery Bulletin* 8: 45-56.

Abookire, A. A., Piatt, J. F., and Robards, M. D. 2000. Nearshore fish distributions in an Alaskan estuary in relation to stratification, temperature and salinity. *Estuarine, Coastal and Shelf Science* 51: 45-59.

result of regime shifts or other factors. Given the expected life-span of developed leases, we can expect that there may be at least one major regime shift or multi-decadal oscillation to take.

012

Section III.B.3.b.2 Essential Fish Habitat: Habitats of Particular Concern

Reference is made here to the North Pacific Fisheries Management Council's identification of habitats of Particular Concern. In their Fisheries Management Plan, the Council defined Habitats of Particular Concerns as being "living substrates in shallow and deep waters, and freshwater habitats used by anadromous fish. Habitat areas of particular concern are those areas of special importance that may require additional protection from adverse effects." Although currently not subject to any management actions at this time, the council has stated that nearshore, shallow algal substrates may be included as biota requiring protection in the future, given their importance for certain fish habitat. The DEIS should consider whether there is the potential for areas of Kamishak Bay, where submerged vegetation is an important spawning area for Pacific herring, to be considered Habitats of Particular Concern in the future.

013

A sentence in this section of the DEIS reads "Cook Inlet, Shelikof Strait, and Kennedy Entrance have few notable regions of eelgrass and kelp except within Kachemak Bay." We have recently conducted detailed surveys of the shorelines throughout most of Cook Inlet, both in the air and on the ground, and have found areas of concentrations of both eelgrass and kelps in areas outside of Kachemak Bay. Although not as common on the west side of Cook Inlet, there are areas of very dense algal beds that provide substrate for spawning herring and potentially are habitat for other forage fish. These dense algal beds include kelps such as the *Alarias* and *Fucus gardneri*. In addition, there are also areas of dense *Zostera marina* in the very low intertidal and shallow subtidal areas just offshore of many of these other algal beds. These areas of concentrated algal communities occur on fairly extensive rocky reef substrates throughout Kachemak Bay and on Augustine Island. Unfortunately, the timing of this DEIS is such that we do not have the data released for general review at this time. The Cook Inlet RCAC will work with the MMS staff to ensure that even the draft data from our intertidal and nearshore studies are provided.

014

Page III-30, on benthic community hydrocarbons, has a reference to *Fucus distichus* samples from the Homer Harbor. This species identification needs to be clarified with an algal taxonomist as there have been changes made to the taxonomic classification of the genus *Fucus* and recently most current papers that report data on this algae in Alaska have used *F. gardneri* for the previously named *F. distichus*. Since the author of the study being summarized in this section of the DEIS reported data for *F. distichus*, perhaps simply replacing the text with "*Fucus distichus* Linneaus => *Fucus garnderi* P.C. Silva" or "*Fucus gardneri* (previously *F. distichus*)" would be appropriate.

015

Finally, there are several other studies that have recently been conducted in Cook Inlet or include the areas of the lease sale in their scope. Unfortunately, these studies have also not yet released their data to the public and are in the process of analyzing samples and will be conducting data analyses over the next several months. The Cook Inlet RCAC

016

will again work with the MMS staff to ensure that as much of this data as possible is provided to ensure reference to or inclusion in the DEIS such that the document is as up-to-date as possible. These studies include an assessment of coastal condition in the marine bays and estuaries of the northern Gulf of Alaska from Unimak Pass to Icy Bay. This study is being conducted as part of a National Coastal Assessment through EPA's Environmental Monitoring and Assessment Program. This project is currently administered by the Alaska Department of Environmental Conservation with Cook Inlet RCAC providing the Lead Scientist for this southcentral Alaska program. The study area encompasses the lease sale area and will provide a background assessment of benthic condition, through a randomized probabilistic design, against which more detailed, localized studies can be compared.

Several other Cook Inlet RCAC studies will provide significantly more information on nearshore areas of Cook Inlet. These studies include our ShoreZone mapping program, a ground-truth survey study for developing detailed bioband and habitat description tables, and our continued intertidal reconnaissance surveys.

Attachment A: Potential Relict Arctic Fauna on the west side of Cook Inlet

As early as 1976, (Lees 1976) observed that the subtidal epifauna on the west side of lower Cook Inlet bears a striking resemblance to that reported by MacGinitie (1955) for Point Barrow. In subsequent years, further studies during NOAA's Outer Continental Shelf Environmental Assessment Program for Minerals Management Service provided further evidence to support the hypothesis that the fauna in this region is a relict Arctic fauna (Lees and Driskell 1980, Lees et al. 1980). Staff at the Univ. of Alaska, Fairbanks museum independently developed a similar opinion based on collections by Mr. Rae Baxter and Dr. George Mueller on the west side of Cook Inlet (Nora Foster, UAF, pers. comm., January 2003).

Table 1 provides a listing of some of the species that appear to support this hypothesis. Lees and Driskell (1980) and Lees et al. (1980) list 36 species that have been reported or described in Arctic habitats. Some of these species are found in other regions of Cook Inlet or the Gulf of Alaska but at least fifteen of them have not been reported outside of the western waters of Cook Inlet. Thirty-five of these species were reported from Point Barrow (MacGinitie 1955) and a few others have been identified by Foster as representing the Arctic fauna (pers. comm.) These species include one echinuran, two chitons, five bivalves, nine gastropods, one crustacean, thirteen bryozoans, two brachiopods, five echinoderms, and four tunicates.

MacGinitie (1955) noted that Bryozoa (=Ectoprocta) are extremely important part of the Point Barrow fauna. This was also observed in subtidal habitats on the west side of lower Cook Inlet (Lees 1980a and 1980b), where both bryozoans and ascidians with Arctic affinities have been reported to occupy a substantial amount of primary space (rock surface). Some of the bryozoans are quite striking, forming complex frilly heads exceeding 25 cm in diameter and 15 cm high.

It is likely that the list included in Table 1 is incomplete. The amount of effort expended in examining this biogeographic anomaly has been light. Certain groups (e.g., crustaceans) have been largely neglected. Moreover, the taxonomic effort has been minimal; most groups have yet to be examined by qualified taxonomic experts. It is probably that further effort will uncover numerous additional species with Arctic affinities.

Although some of these species occur on the east side of Cook Inlet or in the Gulf of Alaska, the subtidal epifauna from subtidal habitats off Chinitna Bay and in Kamishak Bay appears to be more similar to that described by MacGinitie (1955) for Point Barrow and the Beaufort Sea than to that reported for Kachemak Bay and the outer Kenai Peninsula (see Rosenthal and Lees 1976, Lees and Driskell 1980a, and Lees et al. 1980). This interesting fauna appears to be separated from other areas where many of its species or congeners occur by at least the eastern side of the Alaska Peninsula. However, few studies have been conducted in the Bering or Chukchi Seas or Norton Sound that would permit a suitable comparison. It is possible that many of the species do not occur nearer to the populations in western Cook Inlet than the Beaufort Sea.

Thus, it appears that many of these species are effectively isolated from similar species or genera. Based on its duration, it is possible that geographic isolation has allowed some species to become genetically distinct, to the point of evolving into separate subspecies or species. Considerable taxonomic work will be required to determine the systematic status of many of these species. Thus, this assemblage is very interesting in evolutionary terms. As an example, qualified taxonomic examination of the softshell clam *Mya arenaria* may provide great insight into whether populations in this region are descended from introduced populations from British Columbia or Washington or whether they are native and have expanded their range east into eastern Cook Inlet, the Gulf of Alaska, and Prince William Sound.

In any event, it is clear that these isolated populations of species may be at risk of regional extinction. If they have not evolved to deal with warmer temperatures, for example, global warming could pose a threat to some of the species. Moreover, it is possible they could prove to be sensitive indicators of global warming. It could be helpful to monitor their distribution and abundance from that viewpoint. Moreover, because of the restricted distribution of these species combined with the prevailing currents in this region out of Cook Inlet, the persistence of these species raises some interesting questions about their reproductive mechanisms and strategies.

In view of the potential risk of these assemblages to changes in global climate and their scientific potential, efforts should be made when planning new development to protect these populations. As part of those efforts, further surveys should be conducted to determine the species composition and distribution of these assemblages. Substantial taxonomic effort should form a significant component of these studies.

References

- Foster, Nora. 2003. Pers. Comm.
- Lees, D. C. (1976). The epifaunal assemblage in the Phillips Petroleum lease site off Spring Point, Chinitna Bay, Alaska. Homer, AK, Prepared for Phillips Petroleum Company by Dames & Moore: 32 pp + 3 appendices.
- Lees, D. C., J. P. Houghton, et al. (1980). Ecological studies of intertidal and shallow subtidal habitats in lower Cook Inlet, Alaska. Final Report for NOAA by Dames & Moore. 403 pp.
- MacGinitie, G. E. (1955). Distribution and ecology of the marine invertebrates of Point Barrow, Alaska. City of Washington, Smithsonian Institution.
- Rosenthal, R. J. and D. C. Lees (1976). Marine plant community study, Kachemak Bay, Alaska, Prepared by Dames & Moore for the State of Alaska, Department of Fish and Game: 288.

Table 1. Faunal Similarities between Point Barrow and other Arctic Locations and the West Side of lower Cook Inlet. Species that are not known to have been reported in other regions in Cook Inlet or the Gulf of Alaska are noted in bold.

Major Taxon	Genus/Species	Lees reports	Specimens in U.A.E. Museum*	MacGinitie - Point Barrow	Major Taxon	Genus/Species	Lees reports	Specimens in U.A.E. Museum*	MacGinitie - Point Barrow
ECHINURIA	<i>Echiturus echiturus alaskanus</i>	X		X	MOLLUSCA - Gastropoda cont'd)	<i>Eptonium groenlandica</i>	X		
						<i>Natica clausa</i>	X		X
MOLLUSCA - Polyplacophora	<i>Amicula vestita</i>	?	X	X		<i>Neptunaea lyrata</i>	X	X [†]	
	<i>Ischnochiton alba</i>	X		X		<i>Neptunaea borealis</i>	X		
						<i>Velutina ?prolonga</i>	X		?
MOLLUSCA - Pelecypoda					ARTHROPODA - Crustacea				
	<i>Hiatella arctica</i>	X		X		<i>Mesodotea (=Saduria) entomon</i>	X	X	X
	<i>Modiolus modiolus</i>	X		X					
	<i>Musculus discors</i>	?		X	BRYOZOA (= ECTOPROCTA)				
	<i>Mya arenaria</i>	X		X		<i>Alyonidium pedunculatum</i>	X		X
	<i>Mya truncata</i>	X		X		<i>Alyonidium polyoym</i>	X		X
MOLLUSCA - Gastropoda						<i>Bidenkapia spitsbergensis alaskensis</i>	X		X
	<i>Beringius cf. B. beringi</i>		X**	X		<i>Bidenkapia spitsbergensis</i>	X		X
	<i>Boreotrophon clathralus</i>	X		X		<i>Carbasea carbasea</i>	X		X
	<i>Buccinum glaciale</i>	X		X		<i>Costazia surcularis</i>	X		X
	<i>Capulacmaea commodum</i>		X			<i>Costazia nordenskjoldi</i>	X		X
BRYOZOA (cont'd)					ECHINODERMATA				
	<i>Dendroheania murrayana</i>	X		X		<i>Crossaster papposus</i>	X		X
	<i>Eucratea loricata</i>	X		X		<i>Henricia sanguinolenta</i>	X		X
	<i>Flustrella corniculata</i>	X		X		<i>Leptasterius polaris acervata</i>	X		X
	<i>Myriozoum subgracile</i>	?		X		<i>Solaster endeca</i>	?		X
	<i>Terminoflustra membranaceo-truncata</i>	X		X		<i>Strongylocentrotus droebachiensis</i>	X		X
	<i>Tricellaria erecta</i>	X		X	ASCIDIACEA (= TUNICATA)				
BRACHIOPODA						<i>Boltonia echinata</i>	?		X
	<i>Hemithyrus psittacea</i>	X		X		<i>Dendrodoa pulchella</i>	X		X
	<i>Dicostothyris spitsbergensis</i>	X		X		<i>Halocynthia aurantia</i>	X		X
						<i>Pelonaia corrugata</i>	X		X

Number of Species 35 4 36

- * Collected by Mr. Rae Baxter and Dr. George Mueller
- ** Not the *B. kennicottii* form
- † Small intertidal individuals - different from the typical Gulf of Alaska form

MMS Response to Comment Document 008

Response 008-001.

The MMS does not have the regulatory authority to require payment from the lessee to fund the development of geographic response strategies. However, offshore oil and gas operators, through their participation in the CISPRI, have contributed to the development of the geographic response strategies in Cook Inlet. Nonetheless, the MMS recognizes the importance of geographic response strategies as a tool in oil-spill prevention and response and will advise lessees through ITL No. 3 - Sensitive Areas to be Considered in Oil Spill Contingency Plans that they should become familiar with the system.

Response 008-002.

This also responds to Comments 005-015, 024-033, 028-003, 093-001, 095-001, 096-001, 099-001, and 007-044.

The MMS does not have the regulatory authority to require payment from the lessee to community oil-spill-response teams. However, these community response teams are supported indirectly by offshore oil and gas operators through CISPRI. The CISPRI is a nonprofit corporation formed in 1990 to provide oil-spill-prevention and -response capabilities in Cook Inlet for its member companies, which include offshore oil and gas operators. The CISPRI has been designated as a Class "E" Oil Spill Removal Organization by the U.S. Coast Guard, which is the highest level of designation based on spill containment and removal equipment requirements for offshore/ocean response. As part of its capability, CISPRI has contracts with more than 120 vessels of all types to assist in responding to spills. Many of these vessels are based in Homer and Seldovia. These community-based vessels are part of CISPRI's "vessels of opportunity" program. Each vessel is contracted to be ready for spill response as well as to practice regularly. The CISPRI conducts training exercises that include these community-based responders.

Response 008-003.

This also responds to Comments 001-011, 007-017, 007-038, 007-039, 009-004, 009-039, 010-032, 014-002, 016-007, 018-002, 018-004, 023-001, 044-005, 047-008, 052-003, 060-001, 086-004, 086-005, 097-004, 099-002, and 119-001.

The EPA has jurisdiction over discharges of drilling muds and cuttings through the NPDES discharge system. Discharge of drilling muds and cuttings during exploration is allowed under the General NPDES Permit currently in effect for Cook Inlet. The EIS analysis indicates no significant effect from the discharges during exploration on water quality or other resources. Information on the effect of potential discharges was fully examined in the final EIS for Sale 149.

As indicated by the EPA's comments on the draft EIS contained in Section VII (Document 006, Water Quality, Pollution Discharge Elimination System), any new developmental drilling or production (such as could result from Sales 191 and 199) is a new source. The General NPDES Permit does not allow new sources to be covered under that permit. New sources need to complete the NEPA process (with a Finding of No Significant Impact) and obtain an individual NPDES permit from EPA for discharges. The EPA-preferred requirements for new individual permits would be similar to the required for the Forest Oil Osprey platform, which allows discharge of deck drainage, sanitary wastes, etc., but no discharge of produced water or drilling muds and cuttings. However, where it is not feasible for a facility to construct a Class I or Class II injection well (for example, for some locations in **upper** Cook Inlet), the discharge of produced water or drilling muds and cuttings could be discharged but would be accompanied by a very stringent monitoring program. In other words, for new sources in **lower** Cook Inlet, no discharge is the practice and discharge is the exception.

Because discharge depends on specific site characteristics, circumstances where an applicant asked for discharge would be analyzed in the environmental analysis that accompanies a Development and Production Plan and not a lease-sale EIS. The current general permit expires in April 2004. The EPA is

beginning planning for the new general permit. It is expected to include new sources that do not discharge produced water and drilling muds and cuttings. These facilities would require only an Environmental Assessment under the NEPA process. New sources that choose to discharge produced water and drilling muds and cuttings still would require an EIS under the NEPA process before obtaining an individual NPDES permit. These permits would include extensive environmental monitoring and studies that would be specific to the area of the discharge.

Response 008-004.

Please see Response 008-003.

If discharge is permitted as a new source, it will be accompanied by the requirement to conduct stringent monitoring and effects studies.

Response 008-005.

Please see Response 009-040.

Response 008-006.

The comment includes information in an attachment on the arctic-type fauna and flora on the west side of Cook Inlet; the information has been shared with the MMS Environmental Studies Program for study proposals.

Some of the information in the attachment has been added to the EIS to supplement the existing explanation that the intertidal communities in western Cook Inlet exhibited strong affinities to those of the Bering and Beaufort seas. The description now also explains that the geographic isolation of the organisms might have led to some genetic differences, and it references the detailed information in Attachment A to the CIRCAC letter.

The assessment section also now explains that the persistence of any spilled oil on the west-side shoreline might be unusually long, because the shorelines are covered by ice during part of the year. However, the assessment of probable effects on Cook Inlet intertidal communities still is based on the overall environmental sensitivity indices that were prepared for CISPRI and are being prepared for CIRCAC and the *Exxon Valdez* Oil Spill Trust. The indices and EIS assessment show that an assumed oil spill, which might affect up to 38 kilometers of shoreline, would be a very small portion of the west-side shoreline.

The arctic-type fauna and flora on the west side of Cook Inlet has not been added to the list in ITL clause 3 about sensitive areas to be considered in oil-spill-response plans, because the ITL clause now lists almost all of the west side of Cook Inlet as a sensitive area. For example, the list of special areas includes Kamishak Bay, Lake Clark National Park and Preserve, and all islands classed as wilderness under the authority of the Katmai National Park and Preserve.

Response 008-007.

The comment has been noted. Please see Responses 008-008 through 008-016 for responses to specific comments.

Response 008-008.

Additional information on benthic and intertidal communities has been added to EIS Section III.B.1.b. The information includes details on the deep-subtidal communities, the shallow-subtidal/intertidal communities, and typical predators in both of the communities.

Even though the draft EIS included extensive information on the persistence of oil in intertidal habitats, additional information has been added to EIS Section IV.B.1.c(3)(b). The additional information concerns the possible persistence of spilled oil on the west side of Cook Inlet, where the shoreline typically is covered by ice during part of the year.

Response 008-009.

Additional information on benthic and intertidal communities has been added to EIS Section III.B.1.b, providing a stronger background for any leasing decisions. The information includes details on the deep-subtidal communities, the shallow-subtidal/intertidal communities, and typical predators in both of the communities.

The draft EIS included extensive information on the persistence of oil in intertidal habitats, but additional information has been added to EIS Section IV.B.1.c(3)(b). The additional information concerns the possible persistence of spilled oil on the west side of Cook Inlet, where the shoreline typically is covered by ice during part of the year.

Additional species accounts of shellfish resources were added to Section III including the razor clam, Pacific weathervane scallop, pandalid shrimp, Alaska king crabs, Dungeness crab, and tanner crabs. Also, information regarding community reorganization of fisheries resources as a result of cyclical ocean-climate regime shifts has been added to show that another regime shift is predicted to occur again between 2000 and 2005.

Response 008-010.

Information on the subtidal benthos that distinguishes two important communities—deep-subtidal and shallow-subtidal/intertidal—has been added to the EIS. The information includes references to a key study by Lees et al. (1986) and the CIRCAC description of the relict arctic fauna on the west side of Cook Inlet. The references include two sources with comprehensive bibliographies: the Sale 149 final EIS and a book chapter by Feder and Jewett (1986) entitled *The Subtidal Benthos*.

Response 008-011.

We reviewed the cited references and found them informative and relevant to the environmental assessment. However, we determined the information was better related to EFH and, therefore, incorporated it into Section III.B.3.B.

Response 008-012.

Information regarding community structure as influenced by bottom-up and top-down processes, as well as the effects of ocean climate regime shift have been added to Section III.B.3.b(1) (Prey and Prey Habitat/Essential Fish Habitat). Regime shifts have been shown to strongly influence prey and forage fishes that, in turn, may influence predatory fishes (for example, sharks and groundfishes), seabirds, and marine mammals. The MMS appreciates the commenter noting that one or more regime shifts are likely to occur during the lifetime of the Proposed Action. As Anderson and Piatt (1999) reiterated after Steele (1991), biological responses to climate change should not be considered ecological disasters or harmful to the marine ecosystem in general.

Response 008-013.

The section is amended as recommended, with supplementary information received from the North Pacific Fisheries Management Council.

Response 008-014.

The MMS contacted CIRCAC and requested data from the intertidal and nearshore studies mentioned in public comments received from CIRCAC. The MMS was directed to the principal investigator of the project; the MMS was informed that the shoreline-mapping dataset for the lower Cook Inlet had yet to be worked up, but that it would be made available to the MMS when completed in several months. The principal investigator affirmed that complex reef complexes and algal beds were found during surveys in Kamishak Bay. The MMS will incorporate studies and data as made available from CIRCAC in future environmental assessments.

Response 008-015.

The species' name has been corrected to *Fucus gardneri* (previously *F. distichus*).

Response 008-016.

The MMS contacted CIRCAC and requested data and reports for the studies mentioned. As CIRCAC reiterated to the MMS, several studies are in progress, and data and reports will be made available in future months for the MMS to incorporate into future environmental assessments.

RECEIVED

FEB 12 2003

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REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

February 11, 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Avenue, Room 308
Anchorage, Alaska 99508-4363

Dear Mr. Goll:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for lease sales 191 and 199 in lower Cook Inlet. This letter offers several comments, both general and specific, about the DEIS, and is concluded with four recommendations for how to proceed with this, and future oil and gas lease sales in lower Cook Inlet.

1. The DEIS is too narrow in scope.

The DEIS for lease sales 191 and 199 is too narrow in scope. MMS offers only one, very specific development scenario from which all subsequent impacts follow. If leasing in lower Cook Inlet results in different scenarios, the DEIS quickly becomes obsolete, misleading and useless to concerned citizens and decisionmakers.

For example, the DEIS estimates one development, 140 million barrels of crude oil produced from one rig, 20 miles of pipeline, and a 19% chance of an oil spill. What if leasing results in two rigs, does the chance of an oil spill double? Does all of the environmental, economic, and social impacts outlined in the DEIS double? Or what if the *one* rig discovers and produces more than 140 million barrels of crude oil? How will increased production affect the environmental, economic, and social impacts? The DEIS for lease sale 149 did a much more effective job of considering a range of development scenarios, including a low range and a high range, and the DEIS analyzed the impacts for both ranges. I feel this is a much more useful way to analyze the potential environmental and social impacts from leasing, and it provides the concerned citizens and decisionmakers with the information they need to make informed decisions and judgments.

2. Justification for difference between the DEIS for lease sale 149 and the DEIS for lease sales 191 and 199 is unclear.

There are quite a few dramatic differences between the impacts outlined in the DEIS for lease sales 191 and 199 when compared to those outlined in the DEIS for lease sale 149. These differences make it difficult for concerned citizens to understand what the true impacts would be to local communities. MMS needs to adequately justify these differences, so that local residents know that the DEIS information is defensible and accurate to the best of its ability, and not derived in an arbitrary and capricious way.

For example, lease sales 191 and 199 are 26% larger than lease sale 149. While production estimates between the sales are similar (140 million barrels of crude oil for 191 and 199 compared to 100-300 million barrels of crude oil for 149 base case), MMS estimates a significant lower chance of direct jobs (210 direct jobs from 191 and 199, and 1,463 direct jobs from 149). With a larger leasing area, and fewer direct and indirect jobs, MMS is also estimating a lower chance of an oil spill (19% chance of a large oil spill for 191 and 199 compared to a 27% base case chance of an oil spill from 149). It is unclear to me how MMS can downgrade the risk of a large spill from 27% to 19% with fewer workers overseeing operations and spill prevention, in a lease sale area that is 26% larger.

002

Regardless of MMS 's justification for its spill estimates in the DEIS, it remains unclear how the DEIS documents for similar sales can be so different from one another. This discrepancy makes it difficult for the public to understand the true impacts to our communities and our way of life. Furthermore, it makes us distrust the conclusions of the DEIS, because it appears the numbers are pulled from thin air, and simply change from year to year depending on what it is the people want to hear.

3. *The DEIS is inconsistent when analyzing the socioeconomic impacts from in-migration of workers.*

P. II-V of the DEIS states that outside workers are anticipated to come for exploration, which is inconsistent with p. IV-123 which states that no in-migration of worker is anticipated for the three phases of development. Will there be a migration of workers to the communities of lower Cook Inlet or not? MMS should look to the most recent development in Cook Inlet, the Osprey Platform, to see how many jobs were from outside workers. There are several impacts created by in-migration of workers to small communities, which I discuss under the sociocultural section. MMS should clarify this impact and adequately address the socioeconomic consequences of this impact in the DEIS.

003

4. *The DEIS analysis of impacts from platform discharges is inadequate because it assumes zero discharge standards will be required by the U.S. Environmental Protection Agency.*

004

It is wrong for MMS to base its analysis of impacts from platform discharges on water quality, biological resources, and subsistence and commercial resources on an assumption that the U.S. Environmental Protection Agency will require zero discharge from industry for exploration and production. While the Osprey Platform in upper Cook Inlet is currently reinjecting its drilling muds and cuttings and produced waters, it is doing so as a result of pressure from a law suite, and not because of a mandate through an EPA Clean Water Act Permit.

MMS cannot assume anything from another agency that operates under separate jurisdictions. If MMS is going to base its analysis on this assumption, then MMS should act on its own authority to require zero discharge standards from exploration and production in lower Cook Inlet. If MMS is not willing to do so, then MMS must thoroughly analyze the range of impacts from the chemicals and heavy metals that will be produced and discharged into Cook Inlet, with particular attention on how these discharges will react with the unique currents and gyres in Kachemak Bay, how they may affect subsistence resources, and the quality of commercial resources, such as Kachemak Bay oysters which are farmed in Kachemak Bay, and are highly sensitive to water quality contaminants as they are filter feeders.

5. *DEIS must add other areas as sensitive areas to consider in the oil spill response plan*

005

On the list of sensitive areas to consider for oil spill response (p. II-16), MMS should add Kenai Fjords National Park, Tuxedni Bay (Duck and Chisik Island are not complete), and Chinitna Bay.

6. *DEIS may have made a mistake in geographic reference and sensitivity reference in the section about Benthic and Intertidal Habitats*

006

MMS should check its razor clam reference on p. III-36 of the DEIS, which currently states "Even though the west coast of lower Cook Inlet is not considered a very sensitive area, it is a major harvest area for razor clams." I am more familiar with the east coast of lower Cook Inlet as being a major area for harvesting razor clams rather than the west coast. Regardless, p. III-36 outlines sensitive areas identified by NOAA, and it appears there are long stretches on both the east cost and west coast of lower Cook Inlet that are identified as sensitive benthic and intertidal habitats. Please check this statement to make sure both the geographic reference and sensitivity reference are correct.

7. *DEIS does not adequately consider habitat ranges for Steller's Eider.*

007

P. III-116 says that Steller's Eider wintering habitat does not likely occur in the sale area. The Steller's Eider is a threatened-species under the Endangered Species Act. MMS should refer to Figure 3.2 p. 3-13 in the *Alaska Department of Natural Resources Final Finders for Cook Inlet Areawide 1999 Oil and Gas Lease Sale*, which shows a key waterfowl concentration areas in lower Cook Inlet extending from the Homer Spit north all the way to the mouth of Stariski Creek. This area extends more than 5 miles from the mouth of Stariski Creek into Cook Inlet, and more than 10 miles from the mouth of the Anchor River into Cook Inlet, placing important sea duck habitat well within the lease sale boundaries. I would recommend that MMS consult with Bill Larned with Kenai Fisheries Office (262-9863 ext. 224), who specializes in waterfowl. His studies reveal significant Stellrr's Eider and Old Squaw wintering habitat off of the mouth of the Anchor River, and in speaking with Bill, he believe that winter surveys of these birds underestimate the true population of over-wintering sea ducks in this zone.

8. *DEIS does not consider impacts on Pribilof rock sandpipers in the event of an oil spill.*

008

In the consideration of the effects on Marine and Coastal Birds, the DEIS does not consider the full potential impacts to the Pribilof rock sandpiper, whose entire population overwinters in Cook Inlet, and whose entire population may be affected by an oil spill. If an oil spill occurred in a particular location and time of year, how would the Pribilof sandpiper be affected? MMS should contact Bob Gill with the U.S. Biological Division ((907-786-3514), to determine Pribilof rock sandpiper habitat and review potential oil spill trajectories to see how different oil spill scenarios may impact this species.

9. *DEIS analysis of national resources is not complete.*

009

MMS should add Kenai Fjords National Park and Aniakchak National Monument it is analysis of national resources in or near the lease sale area, and the impacts to those national resources.

10. DEIS overestimates oil spill response and clean up abilities.

There are inadequate oil spill response capabilities in Cook Inlet. On p. IV-10, the DEIS estimates a 10-20% of oil spilled in open water can be contained. However, when an oil sheen occurred in Cook Inlet behind the *Chesapeake Trader* in 1999, high winds and freezing spray prevented any response. All the oil spilled from the *Trader* was dispersed by wind and waves, and none of it was cleaned up. The DEIS estimates that spills occurring on land or solid ice will be cleaned up almost completely. However, the January 1999 Swanson River oil spill on the northern Kenai Peninsula, which occurred on land during winter, was not contained until three weeks after it was identified, and cleanup took six months (and benzene contamination still remains).

010

Furthermore, the DEIS only seems to analyze oil spill cleanup potential for smaller spills, but not larger spills. This analysis must be more complete. Also, MMS appears to advocate in situ burning as a spill cleanup strategy. The impacts of such in situ burning should be discussed throughout the impacts section of the DEIS.

011

11. MMS should check air quality regulations.

I understand that there are special federal air quality regulations around Tuxedni Bay, including Duck and Chisik Island. MMS should check to make sure there are appropriate setbacks in its leasing scheme to meet these air quality regulations.

012

12. Analysis of sociocultural and socioeconomic impacts is inadequate.

Perhaps the areas most lacking in the DEIS are the sections that cover the effect on sociocultural and economic impacts. While it is difficult to quantify some aspects of socioeconomic impacts, there have been some good studies of such impacts in Alaska and in Cook Inlet. MMS should refer to *A Social and Economic Impact Study of Offshore Petroleum and Natural Gas Development in Alaska*, 1976, by Mathematic Sciences Northwest Inc. and Human Resources Planning Institution, Inc. to review what impacts occurred from oil development in upper Cook Inlet and how those impacts might be repeated in lower Cook Inlet.

013

Here are several sociocultural and economic impacts that MMS should address in the DEIS:

014

- a. What are the impacts to the quality of life for local residents? Past surveys of Homer residents show that the top three reasons why people choose to live in Homer are: aesthetics, small town qualities and the general lifestyles. How will changes to those qualities in local communities affect the overall quality of life for people who choose to live in those communities?
- b. With a potential in-migration of workers to the lower Peninsula from elsewhere (whether it be from northern Peninsula, North Slope, Anchorage or Lower 48), what are the sociocultural impacts from value conflicts, fear, suspicion, and competition for resources?
- c. What are the sociocultural impacts from the economic inequalities created by oil development on the lower Peninsula? The DEIS estimates that direct workers will average \$80,000/year, indirect will average \$40,000 per year, but the media income in

015

016

Homer is \$21,823, median in Anchor Point is \$18,668, and median in Port Graham is \$13,666 (Alaska Community Database 2000). Past studies have shown that economic inequalities are likely to encourage crime and other social ills. What are the impacts when new people come to the community and make 2 to 4 to 6 times more than local residents?

016

d. Will new development in lower Cook Inlet bring more people to the region than there are jobs, and if so what are the sociocultural impacts? Social and economic studies of oil development in Upper Cook Inlet revealed that unemployment increased more rapidly as a result of oil development, suggesting that more people were drawn to the region or into the labor force in search of employment in greater numbers than could be employed. With this potential increase, what are the impacts of increased population and increased unemployment on demands for borough resources, demands for housing, and competition of resources?

017

e. What are the impacts to psychological systems in lower Cook Inlet? It is true that communities in lower Cook Inlet fear oil development, because we fear an oil spill, we fear a loss of jobs, we fear contamination of resources? Regardless of any of those impacts actually occurring, what are the sociocultural impacts of this fear, and how does it affect our lives and lifestyles when people live in fear and suspicion?

018

f. What are the sociocultural impacts to local communities from influence from multinational corporations? How does the presence of global corporations operating in lower Cook Inlet influence local control and local decisionmaking and what effect will this have on local residents?

019

13. DEIS analysis of effects on commercial fisheries is shortsighted and incomplete.

While the DEIS does analyze potential short-term losses to Cook Inlet fisheries in the event of an oil spill, it does not adequately analyze or discuss the long-term impacts from such losses. Every fishery in Cook Inlet is different. Some fisheries are still quite strong, such as the groundfish fisheries. Others have suffered several years of repeated decline, such as the salmon fishery. If an oil spill occurred at a time that significantly impacts the Cook Inlet salmon fishery, it may push that fishery past a threshold and result in the end of that fishery in Cook Inlet entirely, simply because several Cook Inlet fishermen cannot afford such a loss, and would not be able to continue operating with the uncertainty for recovery in the future.

020

The long-term impacts of an oil spill on the salmon fishery is even more of a real and important issue to discuss in the DEIS because of the increased competition from farmed salmon. Cook Inlet's salmon fishery is already losing the market to farmed salmon, and is working very hard to brand and market Kenai Wild in a way that will make Cook Inlet salmon more competitive, to survive this global competition. Public perception is a very key ingredient when marketing a product. In the event of an oil spill, the public perception would be that Cook Inlet salmon are contaminated from the oil spill, and Cook Inlet may lose its entire salmon market to fisheries elsewhere. Once that fishery is lost to other markets, it can be virtually impossible to recover. The DEIS should more thoroughly consider the long-term consequences on each individual fishery in Cook Inlet.

021

Furthermore, the DEIS does not adequately discuss the potential displacement or loss of fishing gear. A good resource to consider in this analysis is Loren Flagg's 1992 paper titled *Cook Inlet, Alaska: A 20 year History of Commercial Fishing and Oil Industries Operating Concurrently in the Offshore Subarctic Environment*. This paper cites a number of conflicts that have occurred between the fishing and oil industry in upper Cook Inlet, such as the loss of hundreds of crab pots, several miles of longline gear, and "in some cases fishermen were simply forced away from their normal fishing grounds to avoid a heavy loss of gear." While the DEIS suggestions that commercial fishermen may be compensated for the loss of gear (p. IV-125), MMS cannot guarantee this or any other compensation to the fishing industry.

022

Displacement from normal fishing grounds is even a larger concern in the aftermath of 9/11. The DEIS must analyze the impacts of the area that is restricted around an offshore rig as a result of Homeland Security. This restriction can result in a significant displacement to commercial fishermen in key locations in Cook Inlet, and MMS must work with the commercial fishermen to identify such locations and work to delete such tracts from the sale to prevent such conflicts.

023

14. The U.S. Department of Interior must fulfill its government-to-government relationship with Cook Inlet Tribes.

The DEIS discusses subsistence resource impacts, environmental justice impacts and sociocultural impacts. However, these discussions are incomplete until the U.S. Department of Interior acts on its government-to-government relations with Cook Inlet Tribes. I understand that MMS has made an effort to meet one-on-one with several lower Cook Inlet Tribes, but to fully fulfill the government-to-government obligations, these meetings should occur between the Tribes and top leaders in the U.S. Department of Interior, including Secretary Gale Norton.

024

The Tribes that should be consulted in this way include: Chickaloon Native Village, Eklutna Native Village, Kenaitze Indian Tribe, Knik Tribal Council, Nanwalek Tribal Council, Native Village of Port Graham, Native Village of Tyonek, Ninilchik Traditional Council, Seldovia Village Tribe, and Village of Salamatof, as well as any Tribes on Kodiak and Afognak Islands, and on the Alaska Peninsula along Shelikof Strait. There may be others, and MMS should research these Tribes to make sure the list is complete, and give each Tribe the ample opportunity to meet with DOI officials to ask questions, gain a thorough understanding of the DEIS, and share comments and concerns.

025

15. DEIS analysis of effects on recreation, tourism and visual resources is shortsighted and incomplete.

The analysis of impacts to recreation, tourism and visual resources is perhaps one of the areas in the DEIS of most interest and concern to the Homer community. Local residents involved in the tourism industry have found this section lacking.

First, the conclusion states that visual impacts will only occur if the rig is placed 5 miles or less from the coastline. However, several tourism businesses operate sightseeing tours and wildlife viewing tours via boat and plane over Cook Inlet, and rigs located 5 miles or more from coastline will affect the visual experience of these tours.

026

Second, the conclusion states that impacts to recreation and tourism values from an oil spill are limited to areas where oil makes contact with those resources. This does not take into consideration the public perception of diminished recreational and tourism values in the event of an oil spill, and how that public perception will affect local tourism businesses.

027

It is very difficult to measure the impact to the tourism economies in lower Cook Inlet from visual and recreational disturbances caused by offshore oil and gas exploration and development. But MMS must make a better attempt, no matter how difficult to quantify.

028

Tourism marketing is very similar to the commercial fishing marketing issues mentioned above. The communities of lower Cook Inlet work very hard to market the unique qualities of our area to tourists. There are several places in Alaska that tourists can choose to visit for hiking, kayaking, sportfishing, and wildlife viewing. Lower Cook Inlet communities have had to work harder in recent years to remain competitive in the tourism industry since the road to Whittier has opened up recreational access to Prince William Sound, which is closer to Anchorage. Furthermore, Homer is always in close competition with Seward, which is also closer to Anchorage and offers sport fishing, wildlife viewing, and other recreation. Seward also has the Sealife Center to attract visitors.

029

It is very essential that Homer remain competitive and unique to continue attracting tourists to our area. The DEIS must more thoroughly discuss what impacts visual disturbances and a potential oil spill may have on public perception, and how it may influences the public's decisions to choose to visit or not visit Homer as a tourist destination. This is an especially concerning issue in the wake of 9/11. In the summer of 2002, tourism was down in virtually all other places in Alaska except from Homer. Homer's tourism industry is operating at an all time peak, and we must sustain our competitive edge. If numbers decline at all, there are several fishing charters, wildlife charters, B&Bs, water taxis, kayaking tours, gift stores, restaurants, etc. that will be impacted.

Furthermore, Homer and other Cook Inlet communities have been working to attract small natural history cruise ships to the area to boost tourism. This has been difficult, as Southeast Alaska remains the primary market for the cruise ship industry. This summer, Cook Inlet will have 6 cruise ship visits. Every time there have been cruise ship visits to the area, it has been a trial to gauge how it works and how well the passengers enjoy the experience. If there are oil rigs in lower Cook Inlet, how will this impact this potential market, and how will Cook Inlet remain competitive with Southeast Alaska?

If Homer loses any of its tourism business to Prince William Sound, Seward and Southeast Alaska, what are the long-term impacts to the tourism economies in lower Cook Inlet?

16. DEIS analysis of effects on Sport Fisheries is shortsighted and incomplete.

The sport fishing issue is similar to the tourism and commercial fishing issues above. First, the DEIS does not adequately address the issue of displacement to sport fishing charters. The key fishing grounds for sport fishing charters operating out of Ninilchik, Anchor Point and Homer

030

are all along the lease sale area. Fishing charters operating very similar to commercial fishing boats, in that they have very specific areas where the fish are and where they go to fish. If an oil rig is placed in any of those areas, displacement would no doubt occur. This is especially concerning given the restricted around rigs as part of Homeland Security. This issue, and how it will impact the industry, needs to be more thoroughly discussed in the DEIS.

031

Furthermore, what are the long-term impacts to the sport fishing industry if the communities on the lower Kenai Peninsula loose business to Seward or other places due to an oil spill or visual disturbances? The DEIS estimates a one-year loss from an oil spill, but public perception may last much longer than one year, and if the market is lost to another community one year, what are the losses in subsequent years as the lower Cook Inlet communities work to regain that market from other places in Alaska? These longer-term impacts should be discussed.

032

17. There is a math error on the regional effects of the no action alternative in the DEIS.

On p. IV-188, the DEIS states that "During the 15 years of production, 100 direct, indirect and induced jobs and \$20.4 million personal income per year would be lost." The \$20.4 million per year is the total personal income annual average for the 6 years of development, NOT for the 15 years of production. The personal income annual average for the 15 years of production is \$6.5 (as per Table V-15 in Volume II). Please make this correction by changing \$20.5 million personal income per year to \$6.5 million personal income per year.

033

18. The DEIS assumes that local demands for natural gas will be met by lease sales 191 and 199.

On p. IV - 189, the DEIS discusses how no action will result in a shortage of natural gas resources to meet local energy demands. However, there is no guarantee that if natural gas is discovered and developed as result of this lease, that it will be for local use rather than for export (I believe 2/3 of current Cook Inlet natural gas is being exported). Furthermore, the DEIS states that after 2019, the need from natural gas will be critical even with the addition of new reserves and cessation of industrial use. It appears that even with the addition of new reserves found as a result of this leasing, that local demands for natural gas will continue to exceed production. Therefore, it does not appear that this lease sale will meet the local demands for natural gas.

034

19. The DEIS should discuss effects. from the sale after the 15 years of production is over and the development is complete.

Throughout the DEIS, MMS considers effects on environment and socioeconomic resources from exploration, development and production. However, a discussion about the effects of the development when the oil field has reached the end of its life is not complete. In each section of the DEIS, MMS should discuss what the impacts are to environmental resources, economic resources, subsistence resource, etc. when the development is complete. What are the impacts when the pipelines and rig are removed? How many jobs will be lost? What will happen to those jobs when the development is complete, when the natural gas and crude oil is no longer available for local consumption, when the Borough no longer has 2.7 million in annual revenues from the field?

035

The decline of fossil fuels is inevitable and will eventually occur, with or without continued leasing and production in Cook Inlet. When non-renewable oil and gas resources run out in Cook Inlet, and they may do so even in my lifetime, then that is when we will see impacts from NO ACTION, meaning no action to plan ahead and develop alternative energies. MMS should think long-term when analyzing the impacts in the DEIS, and one important long-term impact that must be considered is the perpetual reliance on a nonrenewable resource. Perpetuating this reliance may be o.k., but only if we discuss the alternatives and plans for the future, and truly understand the consequences and impacts of this reliance in our region.

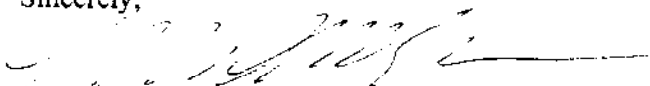
Conclusion

In conclusion, I ask MMS to please address all of the above issues in the DEIS and to take the following actions:

- 1. Cancel Lease Sales 191 and 199, and at the very least, delete all tracks south of Anchor Point, and delete all tracks within a 10-mile radius of the mouth of Tuxedni Bay. 036
- 2. Secretary of Interior Gale Norton and other key decisionmakers in the U.S. Department of Interior should travel to Native villages in lower Cook Inlet to pursue government-to-government relations with Cook Inlet Tribes. 037
- 3. Rewrite the Draft EIS to consider a range of possible development scenarios and subsequent impacts. At the very least, if the lease sale proceeds, and exploration results in a new production estimates that exceed those in the DEIS, then MMS should halt all oil and gas activities within the lease sale area and prepare a supplemental EIS that considers new information and that is open for additional public comment. This process is necessary to give the public and decisionmakers the information they need to understand the impacts and make informed decisions on oil and gas development in lower Cook Inlet. 038
- 4. MMS should act on its authority to require offshore oil and gas exploration and production to meet zero discharge standards under the Clean Water Act. No leasing should continue until MMS or EPA have mandated zero discharge for all new oil and gas exploration, development and production in Cook Inlet. 039
- 5. As part of the next 5-year OCS plan, determine the sensitivity of areas within the Cook Inlet OCS planning boundaries and prioritize the most sensitive areas as "no rig zones." MMS should work with commercial fishermen, sport fishing charters, tourism businesses, Alaska Natives, and biologists to determine areas most valuable to local economies, interests, and the environment, and use that information to determine "no rig zones." Those zones should then be deleted from the next lease sale and a similar process should be used to delete tracts from all subsequent lease sales. 040

Thank you for your attention to these issues. I hope you and the key decisionmakers with the U.S. Department of Interior will seriously consider and accept the comments and recommendations of residents in lower Cook Inlet communities.

Sincerely,


Marla McPherson

Cc. Governor Frank Murkowski and Secretary Gale Norton

MMS Response to Comment Document 009

Response 009-001.

Please see Response 007-003 regarding the derivation of the estimated-production scenario.

Response 009-002.

The major differences in the EIS arise from different development scenarios and the estimate of the oil and gas that will be produced from the hypothetical development. The estimate of the oil and gas that will be produced is lower for Sales 191 and 199 compared to those estimated for Sale 149. The basis of the estimate for Sales 191 and 199 is presented in Appendix B. Please see Response 007-003 for an explanation of the difference in production estimates. Furthermore, the production takes place from a single platform in the scenario for Sales 191 and 199 unlike the multiple-platform development foreseen in the scenario for Sale 149, which results in comparatively less habitat disturbance as well as lower employment. Finally, more information is available to analysts to consider in evaluating effects than was available for Sale 149, especially considering the research that occurred in the aftermath of the *Exxon Valdez* oil spill. For example, much of the examination of sociocultural effects is based on research that was published after the final EIS for Sale 149 was released.

Response 009-003.

We have changed the text in Section IV.B.1.j(3)(a)2) (page IV-123 of the draft EIS) to be consistent with Section II.B.3.a(3) (page II-5 of the draft EIS).

Response 009-004.

Please see Response 008-003.

Response 009-005.

Information to Lessee No. 3 - Sensitive Areas to be Considered in Oil-Spill-Response Plans, includes those areas of special biological and cultural sensitivity from a number of sources, but primarily those identified by the Alaska Regional Response Team, Cook Inlet Subarea Plan. The OSRA, Appendix A of the EIS, indicates that Kenai Fjords National Park has less than a 0.5% chance of being contacted by a spill that originates in the area defined in the Appendix. Nearly all of Tuxedni Bay and the northern portion of Chinitna Bay are part of Lake Clark National Park and Preserve which is already listed in the ITL. Authorities have not identified the remaining portion of Chinitna Bay as having special biological significance.

Response 009-006.

The description has been corrected, referring the reader to Sections III.C.2.a and IV.B.1.k(3)(a) on commercial shellfish fisheries for information about lower trophic-level organisms that are harvested.

Response 009-007.

During preparation of the draft EIS, MMS staff were in contact on several occasion with Bill Larned who, along with staff from the Kodiak National Wildlife Refuge and the Alaska Department of Fish and Game, provided extremely valuable information and unpublished data that we incorporated into our sections on Steller's eiders (see Section III.B.4.c(1)(g) and Figures III.B-4 and III.B.-5). The MMS also has completed consultation with the FWS under Section 7 of the ESA. The FWS presented their conclusions with respect to the potential for adverse effects of the proposed action on Steller's eiders to the MMS in their February 8, 2003, and March 21, 2003, memoranda, which are included in Appendix C.

Response 009-008.

Additional information on shorebird abundance and distribution in the lower Cook Inlet (Gill and Tibbitts, 1999) has been added to Section III.B.5.a, and a discussion of potential impacts to shorebirds from the proposed action has been added where appropriate to Section IV.B.1.g of the EIS. The rock sandpiper is discussed along with other important shorebird species in the area.

Response 009-009.

Descriptions of Kenai Fjords National Park and the Aniakchak National Monument and Preserve were added to Section III.C.9, and the effects of the Proposed Action on these resources were analyzed. The end result was that the current analysis regarding national parks within the document was not changed.

Response 009-010.

The MMS recognizes that spill cleanup can be highly variable on open water, depending on conditions at the time of the spill. The estimates of the percent of oil cleaned up are based on historical estimates. Since 1990, in conjunction with U.S. Coast Guard, their partners and stakeholders, there has been tremendous progress in preventing oil spills. Consider:

- There is an effective liability and compensation regime that serves as a deterrent to pollution.
- There are funding mechanisms to permit immediate and appropriate response.
- The management, coordination, and execution of oil-spill response have changed fundamentally.

See Response 001-021 for how oil-spill-response capabilities have improved in Cook Inlet since the Oil Pollution Act of 1990. Impacts from spills are analyzed without regard to cleanup to provide the upper bound of effects for the decisionmaker. The Swanson River field is one of the first fields developed in Alaska in the late 1950's and early 1960's. Current technology would be used. Current leak-detection methods would exceed those used previously.

Response 009-011.

For purposes of analysis, the MMS assumes no oil-spill cleanup. Please see also Response 005-017.

Response 009-012.

The Tuxedni Bay area does have stricter standards, because it is a National Wilderness Area where Class I emission and visibility standards apply. Operators of exploration and production activities occurring after the proposed lease sale would need to demonstrate that their projects would not result in unacceptable impacts to that Class I area. Because the standards applying to this Class I area are stricter than those applying to the rest of Cook Inlet (a Class II area), operators would have to take more actions to ensure that their projects could meet the standards. The MMS believes that projects that can meet the strict standards should not be automatically prohibited in advance simply because of their location close to a Class I area. The EPA and the State of Alaska would look very closely at projects proposed near a Class I area before granting the air quality permits required for a project to occur. The MMS has added ITL clause 7 - Air Quality, to address the issue of air quality in Tuxedni Bay National Wilderness Area.

Response 009-013.

This also responds to Comments 009-017 and 028-001.

The MMS is aware of the study cited by the commenter. The study attempted to document a wide range of economic and demographic changes associated with hydrocarbon development in the upper Kenai Peninsula Borough between 1960 and 1970. The report states: "...the area was transformed from an economy based largely on fishing and subsistence activities to a major oil and petrochemical export region." The multiple social, demographic, and economic effects of the boom era were attributed to a population influx of 15-20% of the area's total population and to very limited pre-existing government services. In great contrast, the current EIS analysis (see Section IV.B.1.m(3)(a)) indicates that population/employment effects would be small and inconsequential relative to the ongoing economic

growth of the region and the infrastructure already in place. At the height of proposed development, the current project might be expected to create about 300 jobs compared to a projected population increase of 1,651 persons during the same time period. The discrepancy of basic social variables between upper Cook Inlet in the 1960's and lower Cook Inlet in the early 2000's drastically reduces the predictive power of the earlier study and renders it irrelevant to the current lease-sale Proposal.

Response 009-014.

This also responds to Comments 009-028, 030-005, 032-001, 047-001, 049-002, 061-002, 062-003, 070-002, 083-001, and 103-003.

Potential impacts to subjective quality of life issues such as aesthetics and "general lifestyles" are important to contemplate in general terms but are beyond the reach of scientific quantification in a forecast instrument. Thus, the EIS acknowledges in Section IV.B.1.n(2) that some visual resources could be affected by the presence of a drilling unit, but then explains how many different variables can interact to influence individual opinions about aesthetic quality. The precise impact cannot be measured. Further, the public exhibits a greater diversity of opinion about aesthetics than is commonly realized. Some residents, for example, have expressed their perception in public hearings that a producing oil platform provides a comforting sign of economic reassurance. Others express a feeling of inspiration when they view the beauty of nature as a backdrop for human enterprise. The larger point, however, is that the visual resource impact area is not expected to extend into park or conservation areas or other places of high scenic interest. There could be some scenery changes for residents of Anchor Point, but Homer residents should have no disruption to their routine aesthetic experiences. Keep in mind that exploration and development scenarios for Cook Inlet Sales 191 and 199 anticipate the potential construction of only one production platform (see Table B-2). The processing of any recovered oil and gas is expected to take place at the facilities of existing industrial areas such as Nikiski.

Response 009-015.

Potential social impacts from xenophobic fear and suspicion are not amenable to scientific quantification. The larger point remains, however, that the sale is not expected to create more than about 300 jobs and, thus, would not stimulate the large population influx that occurred in the upper Kenai Peninsula during the 1960's.

Response 009-016.

An immigration of workers and subsequent stratification of wealth is not expected to occur. Employment estimates presented in Table IV.B-19 show limited direct job creation: only 210 jobs from potential oil development and 70 jobs from potential oil production. In addition, many of these new jobs could be filled by current Borough residents because of the reservoir of skilled industry workers in the region. While the salary of these workers would be higher than the local average, they would not be as privileged as you suggest. Per capita income figures are the result of dividing total personal income by the entire resident population of an area. The figure generally is used as a measure of economic well being across a broad region. It is not the same thing as average salary or median household income, which is about double the per capita figures cited for each community. The lower Kenai exhibits a wide range of economic well-being into which potential new employees easily could be absorbed.

Response 009-017.

As already noted, the lease sale is not expected to create more than about 300 jobs. The EIS acknowledges that some limited population growth might occur because of immigrants seeking employment in the oil industry. However, it is expected the potential influx will have little or no impact on existing sociocultural patterns. Please see also Response 009-013.

Response 009-018.

We will never have data sufficient to meet all information needs or to dispel all potential anxieties. Further, it is beyond the scope of an EIS to gauge and mitigate all the potential sources of fear and competition in our world that exist independently of the oil industry. Please see also Response 009-015.

Response 009-019.

The corporations most likely to take an interest in the sale are those already operating on the Kenai Peninsula. Please see also Responses 009-018 and 009-015.

Response 009-020.

The potential impacts of oil spills to fisheries resources, essential fish habitat, and commercial fisheries are discussed in Sections IV and V of the EIS. Small spills are not likely to result in effects causing important and sweeping changes in commercial-fishing activities in the region. They also are not expected to diminish commercial fisheries by 20% or more for at least 3 years or by 60% for 1 or more years. Impacts resulting from a large oil spill are analyzed in Section IV.B.1.k and may result in a significant impact on commercial fisheries in the region. However, we do not believe that a large spill would elicit the long-term impacts suggested in the comment. Assuming that a large spill occurs and the salmon fishery is closed due to tainting concerns, we believe the fishery would be closed for the year and not longer. Past spills such as the *Exxon Valdez* oil spill, have resulted in overescapements, thereby introducing more eggs into spawning streams than would have been released had the fishery not been closed. A large oil spill is likely to impact several salmon-spawning stocks or subpopulations; however, it is not likely to impact all spawning stocks or subpopulations traversing Cook Inlet or the Shelikof Strait. Stocks or subpopulations not impacted but protected by the closure also are expected to experience overescapements and introduce higher numbers of eggs into their spawning areas. The introduction of more eggs has the potential to produce a larger cohort for future harvest.

We do not expect a large oil spill in Cook Inlet or the Shelikof Strait to exclusively cause the collapse of a commercial fishery in the region. As noted in the EIS, commercial fisheries in the Gulf of Alaska have overharvested fisheries resources and continue to do so. The demise of commercial fisheries in the region is a good deal more likely to result from the chronic and insidious overharvesting of resources, although commercial fishers have it within their means to rectify this.

Response 009-021.

The EIS states that the salmon fishery may be closed for a season due to tainting concerns or suffer losses of greater than 20% for several consecutive years, all of which would constitute a significant impact to commercial fisheries. Although the MMS understands the concept of public perception (and misperception in many cases concerning the offshore oil and gas industry), we do not concur that such perceptions regarding tainted salmon from a large oil spill would persist for the lifetime of the proposed action (essentially 3 decades), although it might persist for a small fraction thereof (several years may be reasonable).

Response 009-022.

The MMS obtained a copy of Flagg (1992) and has added relevant material to Section IV.B.1.k(3) discussing fishing-gear loss and displacement attributed to past offshore oil and gas operations conducted in Cook Inlet. Text also was added noting that the MMS cannot ensure that commercial fishermen would be reimbursed for losses attributed to industry operations.

Response 009-023.

This also responds to Comments 009-031 and 030-006.

It is impossible to know if a security zone would be established around any specific offshore facilities. Currently, no zones have been announced for offshore platforms in Cook Inlet. Security zones are established based on specific threats and usually are temporary. They are established offshore by the U.S.

Coast Guard and the Department of Homeland Security. Procedures are published at the time the security zone is established to allow entry into the zone for legitimate reasons. In addition, to the extent that security issues may be considered and resolved through the process, Stipulation 1 - Protection of Fisheries may be useful in resolving these potential conflicts. For example, cooperative efforts minimized the effects of security measures for tankers approaching Cook Inlet terminals and commercial fishing.

Response 009-024.

The Secretary of the Interior has delegated authority to line officers to enable business to be conducted in a timely manner. Representation of the Secretary in Government-to-Government meetings with American Indian and Alaska Native Tribes in the field is one of those delegated authorities. Tribal comments and issues are incorporated into the decisionmaking process so that the Secretary can review them in making her final decision. In addition, some of the issues and concerns that Tribes may bring up often are ones that can be addressed by the decisionmaker present at the Government-to-Government consultation. Issues and concern are addressed at the appropriate level for a timely response.

Response 009-025.

Please see Response 006-013.

Response 009-026.

The EIS acknowledges that a potential drilling rig would be in the view of the passengers in aircraft flying nearby or vessels transiting the area (see Section IV.B.1.n(2)). Please see also Response 009-014.

Response 009-027.

This also responds to Comments 030-007, 033-002, 047-001, 047-002, and 063-001.

The EIS acknowledges that oil and gas development could conflict with tourism in the sale area, if lease activities were to restrict access or degrade visual resources, or if an unlikely oil spill resulted in either physical or perceptual degradation of coastal-dependent and coastal-enhanced recreation (Section IV.B.1.n(3)). Many protective measures (such as ITL's No. 3 and No. 5) provide for response strategies at heavily used recreation sites in Cook Inlet to prevent or minimize potential contamination from an unlikely oil spill.

Response 009-028.

This also responds to Comments 009-029, 028-001, 033-002, 047-002, 049-001, 049-003, 057-011, 058-008, 061-001, and 088-001.

The EIS indicates that potential leasing and development activities would occur far away from recreation and tourism activities, so that space-use conflicts are not expected to occur. It also indicates that the visual resource impact area would not extend into park or conservation areas or other places of high scenic interest. It also anticipates no effects on sport fishing or comparable tourist activities. Furthermore, there are many positive synergistic effects between tourism and industry that often are overlooked. Petroleum revenues contribute to the support of tourism infrastructure in the form of airports, roads, docks, State parks, campgrounds, recreation areas, and preservation of historic sites. The history of Cook Inlet over the last 40 years has shown that fishing; timber; tourism; recreation; subsistence; and mining, including oil and gas, can coexist and support one another. The challenge is to balance these multiple uses and to ensure that development is done with minimum impact to the environment.

Please see also Responses 009-014 and 009-027.

Response 009-029.

Please see Responses 009-027 and 009-028.

Response 009-030.

The scenario for Sales 191 and 199 (Table B-2 in Appendix B) indicates only one platform or drilling rig in any 1 year. The area of the platform or rig, including anchors, would not be more than 4 acres. This is a relatively insignificant area compared to the area used by sport-fishing charters. We do not anticipate any displacement by a rig or platform of sport-fishing charters, even considering that they fish in specific areas.

Response 009-031.

Please see response 009-023.

Response 009-032.

The scenario for Sale 191 is for a spill of either 1,500 barrels or 4,600 barrels. This is comparable to the *Glacier Bay* tanker, which spilled 3,100 barrels of oil in Cook Inlet in 1987. We do not anticipate loss to the sport-fishing industry for halibut and salmon to last more than 1 year. Problems with perception of oiled fish did not occur after the *Glacier Bay* spill. In Section IV.B.1.o, we discuss in more detail the potential effects of an oil spill on sport fishing.

Response 009-033.

We have made the correction to Section IV.B.2.c(1).

Response 009-034.

The anticipated increase in demand for natural gas in Southcentral Alaska in the coming decades is well documented. The scenario assumes that natural gas deliveries to consumers would commence in 2022 for local consumption without specific reference to the ultimate consumer of the gas. However, by this time, the supply of natural gas is expected to be critical, even with the addition of new reserves and the cessation of industrial use, such as the LNG terminal. The delivery of OCS gas will make an important contribution to the total supply available to consumers. No single field or development will satisfy all the natural gas demand. Without new reserves, such as those provided by this development under the scenario, the shortage will be exacerbated.

Response 009-035.

Under current regulations, decommissioning would begin at the end of the field's production. An environmental analysis of the effects of decommissioning would be performed and, under current MMS regulations, the wells would be permanently plugged, the platform removed, and the site around the platform cleared of debris. Postproduction, the platform could be scrapped, reused, or converted to some other use, including that of an artificial reef; these options will depend on the policy that is in place at the time of decommissioning—2035 in the EIS scenario. Offshore to onshore pipelines could be removed or cleaned, plugged, and left in place, depending on which option was the most environmentally advantageous. Given the State's and Borough's coastal policies on the use of existing infrastructure, the onshore pipelines could be reused or decommissioned. Employment created by production would have declined over the life of the project and completely cease at the end of production; specialized employment for deconstructing the production system would begin for the 2-year decommissioning period. The methods used to remove the production system, postproduction use of the facilities, if any, and the state of resources that could be affected by removal at the time of decommissioning are highly speculative. The environmental consequences of decommissioning will be discussed in subsequent NEPA analyses at the appropriate time, assuming development and production result from Sales 191 and 199.

Response 009-036.

Please see Response 026-003.

Response 009-037.

Please see Response 009-024.

Response 009-038.

This also responds to Comments 026-002, 031-002, 064-004, and 086-001.

The MMS believes that the scenario presented in Appendix B and Section II.B is a reasonable, accurate, and adequate representation of the type of development that could result from the proposed lease sale in lower Cook Inlet. If the OCS leasing process continues, subsequent NEPA analysis will become more focused on specific areas and circumstances. If leasing leads to exploration, a subsequent NEPA analysis will evaluate any new information prior to the approval of the exploration plan. Similarly, if exploration leads to development and production, a subsequent NEPA analysis will analyze new information, including estimates of production and specific infrastructure needed for development prior to the approval of the development and production plan. Public input is considered in each NEPA evaluation.

Response 009-039.

Please see Response 008-003.

Response 009-040.

This also responds to Comments 007-053, 008-005, 016-008, 018-006, 024-004, 052-001, 054-005, 064-003, 076-001, 086-010, 097-003, 103-008, and 105-006.

These areas are identified as part of the public scoping process for the plan. Also, this comment suggests a potential study topic (identification of sensitive areas in Cook Inlet) for the MMS's Environmental Studies Program that provides information addressing environmental, social, and economic concerns used in making decisions about selection of areas for leasing, exploration, development, environmental assessment, mitigation, and monitoring. The Alaska OCS Region Annual Studies Plan is distributed for review each year. Local government leaders; sources of traditional knowledge; environmental groups; oil and fishing industry personnel; studies contractors; and other environmental scientists and specialists from Federal, State, or local government help the MMS to identify environmental issues and information needs. Comments received from these stakeholders as well as the general public are taken into consideration in identifying needed studies.

Comments on Draft MMS EIS Regarding OCS Lease Sale 191 & 199

February 11, 2003

U.S. Department of Interior
Minerals Management Service
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My name is Paul McCollum and I am the owner of Sound Fisheries, a fisheries, natural resources and environmental consulting firm. I have been a fisheries biologist in Alaska for 28 years. The following testimony is based on my professional opinions and are submitted to MMS in regards to the draft OCS EIS and related proposed lease sales 191 and 199.

I appose this proposed lease sale and support your EIS Alternative II, "No Lease Sales" option. If this lease sale occurs over the loud and clear opposition expressed by Kachemak Bay residents, businesses, Tribes and governments, then I would at least request your EIS Alternative's III (Lower Kenai Peninsula Deferral), which I believe needs to be largely expanded, and IV (Barren Island Deferral) be adopted which would provide some minimal protection for our Kachemak Bay Estuarine Research Reserve, our Kachemak Bay and Fox River Critical Habitat Area and the Port Graham/Nanwalek Area Meriting Special Attention. I also recommend completely revising your Mitigation section and include several Mitigation options to be considered in each of the Alternatives. I believe a series of public meetings is in order to review and discuss potential mitigation options and alternatives prior to including them in your revised draft EIS. Please refer to my suggested Mitigation issues listed at the end of this testimony.

I believe that the long term sustainable health and vitality of the prolific, productive and vulnerable marine resources of Lower Cook Inlet and Kachemak Bay depend upon prudent and environmentally sound decisions focused on the long term for the greater social benefit of all rather than a select few oil company owners and a handful of workers. I believe that our local environment must be carefully maintained and given the benefit of the doubt in any proposed developments that could place the environment and natural resources so many of us depend on in jeopardy. The local environment and associated natural resources of Kachemak Bay and Lower Cook Inlet were very pristine not so very long ago. I used to live in Halibut Cove Lagoon in the mid 1970's and could easily catch crab and shrimp which were very abundant then and almost non existent now. Our marine ecosystem and associate natural resources are suffering from a variety of stresses, with potential impacts from the existing oil and gas operations in Cook Inlet being a very serious concern. Please review the attached briefing sheet showing significant discharge and contaminant information I have calculated from discharge

monitoring reports, effluent monitoring tests, toxicity studies and the EPA Cook Inlet Subsistence Contaminant study data.

Please change your current approach and stop these lease sales from going forward. We need to be protecting and preserving our sustainable commercial fisheries economy and our local Tribal neighbors' subsistence resources which their culture and lifestyles depend upon. We all depend upon the abundance and health of our local marine subsistence and commercial resources which in turn, ultimately depend upon clean water and a non polluted, minimally disturbed marine ecosystem. These lease sales pose far too significant risks that would very probably result in serious negative impacts to our marine resources and human users.

Major Points of Contention in Opposition of Lease Sales 191 and 199

Point # 1

The Risks of Negative Impacts to Subsistence Resources, Environment, Commercial Fisheries, Marine Mammals, Cultural and Aesthetic Needs from Oil and Gas Activities and Spills Far Outweigh any Potential

Benefits to the Area. In the Executive Summary and elsewhere in the current draft EIS on the proposed lease sales 191 and 199, on the bottom of page ES-3 it says: "Based on the assumed discovery and development of 140 million barrels of oil and 190 billion cubic feet of natural gas, some economic benefits could occur to the State of Alaska and the Kenai Peninsula Borough." The limited expectations of oil and gas production from these proposed lease sales are far outweighed by the preponderance of scientific, legal and ethical issues in favor of not holding the lease sales. The cost versus benefit is far too high and most of the risk is placed on those of us who depend upon these resources such as myself as a fisheries biologist and consultant, commercial fishers and Native Alaskan subsistence village residents in the immediate proximity and the marine resources we all depend upon.

Point # 2

No New Oil and Gas Activity Should be Considered Due to Potential Impacts of Existing Oil and Gas Operations in Cook Inlet.

No additional Lease Sales or new Oil and Gas activity should be allowed or considered since the full effects and impacts of the existing Oil and Gas activity are not clearly understood. Evidence clearly shows that significant potential negative impacts are already occurring based on pollution in sediments and contaminants in fish and invertebrate tissues. Specific issues that need to be addressed regardless of but especially prior to even preliminary discussions of additional Oil and Gas activities. These issues include:

1. **Aging and leak prone pipeline and infrastructure** of existing oil and gas facilities in Cook Inlet will need years of inspections and repairs before they could possibly be considered environmentally sound, much less safe. Corroded and leaking pipelines and aging platform and shore based operations are a major threat to the environment and fisheries of Cook Inlet and Kachemak Bay. 002

2. **Local Kachemak Bay Native subsistence villages** including Port Graham, Nanwalek and Seldovia need to be assured that their subsistence species are not being adversely impacted by existing Oil and Gas operations. Studies conducted by EPA and more recently by ADEC show significant contamination of many species with chemicals and metals known to be discharged by Cook Inlet Oil and Gas operations. Additional studies to specifically identify contaminant levels in tissues, sediments, plastic strips and the water column. These studies should take at least five years to effectively accomplish. These additional studies must include a comprehensive subsistence health risk assessment and chemicals of concern source analysis. 003

3. **Other resource users, especially the commercial fishing industry and sport fishing users** must also be assured that Cook Inlet and Kachemak Bay fish and shell fish species are not being significantly impacted by existing Oil and Gas activity. 004

4. **Humpback Whales** are endangered and depend largely upon capelin and other forage fish in and around lower Cook Inlet. The Barren Island Deferral is not nearly enough protection as these whales feed all around the proposed sale boundaries throughout the summer. 005

5. **Cook Inlet Beluga Whale** populations are depressed and listed under the endangered species act as threatened. Oil and Gas activity is known to affect communications and behavior of these declining local marine mammals. Given the precarious state of the Cook Inlet population, and the fact that many recent mass strandings have occurred in the peak of Cook Inlet Oil and Gas activity including 27 in October of 1988, 190 in June of 1994, 63 in June of 1996, and then again in 1996, another large stranding of approximately 100 beluga whales occurred in the middle of Turnagain Arm in upper Cook Inlet. These mass strandings in which many whales often die and sometimes all of them, demonstrate the potential catastrophic impacts to this population with even one more major mass stranding losses in the near future prior to this population recovering. 006

6. **Steller Sea Lion** populations are at all time lows and as you surely know, are listed as endangered under the endangered species act. New oil and gas exploration, drilling or production should not be considered until this population has fully recovered. 007

- 7. **Harbor Seal** populations are at all time lows and may be listed under the endangered species act soon if their populations do not rebound. These marine mammals are extremely vulnerable right now. Local tribes depend upon these animals above any other marine mammals for their subsistence needs. Moving forward with new Oil and Gas lease sales when this population is at a critical juncture is neither wise nor sensible development. Assurances are needed that harbor seals are not exposed to the additional threats of new oil and gas developments in Lower Cook Inlet.

008

Point # 3

Mitigation measures are needed and must be provided since we are potentially impacted by current oil and gas development. Any new development should require very systematic and substantial mitigation measures. This section and process of your EIS is completely inadequate and should be completely revised with numerous options listed in each Alternative. Please review the mitigation measures that are detailed in the mitigation section near the end of this testimony.

009

Point # 4

The Marine Mammal Protection Act Must Be Much More Carefully Weighed In The MMS EIS And Should In Itself Preclude This Lease Sale From Being Offered. The local marine mammals inhabiting Lower Cook Inlet and Kachemak Bay, have a special importance of to the Alaska Native Villages adjacent and near to the proposed lease sale boundaries. Native subsistence users depend upon these resources for their subsistence and cultural livelihood. Oil and Gas development as a result of these lease sales, would likely impact these important marine mammals. Given the depressed stock status of virtually all of the subsistence marine mammals in the proposed lease sale boundaries including record low numbers of harbor seals which may lead to a listing under the endangered species act and the already listed Humpback Whale and Steller Sea Lion populations (endangered) and the Beluga Whale (threatened), it is absolutely crucial that these lease sales are not allowed to be held. The resulting activities and potential spills could very possibly retard the recovery process or even drag these populations farther down. Harbor Seals populations are also drastically reduced and protection from additional oil and gas activities to insure they recover to historic levels.

010

In issuing permits under the MMPA, agencies are obligated to ensure that polluters effect “the least practicable impact” on marine mammals and their habitat, “paying particular attention to rookeries, mating grounds, and areas of similar significance”.

011

Specific Details and Factual Evidence of Concern

Excessive Oil and Gas Industry Discharges Already Impacting Proposed Lease Sale Area

While the overall impact of pollution on the Kachemak Bay and Cook Inlet marine environment is mostly unknown, contaminants introduced by oil and gas industry operations are very significant and beginning to take their toll. Cook Inlet in particular has a large amount of pollution issues, with a very active and aging oil and gas industry infrastructure. Large amounts of pollutants are discharged into Cook Inlet every day, and many of the oil and gas pipelines are beginning to rupture and crack due to corrosion. This is not too surprising since most of these pipelines are well over twenty years old and many are over 30 years old.

012

This picture is just one graphic example of the aging pipeline problems already plaguing Cook Inlet. This oil pipeline section shows a gaping hole that caused an oil spill and large sheen in Cook Inlet in 2001.



Drilling Waste Discharges

According to appendix F of EPA’s Development Document for Final Effluent Limitation Guidelines and Standards for the Coastal Subcategory of the Oil and Gas Extraction Point Source Category (October 1996), **“Approximately 89,000 bbls per year of fluids and cuttings are being discharged by the coastal oil and gas industry, all of which is occurring in Cook Inlet. All other coastal areas are prohibited from discharging drilling wastes.”** This document points out that Barite is used to control the density of drilling fluids and is the primary source of toxic metal pollutants discharged. Mineral oil is used by the Cook Inlet drilling operations primarily to free stuck pipe and is a drilling fluid additive that contributes toxic organic pollutants. An operator in Cook Inlet estimated the amount of mineral oil added to drilling fluids is about .02 percent according to this document. Drilling waste discharges are the basic outflow from drilling operations and include drilling muds, fluids and cuttings along with various additives and substances used for the drilling process.

013

The biggest problem with discharging used drilling muds and waste into the ocean is that they are full of toxic substances. Many of the chemicals in the drilling wastes discharged can cause deleterious sublethal effects in sensitive organisms and ecosystems (Neff, 1981). Heavy metals and organics associated with drilling wastes tend to bio-accumulate within marine organisms which can then add up to dangerous concentrations. Drilling waste discharges include chrome- and ferrochrome-lignosulfonates, sodium phosphate salts, detergents, biocides, chromate salts and asphalt/oil-based ingredients along with many other chemicals.

014

To date, the acute toxicity and sublethal biological effects of more than 20 used offshore-type drilling muds have been evaluated with more than 60 species of marine animals from the Atlantic, Pacific, Gulf of Mexico and Beaufort Sea (Neff, 1981). Representatives of five major animal phyla have been tested, including Chordata,

015

Arthropoda, Mollusca, Annelida and Echinodermata. Larvae and other early life stages, and oceanic species (considered to be more sensitive than adults and estuarine species to pollutant stress) were included. In all but a few cases, acute toxicity, usually measured as 96-hr. LC50, was 10,000 ppm for drilling mud. This means that a solution of 10,000 ppm of the drilling mud would kill 50% of the challenged larvae in 96 hours. **The lowest acute LC50 value was 500 ppm for stage I larvae of dock shrimp *Pandalus danae* exposed to a high density ferrochrome lignosulfonate drilling mud from Cook Inlet, Alaska. Chronic or sublethal responses were observed in a few cases at concentrations as low as 50 ppm.** The following table displays the total estimated discharges per year based on the assumptions listed, all of which came from the above mentioned EPA guidance document.

016

Beluga Whales

Industrial Impacts

Pollution from local Cook Inlet Industrial Activities is of particular concern as the Oil Industry in Cook Inlet is currently allowed a waiver from the national standard of EPA’s “Zero Discharge” criteria and are virtually unregulated as to the contaminants discharged from their oil drilling, process and transport operations when compared to other areas of similar activities in the U.S. **In a publication entitled *Select Marine Mammals of Alaska: Species Accounts with Research and Management Recommendations done for the Marine Mammal Commission (Lentfer, 1988)* in a section referring to belugas (pg 4) it states “Disturbance, oil spills, drilling mud’s, and other contaminants produced by exploration and development activities could have adverse effects on the whales, their food resources, and the Alaska Natives who use belugas for food.** The challenge now is to figure out what those real effects and measurable affects actually are here in Cook Inlet.

017

Because whales use their hearing as their main sensory perception, industrial activity can and does impact whale behavior. Direct and observed impacts and reactions of whales from and to industrial activities have been documented in many studies. The question concerning the whales frequenting the waters of Cook Inlet is whether or not impacts and or disturbances are occurring here in Cook Inlet. In a study entitled *Acoustic Effects of Oil Production Activities on Bowhead and White Whales Visible During Spring Migration Near Pt. Barrow, Alaska—1990 Phase: Sound Propagation and Whale Responses to Playbacks of Continuous Drilling Noise From an Ice Platform, as Studied in Pack Ice Conditions* performed by LGL Limited for the MMS (LGL Report TA848-5, 1991), data was collected on definitive distances, reactions and associated acoustical parameters as to what seemed to effect the whales behavior.

018

While Beluga Whales were considered secondary in importance to Bowheads in this study, important Beluga data was collected. While details of these behavioral reactions to drilling noise sound projection can be found in this study and even more details in Richardson et al. (1990a: 222-236), the general patterns were that whales would appear to approach or travel without altered behavior until within a “few hundred meters” at which

time direct alterations in course and or behavior ensued. This is interesting when reviewing other information on Ocean Noise detailed below which generally shows much higher levels of sensitivities and reactions than reported in the above referenced study. Pollution is of course the other major concern of Industrial Impacts but is covered separately in much greater detail in the Pollution chapter.

018

Strandings

As noted above, Oil and Gas activities have been shown to alter and effect the behavior of whales. Of particular concern in this regard is the potential impacts from damaged hearing and or acoustics leading to stranding events. Many incidents of mortalities resulting from stranding events have been documented and or reported in Cook Inlet. In October of 1988, 27 beluga whales stranded themselves on the mudflats in Anchorage. (Anchorage Daily News, November 3, 1988). In 1994 there was a stranding of approximately 190 beluga whales in upper Cook Inlet (Anchorage Daily News, June 15, 1994). In June of 1996, 63 animals became stranded in the Susitna Delta (Rugh et al. 1997b). Four of these animals are known to have died as a result of the stranding event. Then, again in 1996, another large stranding of approximately 100 beluga whales occurred in the middle of Turnagain Arm in upper Cook Inlet. (Anchorage Daily News, August 29, 1996). At least six more Beluga's died when 60 whales stranded on August 29th, 1999 in Turnagin Arm.

019

Such mortalities are not usually associated with human-related activities but due to potential impacts to their navigation based on acoustical disturbances and potential effects of some higher level pollutants, some strandings may in fact be due directly or indirectly from Cook Inlet Oil and Gas industry impacts. While many beluga whales often survive such mass strandings, it is possible that a large stranding could occur that would kill such a large number and percentage of Cook Inlet Whales, that the recovery of the population would be in even more serious jeopardy, than presently exists.

Disturbance Issues

Ocean Noise is a very important category of potential human impacts on whales is another example of being fairly well studied and documented in other areas of the world while little data exists in Alaska with virtually none being available here in Cook Inlet. Because sound travels long distances in water and whales rely so heavily on acoustics for communication, navigation and prey location, changes in the acoustic environment are likely to potentially impact whale behavior here in Cook Inlet as well as other areas of Alaska. A 20-dB increase in noise, not an uncommon result of oil development, could cause a 10 fold reduction in marine mammal communication range (Richardson and Greene 1987).

020

According to a report from the Natural Resources Defense Council, undersea noise pollution is killing marine animals. The authors of this official report demand that the federal government implement broad reforms to protect marine life from noise pollution. The report also argues that man-made noises, from military sonar, oil exploration, and large tankers, flood the ocean with low frequency sound. That sound reportedly threatens to drive endangered marine mammals out of their natural environment, possibly causing some whales to fatally strand themselves.

Most marine mammals depend on sound as they hunt for food, detect predators, find mates, and keep their herds together in the darkness of the sea. There is general agreement in the scientific community that hearing is probably the primary sense of whales, dolphins, and other marine species, as vitally important to them as seeing is to us. For the great whales and others, much of this activity takes place in the low frequencies, in the band below 1000 Hertz. Unfortunately, that part of the spectrum is also occupied by some of the loudest human sources of sound.

020

Declining Numbers, Distribution, and an Unstable Population

The Cook Inlet Beluga Whale population is clearly threatened as listed, if not endangered which many, including prominent whale scientists believe is the true status and should be the current listing. When comparing annual survey numbers, it must be noted that only the post 1993 surveys have provided thorough coverage of Cook Inlet, though all of the surveys included coverage of the Susitna River delta where most of the whales occur (Rugh et al. 1997a). One should also pay close attention to the “(unadjusted median or “index” counts) since more recent surveys are quite thorough and multiple passes are conducted when whales are encountered. When reviewing the following adjusted counts from 1997 through 2001, look closely at the unadjusted median or “index” counts in parenthesis. These counts were: 440 (264) in 1997, 347 (193) in 1998, 357 (217) in 1999, 435 (184) in 2000 and **386 (211) in 2001**. Abundance estimates are corrected for missed groups, whales below the surface, and surfacings not seen and are typically 1½ to 2½ times the index counts: CV = 0.43, 0.44, 0.28, 0.14, 0.29, 0.14, 0.23 in 1994-2000, respectively.

021

Federal biologist Rod Hobbs of the National Marine Mammal Laboratory in Seattle cautioned that the high adjusted count in 2000 is misleading and that the 2000 number was likely a statistical anomaly. Hobbs stated that this is because the local population couldn't grow that fast (from previous counts).

In addition to the declining and low population problem, there appears to be a distribution change taking place that is also cause for concern. During recent year surveys, very few sightings have been made in lower Cook Inlet compared to previous reports (Rugh et al. 1998). Numerous other marine mammals were seen during the 1993-1997 surveys, indicating that visibility was not a problem (Rugh et al. 1998). **During vessel operations conducted in offshore waters of Cook Inlet in June and July 1974-79, 50% of the 642 recorded beluga whales were in the lower Inlet. In the 1980's, 35% of 495 recorded beluga whales were in the lower Inlet. These numbers contrast sharply with the 0-4% of the recent sightings occurring in the lower Inlet (Rugh et al. 1998).** Calkins (1983) indicated that beluga whales were "seen throughout the year in the central and lower inlet, with heaviest use occurring in the central area." Others reported seeing hundreds of beluga whales continuously throughout Cook Inlet in the 1970's and 1980's, where few are now found (Rugh et al. 1998). The differences between reports from the 1970's and 1980's relative to the post 1993 sightings suggest that the summer distribution of beluga whales has indeed changed. Due to this very disturbing and important fact that

022

Cook Inlet Beluga Whales seldom move south of the platform cluster in central Cook Inlet to Lower Cook Inlet which they once commonly frequented, this lease sale and associated Oil and Gas industry activity would likely even further negate the Beluga's reappearance in Lower Cook Inlet and Kachemak Bay.

022

Changes may have also occurred with beluga distribution in the upper Inlet as well. Some of Calkins' June 1974-79 sightings and most of his July sightings were well offshore. NMFS data from June and July 1974-75 also show all but a few of the sightings were offshore (Rugh et al. 1998). In contrast the 1993-97 surveys did not find any beluga whales in the center of the Inlet in spite of excellent viewing conditions and extensive offshore search efforts. **Virtually all of the 1993-97 sightings were within the 10 fathom line, whereas most of the reported sightings in the 1970's were beyond this depth (Rugh et al. 1998).** This could be interpreted as a potential defensive avoidance response to noise pollution and other industry impacts which might be associated with impaired acoustics, association of platform activity and shipping in deeper water which could possibly be compounded by increased killer whale activity.

023

Potential toxic affects

Scientists at the Northwest Fisheries Science Center are establishing linkages between types and amounts of chemical contaminants in marine mammal tissues and deleterious health effects, strandings, and deaths. State-of-the-art analytical and bio-analytical techniques are being developed to assess highly toxic compounds accumulated in mammals obtained from strandings, subsistence harvest, or from opportunistic acquisitions. Specific types of tissues known to accumulate toxins are being analyzed, and results of analyses are compiled into a database of information for a wide range of marine mammal species. Levels and profiles of contaminants in tissues of marine mammals are being examined to highlight regional, species, and sex-related differences in make-up and levels of toxic chemicals. The adequacy of sampling protocols for marine mammal tissues is being determined by examining within-and-among organ differences in contaminant concentrations. Further, collaborative studies are underway to determine the relationship between contaminant exposure and disease and immune function in certain marine mammal species.

024

Toxic chemicals may have a role in the severe decline in the Cook Inlet Beluga population. Contaminant loads can inhibit a Beluga's immune system, making it susceptible to pneumonia, ulcers, cysts, lesions, tumors, and bacterial infections (Smith, St. Aubin, and Geraci, 1990). Low birth rates in the St. Lawrence River also may be linked to industrial pollution (Nowak, 1991). Oil exploration and production activities are known to cause significant alterations to beluga habitats (MacDonald, 1993).

025

Data Sources and Specific Studies Demonstrating Potential Problems

EPA Cook Inlet Contaminant Study (1998)

This study was done by EPA at the insistence of local Kachemak Bay tribes (through court action relating to the Cook Inlet General NPDES permit renewal process) and attempted to define human health risks associated with exposure to Oil and Gas Industry and other contaminants in seafood harvested by subsistence consumers from the native villages of Tyonek, Seldovia, Port Graham, and Nanwalek. Seven fish species, eight invertebrates, and three plants, which represent some of the traditional subsistence foods they consumed, were sampled for 161 chemicals. **Many species had contaminant levels much higher than other areas in Alaska and in some cases even equal to or higher than more industrialized areas in coastal U.S. waters.**

027

The data from this study indicate that oil and gas exploration activities may indeed be significantly contributing to contaminant concentrations in these important traditional marine foods. Forty-three of the 161 chemicals measured in the study have been found in waste streams of the oil and gas industry. Of these chemicals, nine were detected with existing human health toxicity values and could be incorporated into risk estimates according to the draft final report. These consisted of arsenic, barium, cadmium, chromium, mercury, selenium, fluorene, phenanthrene, naphthalene, and 2-methylnaphthalene. Arsenic, cadmium, chromium, and methylmercury were identified as chemicals of concern (COC's) among the potential oil and gas industry contributed contaminants, while PCB's, some pesticides (dieldrin) and other POP's were also found in significant and disturbing levels.

Current Water Quality in Cook Inlet, Alaska (ENRI, 1995)

This Cook Inlet water quality study and report was done by the Environment and Natural Resources Institute of the University Of Alaska, Anchorage, (March 1995). The study found metals within the water column to be strongly partitioned onto the suspended sediment. Suspended sediment in Cook Inlet is predominantly inorganic in the form of glacially ground rock flour. The data showed significantly higher levels of metal content of suspended sediment extracts in lower Cook Inlet than the previous Outer Continental Shelf Environmental Assessment Program (OCSEAP) study had found in the 1970's for concentrations of cadmium, copper, nickel, zinc, and iron.

028

Sediment toxicity bioassays were performed from twelve stations. The solid phase Microtox results showed six stations with no significant toxicity (above 2% median concentration values) and six stations with significant toxicity. The stations showing concentration toxicity were all on the west side of Cook Inlet except for the **Kachemak Bay station # 227 which showed the highest toxicity.**

029

For the solid phase static amphipod sublethal bioassay, only two stations, Alt C near West Foreland and #227 in Kachemak Bay, had statistically significant (=20% negative

survival difference than control) lower survivals. **Amphipod survival from the Kachemak Bay station # 227 was 21% lower than the control. The authors of this report stated that “Sediments from this area could be considered toxic based on this difference”.** Sediment pore water from three stations (F, 16B and Alt 22) had statistically significant lower percent fertilizations than the control. Station F is located in the middle inlet below Kalgin Island, station 16 B is in Tuxedni Bay. **Station Alt 22, which is right off the southern tip of Kalgin Island, had the lowest fertilization rate of only 18%, station F was 38.4 % and station 16B was 47.2%. The report states that “These three stations could be considered to have pore waters exhibiting toxicity.”** Station 211 near Augustine Island showed larval survival rates of 9 % below the control. **This information and data is in direct conflict with many reports that content that no negative impacts are occurring from Cook Inlet Oil and Gas activities.**

The following table from this report shows a comparison between earlier outer continental shelf data (OCEAP) collected in 1977 during the early years of major oil industry activity and the above referenced ENRI study done in 1993. Station F (ENRI) and 69 (OCEAP) are both located in the middle Cook Inlet area roughly at the transect of lines between Ninilchik and Tuxedni Bay and a line between the southern tip of Kalgin Island and Cape Douglas. Samples were collected in August of 1993 from ENRI’s station F and OCEAP samples were collected from their station 69 in April of 1976.

Comparison of Total Metals in Suspended Solids for ENRI Station F and OCEAP Station 69. (ENRI, 1995)

		Metals (µg/gm)					
Station	Date	Cadmium (Cd)	Copper (Cu)	Nickel (Ni)	Zinc (Zn)	Iron (Fe)	Manganese (Mn)
F	8/93	0.6	40.1	26.8	132	27,800	
69	4/76	<0.25	11.9	2.9	10.0	1,240	62

Comparison of mean concentrations of trace metals in bivalve tissues from Cook Inlet (ENRI, 1995)

Metals ug/g	Burrell Study 1978		ENRI Study 1994		Boehm Study 1987	
	Kasitsna Bay	Kachemak Bay	Kasitsna Bay	Kachemak Bay	Beaufort Sea	
Ba				26.5	15.3	21.5
Cd	1.7	2.5	2.6		1.8	7.3
Cu	4	11	10.8		11.4	18.7
Zn	113	68	138		171	71.1

While pre oil industry hydrocarbon data is limited for Cook Inlet waters there are some indications of increased hydrocarbon pollution over time. In June of 1976 as part of the OCEAP work, Shaw (1977) collected 20 unfiltered samples in lower Cook Inlet and observed concentrations of total hydrocarbons ranging from 0.2 µg/kg or liter to 1.5 µg/kg or liter.

Comparisons of Mean Saturated Hydrocarbon Concentrations for Sediment in Cook Inlet. (Current Water Quality in Cook Inlet, Alaska Study, UAA, March '95)

OCSEAP				ENRI			
Station	Date	TALK ng/g	CPI	Station	Date	TALK ng/g	CPI
16B	May-79	460	5.9	16B	Aug-93	856	2.1
19	May-79	220	4.9	E8	Aug-93	1,044	2.8
22	May-79	10	ND	22	Aug-93	859	2.6
23	May-79	10	ND	23	Aug-93	186	2.4
27	May-79	10	1.2	27	Aug-93	62	ND
30	May-79	90	3.2	30	Aug-93	458	2.1
212	Apr-78	210	3.7	E6	Aug-93	720	2
212	Aug-78	360	4.6	E6	Aug-93		
227 ¹	Nov-77	1,680	3.1	227	Aug-93	1,369	3.5
233	Apr-78	480	3.9	233	Aug-93	1,613	38.4
245	Apr-78	120	4	F	Aug-93	457	7.3
265	Apr-78	540	1.1	265	Aug-93	484	1.4

Table 10 above, compares mean saturated hydrocarbon concentrations in sediment between OCSEAP data from 1977 to 1979 and ENRI (1993) data from the same or similar stations. **Data from most stations show significant increases in saturated hydrocarbon concentrations (TALK, ng/g) from the earlier OCSEAP data compared to the more recent ENRI data. Station 227 is located in outer Kachemak Bay almost exactly between Seldovia and Homer.** This site had higher levels of saturated hydrocarbons in the more recent ENRI studies from the earlier 1977 samples, the elevated levels combined with the sediment toxicity demonstrated for this site, are definitely cause for concern. Additional follow up research and monitoring is essential in order to more clearly define the sediment contaminant loads and associated toxicity in Kachemak Bay.

Mitigation Issues

MMS has failed to provide significant mitigation options in this EIS. The mitigation section of the EIS is inadequate and lacks any meaningful substance for addressing potential mitigation approaches that should be addressed if any additional lease sales proceed.

Issues that should be considered are listed in two types of mitigation. The first are mitigation issues that must be addressed prior to the proposed lease sales 191 and 199 being considered and the second are mitigation measures that must occur if or when the lease sale proceeds after other issues in this position paper are addressed. These proposed mitigation measures are as follows:

¹ Outer Kachemak Bay sample site

Issues Which Must be Addressed Prior to Proposed Lease and any New Oil and Gas Activity

- All current platforms and Cook Inlet Oil and Gas Industry activities and operations required to comply with the national Zero Discharge policy immediately nullifying the current inexcusable waiver which seems to have been authorized by EPA officials in the past who perceived of Cook Inlet as a giant toxic waste dump site. 032
- All oil and gas pipelines in new and existing Cook Inlet Oil and Gas operations in the existing lease sale areas must install certified flow meters at the platforms where the oil and fluids are piped out of the facilities, where the pipe comes to any routings or multiple connection pathways and shore based receiving stations. These meter reading must be made regularly available to EPA, ADEC, Cook Inlet RCAC and the Cook Inlet Keeper. The readings will be used to insure no major leakages are occurring and can greatly help police the actual amount of leaks occurring due to faulty corroded pipelines. 033
- A comprehensive Cook Inlet Subsistence Health Analysis must be performed for each of the Tribes that participated with and are still working with the EPA Cook Inlet Contaminant Study. This follow up study must address the many issues brought up by the Tribes on the EPA study and provide a full evaluation and risk assessment for low, median and higher level subsistence users in each Tribe based on their own dietary assessments in pounds per month and pounds per year of each subsistence species. Additional data is needed for species yet to be sampled, fillet/muscle tissue samples for fish previously only having whole body homogenized samples and larger fish in the case of Halibut. Harbor seal contaminant data is also needed to complete this Health Analysis. 034
- A full and complete comparative analysis of all fish, shellfish and other invertebrates for which data is available to other areas in Alaska, the U.S. and internationally, with the comparisons ranked in categories of large population areas, industrial area's and "pristine" areas considered to have very little pollution present. 035
- One of the Unocal platforms being de commissio ned must be turned over to a coalition of each of the Cook Inlet Tribes, the Cook Inlet Keeper, the Center for Alaskan Coastal Studies and Chugach Regional Resources Commission for use as a marine laboratory specifically to analyze and study Cook Inlet oceanography, pollution, currents and to provide environmental education for the region in regards to oil and gas operations and potential impacts. Funds will be provided by the Cook Inlet Oil and Gas industry with assistance from EPA and ADEC to set up and equip the marine laboratory facility which will be open to continuous use, including equipment, supplies and access by the coalition users. A marine vessel must also be supplied that is capable of year round transit from Homer to the platform and which is also set up for marine research. 036
- A complete and continuously updated (monthly) user friendly spreadsheet data published on the internet and provided to any group that requests copies of all of the discharge monitoring reports including summaries of total discharges by substance both grouped by constituent type and each independent constituent with quantitative calculations made using the volumes of discharge and the 037

concentrations based on sampling of each constituent discharged both for priority and non priority pollutants. A chart showing the comparison with the total calculated outfall pollutants with the permitted discharges must also be presented which clearly shows the dates of both the volume discharge reports, the concentration chemistry analysis and must include all bioassay data with dates and results.

037

- Provide a complete review of how the current Cook Inlet Oil and Gas effluent standards were created and approved, a full comparison to how those standards and methods of creation and approval compare to other oil and gas operations in the U.S. and host (MMS and EPA) a series of public meetings to discuss potential revisions for more protective and scientifically based standards and discharge limits.

038

Issues Which Must be Addressed if Proposed Lease Sales Proceed

- The Cook Inlet Tribes of Port Graham, Nanwalek, the Seldovia Village Tribe and Chugach Regional Resources Commission must receive annual mitigation allowances equal to a four way split of 10% of the each producers profit for each year of operations as verified by certified accounting practices through audits or special accounting arrangements. This Tribal mitigation fund will be used to help fund Tribal Environmental, Fisheries and Natural Resource programs and associated research, monitoring and educational projects and programs to help offset the impacts of Cook Inlet Oil and Gas Development.

039

- A Kachemak Bay Oil and Gas Impact Research and Monitoring Endowment will be created with funding from all active Cook Inlet producers with each producer contributing a one time 5% of their averaged most recent five year period of annual profits which will be required for new producers coming online upon their sixth year of production unless they opt for a negotiated amount agreeable to the Endowment Trustees. The Endowments Trustees will be two representatives each with one being a board member and the other being the senior executive of the following organizations: Chugach Regional Resources Commission; the Center for Alaska Coastal Studies; and the Cook Inlet Keeper.

040

- Establish a required system for each and every Oil or Gas Industry platfor and shore based facility with three each real time monitoring video camera’s contracting with Sea More Wildlife out of Homer to set up and maintain the systems. These systems will be used to provide web accessible visual records of the drilling/production room, the gauges panel and an outside view that is fully panable with vertical and horizontal remote tilt. The parent imagery is to be brought to the Sea More Wildlife headquarters in Homer and should be sent to the Cook Inlet Keeper headquarters as a live “splice”.

041

Issue Brief for MMS Proposed Lease Sales 191 and 199

Cook Inlet Oil Industry Pollution

“Approximately 89,000 bbls per year of fluids and cuttings are being discharged by the coastal oil and gas industry, all of which is occurring in Cook Inlet. All other coastal areas are prohibited from discharging drilling wastes.” Appendix F of EPA’s Development Document for Final Effluent Limitation Guidelines and Standards for the Coastal Subcategory of the Oil and Gas Extraction Point Source Category (October 1996). **Produced Water discharges containing many pollutants from Unocal platforms alone equal nearly two billion gallons per year.**

VII-163

The Cook Inlet Oil and Gas Industry and the government regulators who are supposed to be protecting us, our children, our environment and associated fish and wildlife from harmful impacts seem to view Cook Inlet as a massive toxic waste dump site. MMS suggests as a leverage point for promoting proposed lease sales 191 and 199 that there is no problems with the existing oil and gas industry operations. **THIS IS CLEARLY NOT THE CASE!**

I believe that the information presented in this issue brief and much other available information together with the endangered status of Sea Lions, the threatened status of Beluga Whales, serious declines of Harbor Seals, and the current minimal or depleted populations of local Herring, Crab, Shrimp and Sea Ducks presents a rock solid case that absolutely no more oil and gas lease sales or production should be allowed. **I propose instead, a massive five year State of the Inlet Project be funded by MMS** but conducted by a coalition of the local Tribes, the Cook Inlet Keeper and their mutually selected scientist’s to better understand, analyze and document detailed existing oil and gas pollution and other potential impacts. The project should include three full years of further contaminant testing as well as large volume water, caged mussel, plastic strip, sediment and tissue samples.

Annual Calculated Discharges in Kilograms per Year from Cook Inlet Oil and Gas Industry:

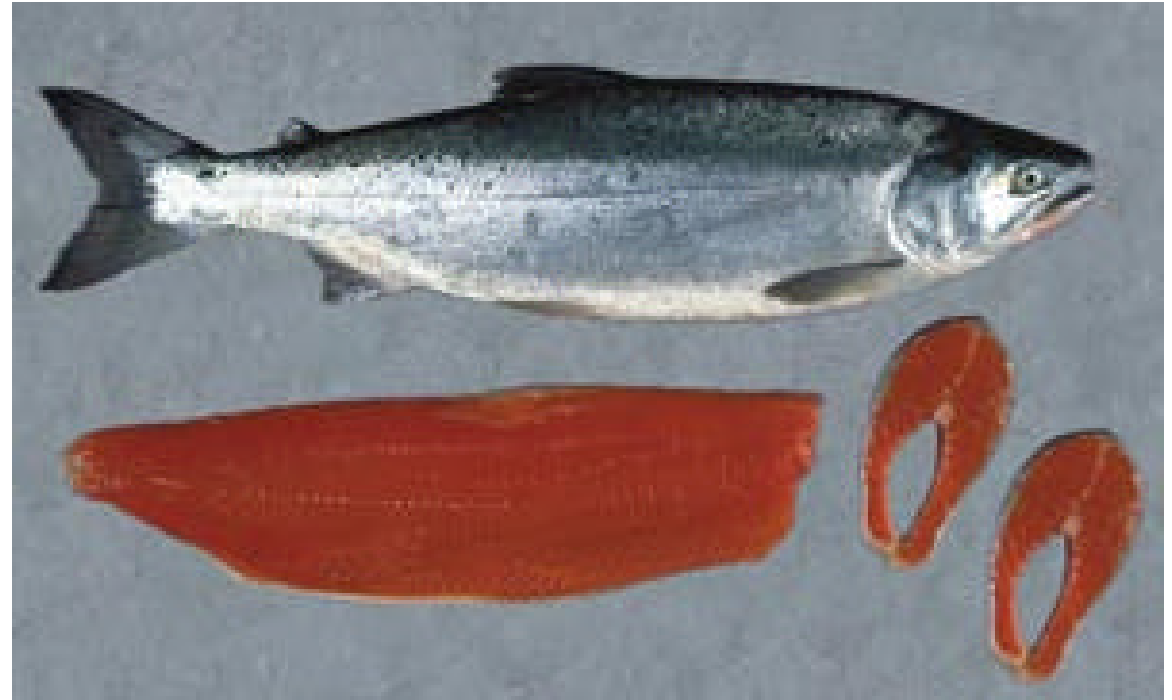
Pollutant:	Kg/Year
Barium:	5,372,580
Suspended Solids:	5,056,588
Iron:	670,915
Aluminum:	385,591
Oil and Grease:	262,315
Boron:	188,987
Benzene:	24,861
Chromium:	11,251
Toluene:	11,067
Naphthalene:	6,854
Total Xylenes:	3,983
2,4-Dimethyl phenol:	3,779
Lead:	2,885
Ethylbenzene:	1,158
Arsenic:	294
Cadmium:	212
Anthracene:	185
Benzo(a)pyrene:	78



Total Discharges per Year:	
Drilling Fluid:	4,895,000 gallons
Produced Water:	1,939,783,740 gallons
Metals:	6,666,607 Kgs.
Organics:	68,425 Kgs.

Fish Tissue Data from 1998 EPA Cook Inlet Contaminant Study

Forty-three of the 161 chemicals measured in the study have been found in waste streams of the oil and gas industry. Of these chemicals, **nine were detected with existing human health toxicity values** and could be incorporated into risk estimates according to the draft final report. **These consisted of arsenic, barium, cadmium, chromium, mercury, selenium, fluorene, phenanthrene, naphthalene, and 2-methylnaphthalene. Arsenic, cadmium, chromium, and methylmercury were identified as chemicals of concern (COC's) among the potential oil and gas industry contributed contaminants**, while PCB's, some pesticides (dieldrin) and other POP's were also found in significant and disturbing levels.



VII-164

Here is just a snapshot of the oil and gas industry contaminants in some of our local natural resources:

Fish Tissue Contaminant Levels in $\mu\text{g}/\text{kg}$ (parts per billion):

Species	TPAH's	Naphthalene	2-Methylnaphthalene	Flourene	Chromium	Cadmium	Barium	Selenium
King Salmon	171.29	1.88	1.88	1.51	128.50	104.70	44.00	365.70
Sockeye Salmon	30.62	1.31		0.38	1,519.30	26.70	220.80	620.80
Halibut	27.99	1.30	1.03		226.10	22.60	89.30	484.80
Sea Bass	45.86			0.45	385.30	49.00	593.80	589.50
Snails	23.03	2.62	0.78		340.70	4,493.20	301.40	559.10
Chiton	7.72				612.00	769.10	948.60	157.10
Octopus	3.10				128.30	1,230.50	202.70	379.00
Blue Mussels	7.09	1.57			187.70	465.30	352.70	304.00

Many of these species tested here in Lower Cook Inlet have contaminant levels equal to and in some cases much higher than industrialized marine area's down south such as Puget Sound. Other PAH's with high levels of concern = C2-Dibenzothiophenes; C2, C3 and C4-Naphthalenes; C2, C3 and C4-Phenanthrene/anthracene and Fluoranthene. These are only a few of the contaminated species and many have levels high enough to trigger dietary limitations using EPA meals per month guidelines based solely on the individual contaminant and not on combined levels. Much more testing, risk analyses, a full health analysis for Tribal subsistence users and associated reviews are needed before any additional oil and gas leasing or development can take place.

043

Cook Inlet Beluga Whale Contaminant Levels

Our Cook Inlet Beluga Whales are also getting loaded up with contaminants at an alarming rate. These contaminant levels combined with the threatened status and precarious position for their population and all the potential impacts from existing Oil and Gas activity and associate shipping and vessel traffic should warrant automatic exclusion of any further oil and gas activity in the area.

The following samples are from October 6th, 1992 from the liver tissue of a mature male in the left column and compared to six males from the Alaska Marine Mammal Tissue Archival Project (liver*, kidney**), Becker and Pugh et al, 2001.

Contaminant	Level in µg/kg	µg/kg*	µg/kg**
Iron	494,500	317,000	208,000
Copper	54,090	48,900	34,400
Mercury (Hg)	2,820	5,450	3,650
Methly Hg		1,470	1,800
Cadmium	380	nd	4,510
Selenium		4,350	2,290

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The data on the right is from two reports for which the PCB and Pesticide study (NIST, May, 1995) is from 13 different Cook Inlet beluga whale tissue samples and the methylmercury and mercury study (Becker, 1996) sample numbers are n=16 and n=11 respectively. The significance of these contaminant levels weigh heavily to suggest that these animals are loaded down with chronic and even sub acute levels of contaminants which can and very likely do cause stress and immune system malfunction. **Any new oil and gas industry activity will likely further compound an already existing problem and may seriously threaten their ability to recover.**

According to the above mentioned report, Copper levels (3.97–123.8 mg/kg wet mass) were substantially higher in Cook Inlet animals, compared to Alaska Arctic animals, and were similar to those reported for Hudson Bay, Canada, belugas. Although total mercury levels were lowest in the Cook Inlet stock, methyl mercury concentrations (the toxic part of mercury) were similar among all three stocks (0.34–2.11 mg/kg wet weight).



Contaminant µg/kg	Minimum	Maximum	Average
Methylmercury	.09	2.11	.974
Total Mercury	1.397	72.9	28.15
Total PCB's	267.35	1,923.15	950.35
Total PCB's**	393	1,955	1,137
Pesticides			
Hexachlorobenzene	120.00	741.00	348.69
Mirex	2.21	23.80	9.92
Total DDE	69.10	1,670.70	618.83
Total DDD	23.76	331.00	130.87
Total DDT	40.37	472.00	255.78
Total DDT's	133.23	2,349.90	1,005.48
Total DDT's**	344	2,543	1,365
Total Chlordane	8.12	97.30	33.23
Total Nonachlor	37.45	457.33	235.70
dieldrin	10.70	306.00	120.09

044

MMS Response to Comment Document 010

Response 010-001.

Multiple published monitoring studies done by the University of Alaska, the MMS, PWSRCAC, CIRCAC, and others in Cook Inlet are reviewed in the EIS. None of these studies have reported significant levels of contaminants from Cook Inlet offshore oil and gas activities in Cook Inlet sediments, water, or biota. See also Response 007-015 regarding mercury levels in Kachemak Bay.

Response 010-002.

The existing pipelines and infrastructure in Cook Inlet are on State of Alaska lands. We are studying the aging infrastructure in the Gulf of Mexico and offshore California to determine what needs to be done to maintain the level of safety and environmental protection that has been achieved. Much of what we learn likely will be applicable to the existing infrastructure in Cook Inlet.

Response 010-003.

The press release (Albright, 1998) for the cited EPA study stated that concentrations of contaminants in Cook Inlet biota were very low. A draft of the EPA report was withdrawn and a revised draft report issued in July 2001, which corrected some errors in units, dropping reported concentrations of Aloclor 126 and dioxin TEC by a thousandfold. Some errors and misconceptions continue in the revised draft EPA report. These include erroneous conclusions about comparative levels of PAH's in Cook Inlet fish. The report clearly states that when levels of individual PAH compounds in Cook Inlet fish are compared to values found elsewhere, that the concentrations were always lower in the Cook Inlet fish. However, the report concluded that total PAH's, the sum of all the individual PAH compounds, was always higher in Cook Inlet fish. How can this mathematically impossible result occur? The result occurred because the report compared other studies summing only 1-10 PAH compounds to their own Cook Inlet data summing 104 PAH compounds. The EPA protocols also call for laboratories to report zero concentrations as nonzero values, such as half or all the method detection limit. Thus, the more PAH compounds you analyze, the higher the reported value for total PAH's, even if no PAH's are present.

The draft EPA report also indicated that metals were relatively high in some sampled biota. Unfortunately, the EPA sampled these biota at single locations and did not provide sufficient same-tissue literature values from elsewhere for adequate comparison. Other species in Cook Inlet are not high in these metals, so we know the problem is not a general contamination issue; however, we do not know whether the findings are the result of a species-specific metabolic requirement or use or indicate a local metal source.

Please see also Responses 010-001 and 007-040.

The ocean circulation in Cook Inlet (see Section III.A.3) precludes Cook Inlet oil and gas industry operations from significantly affecting Port Graham and Nawalek. A regional source analysis of oil-industry contaminants has been done for Cook Inlet, as discussed in Sections III.A.3 and IV.B.1. The low contaminant loading from Cook Inlet oil and gas operations relative to loading of the same contaminants from natural sources (see Section IV.B.1.a and Table IV.B-4) preclude offshore oil and gas operations as a significant source to the communities. The MMS and others have conducted multiple contaminant studies related to the oil and gas industry for at least 3 decades without findings effects. The MMS extended this historical record through most of the 20th Century, prior to the founding of Anchorage and the Cook Inlet oil industry, through analysis of dated sediment cores. Concentrations of the sorts of contaminants produced by the oil industry have not increased since then in lower Cook Inlet or downcurrent depositional sediments since before the founding of either Anchorage or the Cook Inlet oil industry. Contaminant levels of polycyclic aromatic hydrocarbons are so low in Cook Inlet that they dilute the natural background concentrations in the Gulf of Alaska in depositing sediments. Thus, we see no need for an additional 5 years of contaminant data at the existing levels of oil-industry activity in Cook Inlet. The revised draft EPA report also found that, based on their data, a comprehensive subsistence health-risk assessment was not needed in that document.

The MMS believes that sediment and water quality studies previously conducted do not indicate “significant contamination of many chemicals and metals.” Furthermore, these studies have failed to identify the discharge source as Cook Inlet oil and gas operations. Please see Sections IV.B.1.a - Water Quality and IV.B.1.p - Environmental Justice for discussions of past sediment and water quality studies as they relate to contaminants and to subsistence resources. See also Response 007-020 for a discussion of the EPA contaminants in subsistence foods study. The MMS supports additional studies to specifically identify contaminant levels and agrees that a subsistence health-risk assessment is needed. We welcome the commenter to submit a specific study proposal to our Environmental Studies Section.

Response 010-004.

In the event of an oil spill of 4,600 barrels, Sale 191 could cause a significant effect on commercial fisheries and shellfish. We cannot ensure that these effects would not occur. See Sections IV.B.1.k and IV.B.1.o, respectively.

Response 010-005.

In Section III.B.4 we have summarized information that is available to MMS about humpback whale use of the proposed lease-sale areas and humpback whale feeding. Potential effects of the Proposed Action on this species can be found in Sections IV.B.1.f, IV.F.3.f, and others. We agree that parts of the proposed sale area are feeding areas for humpback whales, although information about the relative importance of known feeding areas within the proposed sale area (for example, within the entrances to Cook Inlet and near the Barren Islands) versus feeding areas outside of the proposed sale area (for example, the area to the west of Kodiak Island) to individuals or to feeding aggregations is not available. Thus, we do not have evidence that permits us to evaluate the statement that humpbacks that feed in this area “depend” on the prey they capture within the proposed sale area. We do not have information that supports the statement that humpback whales are feeding “...all around the proposed sale area boundaries throughout the summer.” For example, we do not have information that indicates that humpback whales typically feed north of a line drawn from Anchor Point to the west.

In comments on the draft EIS, the NMFS stated: “While the DEIS again presents an excellent narrative describing this important species of endangered whale, it is also evident that the sale area supports feeding aggregations of humpback whales from one or more stocks. NMFS has received many reports of ‘several hundred’ humpbacks sighted near the Barren Islands by summer fishing charters, and have observed humpbacks on several occasions feeding near the Kenai Peninsula coastline north and east of Elizabeth Island. We believe this use should be a determining factor in the decision to establish the two deferral alternatives.” The MMS also has concluded formal consultation with the NMFS on the potential effects of the proposed action on threatened and endangered species, including humpback whales. Their Biological Opinion is included in Appendix C. In this Biological Opinion, the NMFS has included a Conservation Recommendation that states: “MMS should adopt proposed Alternatives III and IV, as presented in the December 2002 DEIS. These alternatives would defer from leasing certain tracts near the Barren Islands and offshore of the lower Kenai Peninsula. The use of the Sale Area by endangered whales and the Steller Sea lion increases to the south and several designated critical habitats exist within these deferral areas. NMFS believes these deferrals would reduce general disturbance to these species, and lessen the risk to critical habitat due to aircraft noise, geophysical seismic operations, and to an extent, oil spills.” Our analyses also concluded that deferral of the leasing blocks in the lower Kenai Peninsula and near the Barren Islands could reduce potential adverse effects on threatened and endangered species, including the humpback whale. We refer the commenter to Sections IV.B.3 and IV.B.4 of the EIS.

Response 010-006.

The Cook Inlet stock of beluga whales is designated as depleted under the Marine Mammal Protection Act (MMPA), and it is designated as a candidate species for listing under the ESA. However, it is not currently listed as threatened or endangered under the ESA. We refer the commenter to Section III.B.4 for a discussion of these designations and to Section III.b.4.b(1) for information about the status, ecology, distribution, etc., of the Cook Inlet stock of beluga whales. We are not aware of any information that links oil and gas activities to mass strandings of beluga whales in Cook Inlet. In their 2000 draft EIS related to “Federal Actions Associated with Management and Recovery of Cook Inlet Beluga Whales,” the NMFS

reported that such strandings often coincide with extreme tidal fluctuations. Our analyses of potential effects of the Proposed Action on beluga whales in Cook Inlet can be found in Sections IV.B.1.f and IV.F.3.f.

Response 010-007.

We share concern about the current endangered and threatened status of the western and eastern populations of Steller sea lions. The depth and tone of our synthesis of information, and of our analyses of potential effects, reflect this concern. We refer the commenter to Sections III.B.4.b(8)(a), IV.B.1.f, IV.B.3, IV.B.4, IV.C.4, IV.D.6, IV.E.4, IV.F.3.f, and V.C.5.f for this information. However, while it is clear that the total abundance of Steller sea lions in Alaska has plummeted to a fraction of earlier levels, we note that the eastern population stock of Steller sea lions is on an upward trend, not at an “all time low.” We refer the commenter to Section II.B.4.b(8)(e) and to the recent stock assessments for more detailed information on the abundance and population trends of both the western (endangered) and the eastern (threatened) population stocks of Steller sea lions. We also recently concluded consultation with the NMFS under Section 7 of the ESA for the proposed OCS oil and gas lease sales in Cook Inlet, and the NMFS has written their biological opinion related to this Proposed Action. In this Biological Opinion, NMFS concluded “...that leasing and exploration are not likely to jeopardize the continued existence of the Steller sea lion, or fin and humpback whales, nor result in the adverse modification of critical habitat.” The NMFS also concurred that other threatened and endangered species under their jurisdiction were unlikely to be adversely affected. We include this biological opinion in Appendix C.

Response 10-008.

Although harbor seal populations in the western Gulf of Alaska and Kodiak have declined by more than 80%, the status of the Cook Inlet harbor seal population of more than 2,200 seals is known. This population is exposed to considerable existing oil-development facilities, including 16 offshore platforms, loading facilities, and pipelines in addition to vessel traffic to and from these facilities (see Map 19). The Proposal assumes that there would be one additional platform in lower Cook Inlet. This additional platform is not likely to significantly increase harbor seal exposure to noise and disturbance or increase habitat alteration effects on the population. The assumed 1,500- or 4,600-barrel spill could pose an additional risk of oil contamination of some seals in the population and could oil some haulout sites. However, the amount of habitat contaminated by the spill and the number of seals affected (perhaps 20-100 individuals) is not likely to affect the population in Cook Inlet or significantly affect the Kodiak area regional population.

Response 010-009.

This also responds to Comment 010-031.

The stipulations described in Section II.F.1 and the ITL's in Section II.F.2 provide a wide range of mitigation that analysis shows is effective in dealing with the effects that could result from the lease sale. These measures apply to Alternatives I, III, and IV. The mitigating measures suggested by the comment, analyzed further in responses to comments 010-032 to 010-041, are either legally or technically infeasible or are more monitoring in nature and provide little, if any, mitigation.

Response 010-010.

We share concerns about declining populations of some marine mammals in portions of Southcentral Alaska. We have carefully considered the requirements of the MMPA and other governing laws and their implementing regulations. Relatedly, we have carefully considered the potential effects of the proposed action on marine mammals in areas that could be affected by the Proposed Action. We are aware of no information that indicates that oil and gas activities in Cook Inlet, or elsewhere, have contributed significantly to the current decline in any of the populations currently listed as threatened, endangered, or as candidates under the ESA or as depleted under the MMPA. Evidence indicates that sea otters in the Southcentral Alaska stock were significantly adversely affected by the *Exxon Valdez* oil spill. However, based on information from the FWS, this population currently is neither depleted nor undergoing overall

decline. Sea otters in the Southwestern Alaska stock also were adversely affected, but to a much lower degree, primarily due to lower exposure and due to the weathering of the oil before it arrived in their habitat. Available evidence does not point to a significant contribution for oil and gas to the apparent widespread decline in that designated stock. Harbor seals, especially those in Prince William Sound, also were adversely affected by the *Exxon Valdez* spill, but the extent of the contribution of that event to the overall decline is unclear. The *Exxon Valdez* Oil Spill Trustee Council concluded that

Harbor seal numbers were already declining in the Gulf of Alaska, including in Prince William Sound, before the oil spill. Exxon Valdez oil affected harbor seal habitats, including key haul-out areas and adjacent waters, in Prince William Sound and as far away as Tugidak Island, near Kodiak. Estimated mortality as a direct result of the oil spill was about 300 seals in oiled parts of Prince William Sound. Based on aerial surveys conducted at trend-count haulout sites in central Prince William Sound before (1988) and after (1989) the oil spill, seals in oiled areas declined by 43 percent, compared to 11 percent in unoiled areas.

However,

...harbor seals in both oiled and unoiled parts of Prince William Sound have continued to decline since the spill. It is not known what harbor seal populations would have been had the spill not occurred.... Environmental changes in the late 1970s may have reduced the amount or quality of prey resources, including such forage fishes as Pacific herring and capelin, available to harbor seals in the northern Gulf of Alaska ecosystem. These changes may have been responsible for or contributed to the initial prespill harbor seal decline, and the ecosystem may now support fewer seals than it did prior to the late 1970s. Recent studies, however, indicate that the seals in the sound, especially pups and yearlings, are in very good condition and do not show evidence of nutritional stress. Ongoing sources of mortality include killer whale predation, possible shark predation, subsistence hunting, and commercial fishery interactions (e.g., drowning in nets). The relative roles of oil and various natural factors are not known (*Exxon Valdez* Oil Spill Trustee Council Status of Injured Resources Website, 2003).

Evidence indicates that other types of human activities are linked to the decline in at least some of the other populations. For example, in the case of the case of the Cook Inlet beluga whale, the primary cause of the decline is thought to be unsustainably high levels of killing by Alaskan Native hunters. In the case of Steller sea lions, evidence indicates that human-caused factors contributing to the low-term decline probably include illegal shooting, incidental take in fisheries, competition with fisheries, subsistence take, and possibly disturbance at rookeries and haulouts. In the case of humpback whales, it is clear that historic commercial overharvesting led to their current depleted status. Please see our summaries of available information on those species currently listed as threatened, endangered, or as candidate species, under the ESA in Section II.B.4.b and analyses of potential effects on such species in Sections IV.B.1.f, IV.B.3.a, IV.B.4.a, IV.C.4., IV.D.6, IV.E.4, IV.F.3.f, and V.C.5.f. We are not aware of any subsistence take of humpback whales in Southcentral Alaska, and we note that neither NMFS's recent stock assessment on this species nor their final Biological Opinion related to this proposed Federal action (see Appendix C) mentions such take.

We refer the commenter to Responses 010-005, 010-006, 010-007, 010-023, 010-025, and 010-044. We refer the commenter to page 44 of the Final Biological Opinion from NMFS regarding incidental take of endangered marine mammals under their jurisdiction. We note that prior to such taking, either the MMS or a proposed operator will be required to apply for authorizing regulation or other authorization under Section 101(a)(5) of the MMPA and/or its 1994 amendments and that NMFS and/or the FWS (depending on the species that could be taken) will make a decision as to issuance of such regulations or other authorization, including requirements to minimize, monitor, and to report take.

Response 010-011.

We are aware of the provisions under Section 101(a)(5) of the MMPA. We refer the commenter to page 44 of the NMFS Final Biological Opinion (included in Appendix C).

Response 010-012.

Contamination from pipeline spills was tabulated in the EIS, and their effect on water quality was discussed in Sections III.A.4, IV.B.1.a, and V.C.5.a. Please see Response 010-003, which addresses the other aspects of this comment.

Response 010-013.

Proposed Sales 191 and 199 would not fall under the Cook Inlet exemption, because they are outside the EPA's coastal category. Allowed discharges have been restricted within even the Cook Inlet exemption area since the commenter's 1996 citation. The more restrictive discharge regulations within the coastal category in Cook Inlet either are listed in the current general Cook Inlet NDPES permit (Environmental Protection Agency, Region 10, 1999) for existing platforms or do not exist for the single post-1999 development (Environmental Protection Agency, 2002). These restrictions were described and their effectiveness discussed in Section IV.B.1 of the EIS.

Response 010-014.

Discharge of toxic drilling muds has been prohibited in both Federal and State waters in the decades since 1981. This issue is discussed in detail in Section IV.B. 1. Also, please see Response 001-012.

Response 010-015.

The discharge of toxic drilling muds has been prohibited in both Federal and State waters in the decades since 1981. The commenter's information is superceded by more recent Cook Inlet-specific information on drilling muds actually used and discharged in Cook Inlet and regulatory prohibitions on use of toxic muds. This information is discussed in detail in Section IV.B. 1. Please see also Response 001-012.

Response 010-016.

Please see Response 010-014. The toxicity of modern drilling muds, muds used historically in Cook Inlet, and dilution factors during discharge are discussed in detail in Section IV.B.1.

Response 010-017.

We have referred this comment to our studies section. However, we note that while the commenter refers to an excellent reference, studies have been conducted since the publication of that document that are informative about contaminant levels in Cook Inlet beluga whales. We refer the commenter to Responses 007-058, 010-006, 010-023, 010-025, 010-044, and 016-005.

Response 010-018.

We refer the commenter to Sections IV.B.1.f(3)(b) through IV.B.1.f(3)(d) and IV.B.1.f(4) for discussions of effects of noise and disturbance on marine mammals, including beluga whales. We summarize results of the study mentioned by the commenter but reference a later, more mainstream and accessible publication (Richardson et al., 1995). It is important to note that one must exercise caution when attempting to apply results from a study on the impacts of noise on cetaceans conducted at one location to predicting impacts at another location. The studies can give general information but should not be interpreted too strongly, because many factors impact the transmission and potential impact of sounds. For example, characteristics of the marine environment that impact the fate and potential impact of sound include, but are not limited to, the depth of the water, bottom type, bottom topography, depth of the sound source, depth and orientation of the animal receiving the sound, and other sounds in the area (for example, from ships, boats, harbor activity, shore development, waves, wind, volcanic activity, ice, marine mammals, etc.). Characteristics of the cetaceans being studied also can impact response to, and effect of, sound in the marine environment. These characteristics include, but are not limited to, the hearing ability of the species, the hearing ability of

the exposed individual, the reproductive status of the individual (for example, females with calves versus those without), their depth and orientation in the water, the behavior of the animal at the time of exposure (for example, migrating versus feeding), etc. Characteristics of the sound being transmitted (frequency, intensity, etc.) impact sound fate and effect. Thus, the fact that different studies have reached different conclusions about effects is not surprising. We refer the commenter to background subsections of Section IV.B.1.f(3) and to Richardson et al. (1995) for more detail and discussion of this topic.

Response 010-019.

Please see Response 010-006.

Response 010-020.

Please see Response 010-018.

Response 010-021.

The Cook Inlet beluga population currently is designated as depleted under the MMPA but is not listed as threatened or endangered under the ESA. It is a candidate species for listing under the ESA. We refer the commenter to our review and discussion of the current ESA status of this population in Section III.B.4.b(1)(d). Our review of historic and current habitat associations, abundance, and distribution is found in Section III.B.4.b(1)(e). Please also see Table III.B-3 wherein we present the survey data you refer to. In a peer-reviewed published paper on the abundance of belugas in Cook Inlet, Hobbs, Rugh and DeMaster (2000:43) wrote: “The rigor and intensity of the protocol applied in the surveys reported here makes the surveys highly comparable among years (1994-2000) but not necessarily comparable to surveys conducted by other researchers prior to the 1990’s...” Neither in this paper, nor in the summary paper by Moore and DeMaster (2000) do the NMFS biologists discount or in any other way qualify the count in 2000. However, due to this comment, we contacted Rod Hobbs at the National Marine Mammal Laboratory and have included a personal communication from him (Hobbs, 2003, pers. commun.) in the EIS that makes the point about exercising caution in the interpretation of the difference in the 1999 versus the 2000 abundance estimates for Cook Inlet belugas.

Response 010-022.

We refer the commenter to Response 010-023 and to the peer-reviewed, published papers by Rugh, Sheldon, and Mahoney (2000); Speckman and Piatt (2000); Laidre et al. (2000); Moore et al. (2000); and Huntington (2000) for detailed discussions of the topic of changes in the distribution of belugas in Cook Inlet. We have no information available to us that indicates that the apparent recent range changes in the Cook Inlet beluga whale are due to the presence of oil and gas activity in the inlet. Moore et al. (2000:77) reported that:

In the late 1970’s and early 1980’s, there were numerous reports of belugas seen near oil and gas structures.... McCarty (1981) reported groups, including females with calves, passing within 10 m of active platforms. Small groups of belugas (4-8 animals) were ‘commonly seen’ near oil and gas platforms in Cook Inlet during winter but not in summer.... There have been no confirmed reports of belugas near oil and gas structures in recent years.

Thus, there is not information available to us that supports the idea that belugas would not cross into lower Cook Inlet because of the “platform cluster” in central Cook Inlet.

Responses 010-023.

We discuss the distribution of the Cook Inlet stock of beluga whales in Section III.B.4.b(1)(e)2. Therein we cite Rugh et al. (2000) as well as other relevant papers on current and previous distribution of the Cook Inlet stock of beluga whales. We refer the commenter to Volume 62, No. 3 of the journal *Marine Fisheries Review* for more extensive background on this topic. However, we point out that there is no evidence suggesting that noise pollution or other factors associated with oil and gas development in deeper offshore water has led to a change in distribution of belugas in Cook Inlet. We also point out that there are many

potential explanations that could be put forward to account for the current, versus the historic, pattern of sightings of belugas in Cook Inlet. In the absence of any data on the subject, we feel it is not productive to speculate. However, we point out that there is no oil and gas development in the OCS in Cook Inlet, only development in State waters nearer to shore and on land.

Response 010-024.

Please see Response 007-058 for background related to studies on contaminants (and other topics related to beluga whales) funded or cofunded by MMS, and Responses 010-006 and 010-025 on other related topics.

Response 010-025.

We review and discuss available information about the potential effects of environmental contaminants on species listed as threatened, endangered, or as candidates under the ESA in Section V.C.5.f(3), and on beluga whales specifically in Sections III.B.4.b(1)(k) and V.C.5.f(3)(d)(1). We discuss the potential impacts of discharges on marine mammals in Section IV.B.1.f(3)(c)2). We are aware of no available information that indicates that toxic chemicals have played a role in the current decline of the Cook Inlet stock of beluga whales. After examining "...all factors that have been identified that may contribute to the cumulative impact on the ...stock, and its habitat in the Inlet," including oil and gas development in the Inlet and adjacent lands, the National Marine Fisheries Service (2000:1-2) stated that their review

...indicates that subsistence harvest is the most likely cause of the decline observed between 1994 and 1998.... No current population-level effects are thought to be occurring due to man-induced factors except for the harvests...none of the other identified activities can be directly linked to the recent decline..., nor does any of the information available support a deleterious impact on the health of the beluga whales or any impact that would inhibit the recovery of the whales.

Response 010-026.

Intentionally left blank; number not used.

Response 010-027.

Please see Response 010-003.

The 1998 draft of the EPA report was withdrawn and replaced with a revised draft in 2001 to correct thousandfold overestimates of those contaminants of most concern. The 43 chemicals measured in the EPA study were chosen for analysis, because they occur in the oil and gas industry and they also are global contaminants. The EPA study provides no information about the source of contaminants found in some Cook Inlet biota. Studies by the MMS and others discussed in Sections III.A.4 and IV.B.1 clearly demonstrate that the Cook Inlet offshore oil industry is not the source (see also Responses 010-001 and 010-003).

Response 010-028.

As stated in the University of Alaska, ENRI (1995) report, the OCSEAP data were for a **weak acid extraction** of trace metals from suspended sediments. The ENRI data were for a **total metal digestion** of suspended sediment. As expected and as stated in the report, a total digestion provides higher numbers than a weak extraction. The report concluded that the data comparison was not an indication of an increase in metal concentrations. Boehm (2001a) later demonstrated with use of dated sediment cores that trace metal concentrations have not increased in Cook Inlet through recent history, since at least prior to development of oil industry in Cook Inlet.

Response 010-029.

The commenter states that the University of Alaska, ENRI (1995) data on toxicity bioassays are in direct conflict with the "many reports that content [sic] that no negative impacts are occurring from Cook Inlet Oil and Gas activities." The commenter is overinterpreting the toxicity data in the ENRI report. That

report concludes: “The physical, chemical, and bioassay results of this study show that Cook Inlet has very low environmental concentrations of hydrocarbons and that sediments and water generally are free from toxicity.” The difference in interpretation between the commenter and ENRI is due to several factors that the commenter did not take into account. The statistical level of significance used in evaluating the toxicity data was the 95% confidence interval. Thus, even with no toxicity, you would expect a false positive (apparent toxicity) in 5% of the samples. In their discussions of the toxicity bioassays, ENRI further suggest that physical characteristics of the samples (sediment grain size, high suspended-sediment concentration) rather than chemical contaminants was the primary source of the limited toxicity found. Another confounding factor discussed by ENRI was a statistical fluke resulting from consistent, high survival in bioassay controls using known clean sediment and water from the same habitat as the test biota. This resulted in toxicity being statistically attributed to samples with marginally lower scores than controls, even though those scores were better than scores from other studies using clean field controls.

Also note that the University of Alaska, ENRI (1995) report also stated that: “Microtox[®] bioassays indicated none of the sampled Cook Inlet sediments exhibited high toxicity.” The report states that the six stations had low “possible toxicity.” However, the report authors did not find a relationship between possibly toxic Microtox[®] values, hydrocarbons, or other indicators of cleanliness of the sampled sediments. Instead, all the samples with possible toxicity were from sediments with nearly 100% 4 Φ in grain size (fine sand). False positives related to grain-size differences among samples are a known flaw with Microtox[®] analyses (Ringwood et al., 1997). The ENRI recommended that the possibly toxic Microtox[®] values be compared to a known clean station with similar sediment grain size in the same general study area to verify the toxicity results.

The CIRCAC took interest in the ENRI results and pursued Microtox[®] bioassays in two subsequent Cook Inlet studies (Kinnetic Laboratories, 1996, 1998). The first CIRCAC study found no Microtox[®] toxicity in Cook Inlet sediments. The second CIRCAC study did find Microtox[®] toxicity in some samples, but the toxicity “did not appear to be correlated with hydrocarbon levels, grain size or TOC, amphipod survival, or P450 RGS results.”

Note that these three Cook Inlet studies contrast with prior work in Prince William Sound following the *Exxon Valdez* spill. In the Prince William Sound study, Wolfe et al. (1995) successfully used Microtox[®] bioassays to screen for oiled sediments and found Microtox[®] toxicity to be related to the higher levels of hydrocarbon contamination in Prince William Sound. The lack of a relationship between Microtox[®] toxicity and the lower hydrocarbon levels in Cook Inlet sediments have led to Microtox[®] bioassays being dropped from Cook Inlet programs designed to monitor oil and gas industry.

Response 010-030.

Response 010-028 addresses trace metals in water. Note that the trace metal values in all of the bivalve samples may reflect individual bivalve-gut content of sediment rather than bioaccumulation. None of the bivalves in these analyses were purged prior to analysis, and none of the data have been corrected for gut contents through ratio techniques. Nevertheless, the comparison of bivalve concentrations of trace metals provided suggests similar concentrations in bivalves in the 1970's and 1990's in Cook Inlet, and also similar to concentrations in bivalves in the Beaufort Sea in the 1980's.

Shaw's analytical hydrocarbon concentrations from the 1970's cannot be compared directly to those measured with more modern techniques used in the past decade. The measurement techniques, the detection limits, and exactly which hydrocarbons are included in the measurements are too different, even if the operational names are same. For example, through the early 1980's, only a handful of PAH compounds were included in the operational term total PAH (see Venkatesan, Kaplan, and Ruth, 1983). The northern European standard total PAH includes 16 compounds. The NOAA Status and Trends program defines total PAH and the sum of 18 PAH compounds. However, in recent years, NOAA has joined the MMS in summing a larger suite of about 40 PAH compounds into a larger total PAH. The draft EPA subsistence-food study summed 104 PAH compounds. The best way to avoid this methods issue is to have one laboratory, with NOAA/NIST validated accuracy and precision, analyze the entire suite of samples from exactly the same location at one time. Boehm (2001a) did this for the MMS for lower Cook Inlet and Shelikof Strait by sectioning and analyzing dated sediment cores. Examples of such data for lower Cook Inlet, including Kachemak Bay, are presented in Figures 3-66 to 3-70 of Boehm (2001a). This

internally consistent data set demonstrates no increase in petroleum hydrocarbons or related ratio parameters since as far back as the 1920's.

Response 010-031.

Please see Response 010-009.

Response 010-032.

Please see Response 008-003.

Response 010-033.

The MMS requires pipelines that carry OCS production to shore have state-of-the-art leak-detection systems. The design and monitoring of this system will be described in a development and production plan that must be submitted and approved prior to the commencement of any OCS development activity.

Response 010-034.

The MMS believes that sufficient information exists to evaluate potential effects to subsistence-harvest resources and consumption. The potential human-health effects are analyzed in Sections IV.B.1.p(4) and IV.B.1.p(5) of the EIS. However, the comment does suggest a topic that could be evaluated further by the Alaska OCS Region Environmental Studies Program. Please see Response 009-040 regarding the studies program.

Response 010-035.

The MMS believes that sufficient information exists to evaluate potential effects of the Proposed Action on fisheries resources. This suggested study topic in part replicates an ongoing effort by the EPA with the contaminants study considered in the EIS, particularly in the analysis of water quality in Section IV.B.1.a and the analysis of human health effects in Sections IV.B.1.p(4) and IV.B.1.p(5) of the EIS. However, the comment does suggest a topic that could be further evaluated by the Alaska OCS Region environmental studies program. Please see Response 009-040 regarding the studies program.

Response 010-036.

The MMS has no authority over the disposition of a platform sited on State submerged lands. The MMS also does not have the authority to compel payment from a lessee to the Cook Inlet Tribes, Cook Inlet Keeper, the Center for Alaskan Coastal Studies, etc., to establish a marine research laboratory or outfit an oceanographic research vessel.

Response 010-037.

Under the hypothetical scenario, drilling muds, cuttings, and produced water from development and production would not be discharged into the marine environment; therefore, the project would contribute nothing to the spreadsheet. Section III.A.4.a notes the principal sources of contaminants entering the marine environment are discharges from municipal wastewater-treatment systems; discharges from industrial activities not input through municipal discharges; runoff from urban, agricultural, and mining areas; accidental spill or discharges; and natural or nonpoint sources. Not all these categories are monitored and reported. The value of this spreadsheet as a mitigation strategy is limited because in and of itself, it does not provide any protection to resources but is a compilation of existing reports with additional categorization and analysis of the data.

Response 010-038.

Section III.A.4 - Water Quality of the EIS discusses the historic and current status of hydrocarbons in the marine environment, and Section IV.B.1.a analyzes the effect of the sale and potential postsale activity on water quality. The EPA is responsible for the NPDES permits, which include discharges into the marine

environment from oil and gas operations in the Cook Inlet. The EPA has begun the process to revise the general permit for Cook Inlet. This process likely will involve public workshops and other meetings. The MMS will participate in these events to the extent necessary.

Response 010-039.

The MMS does not have the authority to compel payment from the lessee to the tribal governments and private organizations identified in the comment. In some respects, this comment suggests a program of coastal impact assistance, which has been provided in the past by legislation enacted by Congress. For a discussion of revenue sharing and impact assistance, see Section I.C.1.b(1) in the EIS.

Response 010-040.

Please see Response 010-039.

Response 010-041.

The MMS has no authority over monitoring systems on platforms on State submerged lands or at the processing facilities. For OCS platforms, the MMS may require monitoring systems that advance the safety of operations or for some purpose authorized by regulations. Federal contracting regulations would preclude awarding this contract as the commenter suggests to Sea More Wildlife without competition.

Response 010-042.

The lack of contamination impacts from offshore oil and gas development in Cook Inlet is well understood and documented. Many studies by the MMS, CIRCAC, and others have monitored regional chemical contaminants in sediment, water, and biota in Cook Inlet relating to the offshore oil and gas industry over the past decade. These are discussed and summarized in Sections III.A.4, IV.B.1a, and V.C.5.a of the EIS. None have identified a contaminant problem or signal from the offshore oil and gas industry in Cook Inlet. The MMS expanded this monitoring data to include the entire period of oil and urban development in the Cook Inlet watershed by collecting, dating, and analyzing sediment cores from depositional areas in Cook Inlet and downcurrent Shelikof Strait. Levels of the sorts of contaminants produced by the oil and gas industry have not increased in this environment since the oil and gas industry came to Cook Inlet.

Response 010-043.

Please see Response 010-027.

Response 010-044.

The MMS disagrees with the implied conclusion that is conveyed in the comment that “these animals are loaded down with ...contaminants,” that contaminants in Cook Inlet belugas currently are causing adverse effects to the point that they “...can and very likely do cause stress and immune system malfunction.” This conclusion is quite different than the conclusions presented in a peer-reviewed paper by the authors of the study cited. For example, these authors reported that the Cook Inlet belugas had much lower concentrations of PCB’s and chlorinated pesticides than those reported for belugas from other populations in Alaska. Becker et al. (2000:97) concluded that: “Due to the lower concentrations in the Cook Inlet belugas, the effects of PCB’s and chlorinated pesticides on animal health may be of less significance for the Cook Inlet animals than for belugas from other locations.” They do note that the effect of multiple stressers on health is unknown. However, they do not conclude, or even imply, that the contaminant levels observed were likely to be causing stress or immune-system dysfunction, are related to the current decline, or will hamper the ability of this population to recover. They suggest further research.

Becker et al. (2000) also stated that levels of “...cadmium, mercury and selenium were much lower in the livers of Cook Inlet animals than all other belugas, and vanadium and silver were lower...than in the other Arctic Alaska belugas.” The mean concentration of mercury in the livers of Cook Inlet animals was an order of magnitude lower than that reported recently for the eastern Beaufort and Chukchi seas.

Methylmercury levels found in the liver were similar to those reported for other beluga whales and did not exceed 2.11 milligrams per kilogram wet mass. We note that liver cadmium levels for the six males in Cook Inlet are provided by Becker et al. (2000), who reported that: "...the lowest hepatic cadmium concentrations were found in the animals from Cook Inlet, where concentrations ranged from the detection limit of less than 0.44 to 0.74 milligrams per kilogram wet mass...." Becker et al. (2000) also noted: "As compared to many other marine mammal species, cadmium concentrations are relatively low in belugas." They reported that hepatic levels of copper were relatively high in belugas in Cook Inlet relative to those in other areas sampled in Alaska. We were not able to match all of the values reported by the reader with the data reported by Becker et al. (2001) for the male sampled on October 6, 1992. It also is unclear to us why the reader selected out the male sampled on October 6, 1992, when Becker et al. (2001) included data on other individuals, including other males, that were of similar age or older (i.e., this male was not the most "mature"). Thus, we cannot comment on the comparison. Please also see Response 010-025.

We review and discuss available information about the potential effects of environmental contaminants on species listed as threatened, endangered, or as candidates under the ESA in Section V.C.5.f(3) and on beluga whales specifically in Sections III.B.4.b(1)(k) and V.C.5.f(3)(d)(1). We discuss the potential impacts of discharges on marine mammals in Section IV.B.1.f(3)(c)2). We are aware of no available information that indicates that toxic chemicals have played a role in the current decline of the Cook Inlet stock of beluga whales.

We refer the reader to the published paper by Becker et al. (2000).



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-----Original Message-----

From: Dorothy Childers [mailto:dorothy@akmarine.org]
Sent: Tuesday, February 11, 2003 6:13 PM
To: AKEIS
Subject: comments on ls 191 and 199

Please also find our comments in the attached Word file. Thank you.

February 11, 2003

John Goll, Regional Director
MMS Alaska OCS Region
948 E. 36th Ave., Rm 308
Anchorage, AK 99508-4363
AKEIS@mms.gov

Re: Comments on the Draft EIS for Lease Sales 191 and 199

Dear Mr. Goll,

The Alaska Marine Conservation Council is a community-based organization of fishermen, scientists, small business owners, conservationists, families and other coastal residents throughout Alaska. On behalf of over 900 members, we are opposed to future offshore oil and gas development in Lower Cook Inlet. Our concerns about offshore drilling here have not changed in all the years we have commented on MMS lease sales.

Lower Cook Inlet has experienced first hand the consequences of the Exxon Valdez oil spill. We cannot condone increased offshore drilling given the 20% probability of a major spill. Such a spill would be highly likely to contaminate subsistence resources and threaten traditions of harvesting and sharing central to Alaska Native villages in the region. A spill would contaminate commercial and recreational fishing grounds, sensitive habitats and the integrity of the many public lands ringing the OCS planning area. We are concerned as well about the many seabird and marine mammal species residing or migrating through Cook Inlet, especially during sensitive seasons. In addition to these tremendous biological and cultural assets, Kachemak Bay has been recognized by the World Bank as one of 130 marine sites meriting additional protection and study, and is an international site of the Western Hemisphere Shorebird Reserve Network.

The draft EIS estimates that a large oil spill (4,600 barrels) in lower Cook Inlet could result in a loss to commercial fisheries of about 22 - 37% per year for two years, and it is possible that a fishery could be closed for a whole season, resulting in a 100% loss for that year. The Draft EIS does not adequately address potential impacts of a spill on recreational fisheries but the estimated 20% loss in those businesses would indeed be significant.

The notion that a spill can be cleaned up in winter sea ice conditions is ludicrous. There is no experience to support this assumption. Ice combined with high winds and freezing spray prevented any clean up response to the Chesapeake Trader in 1999. Imagine the consequences in the event of a large spill.

There is low interest in developing Lower Cook Inlet yet MMS continues to offer this area time after time. We urge the agency to remove Cook Inlet from this and future plans and to collaborate with other departments of government to make steps toward a renewable energy future. Alaska Marine Conservation Council promotes conservation of our natural resources, the ecosystems that support them, and jobs based on long-term sustainable use for our local economies. Offshore oil and gas development presents too much risk to the productive waters of Lower Cook Inlet.

Thank you for this opportunity to comment. We hope the result of this Draft EIS will be a halt to further work on Lease Sales 191 and 199.

Sincerely,

Dorothy Childers
Executive Director



Alaska Marine Conservation Council

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February 11, 2003

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The notion that a spill can be cleaned up in winter sea ice conditions is ludicrous. There is no experience to support this assumption. Ice combined with high winds and freezing

spray prevented *any* clean up response to the *Chesapeake Trader* in 1999. Imagine the consequences in the event of a large spill.

There is low interest in developing Lower Cook Inlet yet MMS continues to offer this area time after time. We urge the agency to remove Cook Inlet from this and future plans and to collaborate with other departments of government to make steps toward a renewable energy future. Alaska Marine Conservation Council promotes conservation of our natural resources, the ecosystems that support them, and jobs based on long-term sustainable use for our local economies. Offshore oil and gas development presents too much risk to the productive waters of Lower Cook Inlet.

Thank you for this opportunity to comment. We hope the result of this Draft EIS will be a halt to further work on Lease Sales 191 and 199.

Sincerely,

Dorothy Childers
Executive Director

MMS Response to Comment Document 011**Response 011-001.**

Section III.B.5 of the EIS does identify Kachemak Bay as a Western Hemisphere Shorebird Reserve. Potential impacts to shorebirds in the lower Cook Inlet from the Proposed Action are discussed in Section IV.B.1.g.

Response 011-002.

We believe that the analysis of potential effects on sport fishing in Section IV.B.1.o is adequate. We estimate a 20% loss to halibut and salmon sport fishing for 1 year. This is lower than the significance threshold defined in Section IV.A.1.

Response 011.003.

The MMS, along with industry, has conducted extensive research into methods of improving oil-spill cleanup in ice conditions. In the event of a spill, a combination of mechanical and nonmechanical techniques would be used to remove oil from the environment. In instances when cleanup activities are hampered by strong winds and extreme seas, tracking buoys would be deployed to track the oil so collection could resume when conditions permit.

Response 011-004.

Please see Response 007-047.



RESOURCE DEVELOPMENT COUNCIL

Growing Alaska Through Responsible Resource Development

Founded 1973
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 Theodorus J. Owens
2002-2003 Executive Committee
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 Governor Frank H. Murkowski
 Senator Ted Stevens
 Congressman Don Young

February 3, 2003

Mr. John Goll
 Minerals Management Service OCS Region
 949 E. 36th Ave., Room 308
 Anchorage, AK 99508-4363

Re: OCS Lease Sales 191 and 199

Dear Mr. Goll:

I am writing to express the Resource Development Council's strong support for OCS Lease Sales 191 and 199.

RDC is a statewide organization made up of all resource sectors, business associations, labor unions, Native corporations, tourism providers, local governments and thousands of individuals. RDC's purpose is to encourage a strong, diversified private sector in Alaska and expand the state's economic base through the responsible development of our natural resources.

The Minerals Management Service (MMS) should move forward with the proposed OCS Lower Cook Inlet oil & gas lease sales 191 and 199. The lease sales offer new opportunities for economic development and diversification along the southern reaches of the Kenai Peninsula. New oil and gas production would create hundreds of new direct and indirect jobs and boost tax revenues to the Kenai Peninsula Borough.

The oil and gas industry is a significant link in the economy of Southcentral Alaska. Cook Inlet area companies employ more than 1,600 workers on staff and hundreds more on contract. Oil and gas revenues from production statewide represent nearly 80 percent of the state's total unrestricted revenues, dollars which fund vital statewide programs and services.

Moreover, new oil and gas production is in the best interests of the region and Alaska. Approximately 85% of all electricity generated in Southcentral Alaska relies on natural gas fired turbines. Approximately 60% of Alaskans rely on Cook Inlet natural gas as a source for heat or electricity for their homes and businesses. The OCS offers a high potential for new natural gas reserves to meet future demands. Additionally, the resulting new pipelines and facilities on the southern Peninsula could stimulate new onshore exploration for oil and gas in previously stranded prospects in the Anchor Point and Ninilchik areas.

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REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Page 2/RDC comments on Cook Inlet OCS Lease Sales 191-199

Alaska has shown that oil and gas development and environmental protection are not mutually exclusive. Extensive monitoring programs and environmental studies conducted throughout the Cook Inlet basin over the last 40 years have found no evidence of adverse environmental impacts from oil and gas development. The industry's record clearly indicates it has the knowledge, experience and expertise to avoid impacts to sensitive areas. Spill prevention and response capabilities are a major part of industry plans and operations to protect sensitive areas and the rich fishery resources of Cook Inlet.

While RDC strongly supports the lease sales, efforts should be made to minimize potential conflicts between exploration and development activities and commercial fishing. For example, new exploration and development activities occurring in the lease sale areas should be planned and conducted to minimize loss of historical fishing grounds. While the fishing industry is supportive of new development in the region, it does not want to lose fishing opportunities or harvest time to new oil and gas activities.

RDC strongly supports the proposed OCS lease sales in Lower Cook Inlet. The sales are clearly in the best interest of the region and Alaska.

Therefore, MMS should move forward with the sales without delay.

Sincerely,

RESOURCE DEVELOPMENT COUNCIL
For Alaska, Inc.



Carl Portman
Deputy Director

cc: Governor Frank Murkowski

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MMS Response to Comment Document 012

Response 012-001.

The MMS has prepared two lease stipulations that we believe will minimize potential space-use conflicts between offshore oil and gas industry operations and commercial fisheries. Stipulation No. 1 – Protection of Fisheries requires a lessee to review planned exploration and development activities with directly affected fishing organizations, subsistence communities, and port authorities to avoid unreasonable fishing gear conflicts. The EP or DPP shall include a summary of fishing activities in the area of proposed operation, an assessment of effects on fishing from the proposed activity, and measures taken by the lessee to prevent unreasonable conflicts. Local communities, including fishing interests, will have the opportunity to review and comment on proposed EP's and DPP's as part of the MMS regulatory review process pursuant to 30 CFR 250.203 and .204. The comments will be considered during the MMS's decision to approve, disapprove, or require modification of the plan. Additionally, some activities may require and EFH Consultation with NOAA Fisheries, which may provide Conservation Recommendation that modify the proposed plans.

Stipulation No. 2 – Protection of Biological Resources requires that if any area of biological significance should be discovered during the conduct of any operations on the lease, the lessee shall immediately report such findings to the MMS and make every reasonable effort to preserve and protect the biological resource from damage until the MMS has given the lessee direction with respect to its protection. Based on any surveys that the MMS may require of the lessee or on other information available to the MMS on special biological resources, the MMS has a suite of actions that it may require of the lessees. These actions are listed in Section II.F.1.b.

Fishing industry representative may contact the Environmental Assessment Section of the MMS Alaska OCS Regional Office to provide staff with additional information regarding historical and current fishing grounds so these may be used for future planning and assessments concerning Cook Inlet developments.



CITY OF KENAI

" Oil Capital of Alaska "

210 FIDALGO AVE., SUITE 200 KENAI, ALASKA 99611-7794
TELEPHONE 907-283-7535
FAX 907-283-3014



February 7, 2003

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REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Mr. John Goll
Minerals Management Service, AK OCS Region
949 E. 36th Avenue, Room 308
Anchorage, AK 99508-4363

RE: **FEDERAL OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM**

Dear Mr. Goll:

Enclosed is a copy of the City of Kenai Resolution No. 2003-06, supporting the Federal Outer Continental Shelf Oil and Gas Leasing Program 191 and 199 which was unanimously passed at the Kenai City Council meeting of February 5, 2003.

If you have any questions, please contact this office at 283-7535, extension 231.

CITY OF KENAI

A handwritten signature in cursive script, appearing to read "Carol L. Freas".

Carol L. Freas
City Clerk

clf

Enclosure

cc: Bill Popp, Oil & Gas Liaison
Kenai Peninsula Borough

Suggested by: Administration

CITY OF KENAI

RESOLUTION NO. 2003-06

A RESOLUTION OF THE COUNCIL OF THE CITY OF KENAI, ALASKA, SUPPORTING THE FEDERAL OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM 191 & 199.

WHEREAS, the Federal Government has advertised its intent to offer the Outer Continental Shelf located within the waters of Cook Inlet for an oil and gas leasing program in 2004 and 2006; and,

WHEREAS, the Draft Environmental Impact Statement (DEIS) for Lease Sale 191 in 2004 and Lease Sale 199 in 2006 has been released for public comment; and,

WHEREAS, the DEIS estimates there is a ninety-five percent (95%) probability 140 million barrels of oil and 190 billion cubic feet of natural gas would be recovered from the Outer Continental Shelf; and,

WHEREAS, the DEIS estimates there is a fifty percent (50%) probability 500 million barrels of oil and one trillion cubic feet of natural gas would be recovered from the Outer Continental Shelf; and,

WHEREAS, the DEIS estimates potential tax revenues to the Kenai Peninsula Borough resulting from new pipelines and shore-based facilities built to develop and deliver oil or gas from the Outer Continental Shelf at \$2.7 million per year over a 15-year period; and,

WHEREAS, the DEIS estimates up to 400 direct jobs and 200 indirect jobs will be created if one platform is built in the Outer Continental Shelf producing 14 million barrels of oil; and,

WHEREAS, the City of Kenai recognizes it is essential to find new reserves of natural gas in the Cook Inlet Basin in order to assure continued economic prosperity.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF KENAI, that it supports Federal Lease Sales 191 and 199 within the waters of the Outer Continental Shelf of Cook Inlet.

PASSED BY THE COUNCIL OF THE CITY OF KENAI, ALASKA, this fifth day of February, 2003.

ATTEST:

Carol L. Freas
Carol L. Freas, City Clerk

John J. Williams
JOHN J. WILLIAMS, MAYOR

MMS Response to Comment Document 013

No comment needed.

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FEB 3 2003

CITY OF HOMER
HOMER, ALASKA

Yourkowski

Document 14

RESOLUTION 03-17

REGIONAL DIRECTOR, ALASKA
Minerals Management Service
ANCHORAGE, ALASKA

A RESOLUTION OF THE HOMER CITY COUNCIL
OPPOSING FEDERAL LEASE SALES 191 AND 199 UNTIL
ADDITIONAL SAFEGUARDS ARE IN PLACE.

WHEREAS, The residents and families of the City of Homer rely on fishing, tourism and other economic pursuits which require healthy fisheries and intact marine ecosystems; and

WHEREAS, Cook Inlet is the only major port in the United States where laden oil tankers ply rough and icy waters without the protection of tug escorts; and

WHEREAS, A recent study by the Federal Environmental Protection Agency found a broad array of oil-type toxic chemicals in Cook Inlet subsistence fish; and

WHEREAS, The Federal Minerals Management Service (MMS) wants to lease 2.5 million acres of offshore tracts in Lower Cook Inlet for oil and gas activities; and

WHEREAS, The MMS estimates the lease sale will create no new direct jobs, will supply only enough oil to meet the Nation's energy needs for one week, and will result in a 1 in 5 risk of a large oil spill; and

WHEREAS, The MMS has given us poor alternatives with only small proposed exclusions; and

WHEREAS, This lease sale would be a poor idea when we are trying to market Cook Inlet salmon as a premier fish; and

WHEREAS, The area has poor oil spill response capabilities; and

WHEREAS, We have worked hard in Homer to develop a sustainable strong economy based on the beauty around us; and

WHEREAS, Mariculture is a growing industry and relies on clean water; and

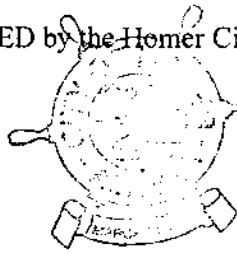
WHEREAS, There is no plan in place on how to compensate fisheries, mariculture and tourist industries if there is a spill.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Homer, Alaska hereby opposed Lease Sales 191 and 199 until MMS can commit to providing tug escorts for laden oil tankers, and until all new development is held to a standard of zero discharge of toxic chemicals.

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PASSED AND ADOPTED by the Homer City Council this 27th day of January, 2002.



CITY OF HOMER

Jack Cushing
JACK CUSHING, MAYOR

ATTEST:

Mary L. Calhoun
MARY L. CALHOUN, CMC, CITY CLERK

Fiscal information: NA

MMS Response to Comment Document 014

Response 014-001.

Please see Response 007-045.

Response 014-002.

Please see Response 008-003.



Ninilchik Traditional Council

P.O. Box 39070
Ninilchik, Alaska 99639
Ph: 907 567-3313 / Fx: 907 567-3308
E-mail: ntc@ninilchiktribe-nsn.gov
Web Site: www.ninilchiktribe-nsn.gov

Document 015

January 24, 2003

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JAN 27 2003

Minerals Management Services
Alaska OCS Region
949 East 36th Avenue, Room 308
Anchorage, AK 99508-4363

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Re: Written Comments Regarding Oil & Gas Lease 191 and 199

Dear MMS:

The Ninilchik Traditional Council (NTC), governing body of the Ninilchik Village Tribe, a federally and State recognized tribe on the Kenai Peninsula, is in receipt of the Cook Inlet Planning Area Oil & Gas Lease Sale 191 and 199 draft environmental impact statement. Additionally members of the Minerals Management Services have met with officials of NTC in order to provide consultation under the required government to government policy. NTC represents its membership of over five hundred (500) and furthermore has a direct interest in this proposed oil and gas lease 191 and 199, as NTC tribal boundaries extend through a large portion of the lease areas.

The Ninilchik Traditional Council met on January 9th, 2003 for a regular council meeting and discussed this proposed oil and gas lease. As a result of that meeting NTC is issuing this written letter in support of the proposed lease sales 191 and 199 under the zero (0) drilling discharge estimated range that was incorporated in the EIS. Furthermore we understand that all safety systems for shut down will be monitored and tested on a required basis. Also the pipeline and pipe system will be monitored for corrosion and a spill response and operating procedure shall be maintained at the highest level. NTC is providing its support to the proposed oil and gas lease sales 191 and 199 under these parameters, and we believe that the benefits to the community with these procedures in effect will outweigh the potential risks.

Sincerely,

Richard G. Encelewski
President/Chairman

Enclosure: None

Cc: Ivan Encelewski, Executive Director
Ninilchik Traditional Council
file

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MMS Response to Comment Document 015

Response 015-001

The MMS regulations require that production safety equipment be designed, installed, used, maintained, and tested in a manner to ensure the safety and protection of human, marine, and coastal environments. The specific requirements can be found in 30 CFR 800-807, which include requirements for periodic testing of safety devices. We employ a full time inspection and engineering staff to monitor and evaluate operator compliance. Pipelines on the OCS can be regulated by either the MMS (30 CFR 250.1000) or the U.S. Department of Transportation (49 CFR 186-199), depending on the product they carry. Both agencies have regulations requiring pipeline corrosion control and monitoring.



 NATIVE VILLAGE OF EKLUTNA

February 3, 2003

John Goll, Regional Director
 MMS Alaska OCS Region
 949 E. 36th Ave., Rm 308
 Anchorage, AK 99508-4363

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REGIONAL DIRECTOR, ALASKA OCS
 Minerals Management Service
 ANCHORAGE, ALASKA

Re: Cook Inlet Lease Sales 191 & 199

Dear Director Goll:

Throughout time immemorial, Dena'ina Athabascan people have relied on the subsistence resources of Cook Inlet for their cultural and traditional heritage, and continue to do so. The Native Village of Eklutna is the Federally recognized Tribe and the only remaining traditional village, of eight which were in the Anchorage area.

The Federal Minerals Management Service (MMS) wants to lease 2.5 million acres of offshore tracts in lower Cook Inlet for oil and gas activities. MMS estimates the lease sale will create no new direct jobs, will supply only enough oil to meet the Nation's energy needs for one week, and will result in a 1 in 5 risk of a large oil spill, with other toxic discharges and spills business as usual.

As a threshold matter, it is important to note that the Minerals Management Service has failed to consult with NVE on a government-to-government basis, as governed by Executive Order 13084, despite the fact that NVE resources will be substantially and uniquely impacted. NVE therefore objects to the lease sale not only based on the substantive concerns cited herein, but also because MMS did not initiate adequate government-to-government consultation with NVE on this lease sale prior to committing our resources to irreversible change.

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26339 Eklutna Village Rd. • Chugiak, Alaska 99567 • (907) 688-6020 • Fax (907) 688-6021

Cook Inlet is the only major port in the United States where laden oil tankers ply rough and icy waters without the protection of tug escorts. A recent study by the federal Environmental Protection Agency found a broad array of oil-type toxic chemicals in Cook Inlet Native subsistence fish.

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Impacts from the proposed lease sales are likely to affect NVE trust resources. Our salmon must negotiate the leasing area between our rivers and the open ocean. The sensitive Cook Inlet beluga whales and harbor seals move between our area and the proposed leases, as well as relying on the salmon and other resources of the lease sale area. Any spills could be carried by the tides to impact our waters, shoreline, and Eklutna traditional resources.

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These are some of the reasons that Native Village of Eklutna opposes Lease Sales 191 and 199 until MMS can commit to providing tug escorts for laden oil tankers until all new development is held to a standard of zero discharge of toxic chemicals, and until adequate studies are commenced to determine the risks to subsistence resources from oil and gas activities.

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Sincerely,



Lee Stephan
Chief Executive Officer
Native Village of Eklutna

CC: Secretary Gale A Norton
Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

26339 Eklutna Village Rd. • Chugiak, Alaska 99567 • (907) 688-6020 • Fax (907) 688-6021

MMS Response to Comment Document 016**Response 016-001.**

Please see Response 006-013.

Response 016-002.

Please see Response 007-045.

Response 016-003.

Please see Response 007-020 for a discussion of the EPA contaminants in subsistence-foods study.

Response 016-004.

Please see Response 017-002.

Response 016-005.

We appreciate your comments, and we share concerns about the current depleted status of the Cook Inlet stock of beluga whales. We have summarized available information about current population status, causes of the current depleted status, distribution, abundance, movements, ecology, conservation concerns, and other relevant types of information about the Cook Inlet stock of beluga whale in Section III.B.4.b(1). Conclusions from our analyses about potential effects of the Proposed Action on belugas are found in various parts of Sections IV.B.1.f., IV.B.3, IV.B.4, and IV.F.3.f. Cumulative effects are discussed in Section V.C.5.f.

Response 016-006.

Please see Response 005-014.

Response 016-007.

Replicates comment 016-002. Please see Response 007-045.

Response 016-008.

Please see Response 008-003.

Response 016-009.

Please see Response 009-040.



Chickaloon Village

Traditional Council

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REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Katherine Wade
Clan Grandmother

February 6, 2003

Gary Harrison
Athabascan Chief
Tribal Chairman

John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Ave., Room 308
Anchorage, AK 99508-4363

Burt Shaginoff
Member: Elder

Shawna Larson
Member: Secretary

Re: Cook Inlet Oil and Gas Lease Sales 191 & 199

Jesse Lanman
Member: Treasurer

Dear Director Goll:

Penny Westing
Member

This letter is written in response to your agency's request for public comment on the draft EIS for the above-referenced lease sale. It is important to note that Chickaloon Native Village, a federally-recognized tribe located in the Cook Inlet watershed and, therefore, directly affected by this action, must resort to issuing public comment, since the Minerals Management Service has failed to consult with us on a government-to-government basis as required by Executive Order 13084.

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Rain Wade
Member

Richard Martin
Member

Alan D. Larson, Jr.
Member

The U.S. Department of the Interior (DOI) – Alaska, Policy on Government-to-Government Relations with Alaska Native Tribes dated January 18, 2001, states that the Agency is committed to consulting with tribes "as early in the decision-making process as practicable as permitted by law ... prior to taking action or undertaking activities that will have a substantial, direct effect on federally recognized Tribes, their assets, rights, services, or programs." This same document also states "Agency actions shall favor maximum participation of federally-recognized tribes in Alaska." Chickaloon Native Village contends that MMS has failed to uphold its obligations under this policy.

Nick Begich
Tribal Administrator

Impacts from the proposed lease sales are likely to affect Chickaloon's trust resources. Salmon migrating to the Matanuska River must negotiate the leasing area between our lands and the open ocean. The sensitive Cook Inlet beluga whales and harbor seals move between our traditional territories and the proposed leases, as well as rely on the salmon and other resources of the lease sale area. Furthermore, any spills could potentially be carried by the tides to impact our traditional waters, shorelines and shoreline shellfish, and subsistence resources.

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We therefore request that MMS immediately initiate proper government-to-government consultation with Chickaloon Native Village. This process should begin, as stated in the DOI Policy discussed above, with MMS "working with the affected Tribe (in this case Chickaloon Native Village) to develop a mutually agreed upon

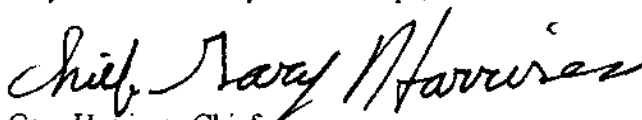
process for the consultation.” Chickaloon Native Village therefore opposes any further work on this lease sale until the tribal consultation process is established to our satisfaction. Please also note that in regard to future actions, Chickaloon Native Village would consider it more appropriate that the consultation process begin prior to the public scoping period of the draft EIS.

Now, in regards to this draft EIS. We understand that the MMS wants to open 2.5 million acres of offshore tracts in lower Cook Inlet for oil and gas leasing and subsequent development and production activities. MMS estimates the lease sale will create no new direct jobs, will supply only enough oil to meet the Nation’s energy needs for one week, and will result in a 1 in 5 risk of a large oil spill, with other toxic discharges and spills business as usual. As traditional peoples of the Cook Inlet, we find that these statistics portray an unacceptable risk for short-term financial gain and limited energy benefit, particularly in light of the allowances given to the industry in past NPDES permits and the fact that contaminants typically found in the platform discharges have also been found in subsistence foods harvested from Cook Inlet.

Furthermore, additional risk is posed to Cook Inlet by the presence of unescorted oil tankers. Anchorage is the only major port in the United States where laden oil tankers move through rough and icy waters without the protection of tug escorts.

These are some of the reasons that Chickaloon Native Village opposes Lease Sales 191 and 199 until MMS can commit to providing tug escorts for laden oil tankers, until all new development is held to a standard of zero discharge of toxic chemicals, and until adequate studies are commenced to determine the risks to subsistence resources from oil and gas activities.

May Creator Guide your Footsteps,



Gary Harrison, Chief
Chickaloon Native Village

CC: Secretary Gale A Norton
Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

MMS Response to Comment Document 017**Response 017-001.**

Please see Responses 006-013, 010-027, and 010-042.

Response 017-002.

Spilled oil may expose fish, including salmon, to lethal or serious sublethal effects. Additionally, the contact of fish and invertebrates with oil during an accidental oil spill practically always leads to accumulation of oil hydrocarbons in their tissues and organs (usually within the range of 1-100 milligrams per kilogram) (Patin, 1999). In most cases, the organisms' acquire oil odor and flavor. This fact is the main reason for closing fisheries in affected areas. However, in areas of offshore oil and gas development, the highest risk of oil accumulation and associated tainting effects most likely exist for demersal fish (Patin, 1999).

Salmon migrating into freshwater spawning grounds will traverse waters of the lower and upper Cook Inlet. These salmon will be adults and are capable of avoiding oil slicks. The *Exxon Valdez* oil spill provides a gross example that shows returning salmon do in fact complete their spawning migration, although a massive oil spill was impacting their migratory and spawning habitats.

For example, following the *Exxon Valdez* spill, commercial salmon fishing was closed in Prince William Sound and in portions of Cook Inlet and near Kodiak in 1989 to avoid any possibility of contaminated salmon being sent to market. Consequently, there were higher-than-desirable numbers (i.e., "overescapement") of spawning sockeye salmon entering the Kenai River and also Red and Akalura lakes on Kodiak Island. Research carried out following the spill demonstrated that initially, these high escapements produced an overabundance of juvenile sockeye that then overgrazed the zooplankton and, thus, altering food webs in nursery lakes. Consequently, sockeye showed reduced growth rates during the freshwater part of the sockeye life history and declines in the returns of adults per spawning sockeye. Although sockeye freshwater growth tended to return to normal within 2 or 3 years following the overescapement, there are indications that these systems are less stable for several years after an initial overescapement event. On the basis of catch data through 2001, and in view of recent analyses of return per spawner estimates presented to the Alaska Board of Fisheries in 2001, the return-per-spawner in the Kenai River system is within historical bounds. Therefore, it is highly unlikely that the effects that reverberated from the overescapements in 1989 continue to affect sockeye salmon (for example, cause abnormal returns per spawner), and this species is considered to be recovered from the effects of the oil spill (http://www.oilspill.state.ak.us/facts/status_sockeye.html).

In the event of an oil spill in Cook Inlet, it may be necessary to close down fisheries to avoid introducing contaminated/tainted fisheries products to various user groups (i.e., commercial, sustenance, and recreational fisheries). Such a decision would depend on many factors, including the magnitude and timing of the spill, and its fate in the region. If a spill is of sufficient size to cause the fishery to close, overescapements and resulting consequences similar to those described above might occur.

Response 017-003.

Please see Response 016-005.

Response 017-004.

Please see Response 005-014.

Native Village of Port Graham

PORT GRAHAM VILLAGE COUNCIL
 P.O. BOX 5510 • PORT GRAHAM • ALASKA 99603-5510
 907-284-2227 FAX 907-284-2222

February 4, 2003

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REGIONAL DIRECTOR, ALASKA OCS
 Minerals Management Service
 ANCHORAGE, ALASKA

Mr. John Goll
 Mineral Management Service
 Alaska OCS Region
 949 East 36th Avenue, Room 308
 Anchorage, Alaska 99508-4363

RE: Comments of Port Graham Village Council for DEIS OCS Cook Inlet Lease Sales
 191 - Sale 199

Dear Mr. Goll,

The Port Graham Village Council is formally submitting the following comments regarding MMS proposed draft EIS for oil and gas lease sales 191 and 199. The Port Graham Village Council and Tribal community members are charged with the cultural responsibility to pass on our use of and access to traditional resources here in the lower Kenai Peninsula and in the lower Cook Inlet. Uncontaminated traditional resources are crucial to future generations, our children, their children and grandchildren. A USEPA contaminant study¹ was designed and conducted to test a sample of subsistence foods we rely on here in Port Graham. The study showed levels of contamination by chemicals that are of the same chemical make up as the ones that are discharged by the oil industry in upper Cook Inlet. We state, based on our traditional ecological knowledge, that this permitted discharge is linked to the source of contaminants found in our traditional foods. The Port Graham Village Council finds it unacceptable that the industry in Cook Inlet be allowed to further contaminate our resources with congressionally approved waivers under the Clean Water Act. Discharge is not acceptable or permitted in any other coastal area in all of the United States.

We are village of 180 people. Human health impacts, including cancer, from chemicals and chemical combinations found in discharge from the oil and gas industry are not known. The synergistic and bio-accumulative effects have not been studied. The release of these chemicals into the water, our fish, wildlife and plants live in and depend on is unacceptable because we already have instances of cancers that are rare and untreatable

¹ USEPA Human Health Risk Assessment of Chemical Contaminants in Scafood from Cook Inlet, Alaska

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by current medical knowledge. Using risk assessment models of potential impacts to populations from these chemicals based on per 100,000 people show small numbers and a minimal potential impact. Accurate models developed for use with small numbers and high subsistence consumption may very well produce different results. We will take no chances with the health or our people.

The Port Graham Village Council requires zero discharge from existing and future oil exploration and development in upper Cook Inlet. In the past, economical reasons were given for not requiring zero discharge in Cook Inlet. We believe this needs to be reassessed. If existing oil and gas industry cannot comply with a zero discharge requirement, then the government should step in consider working with the industry to improve their capability. This in itself does not take care of our concerns with further contamination of our traditional foods. There are spills that are on going with the transfer of oil to shore from the upper Cook Inlet operations. This procedure alone adds chemicals to our subsistence environment that ultimately affects the safety of our food. The Exxon Valdez Oil Spill in 1989 is a prime example, clearly demonstrating this point.

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A proposed oil and gas lease sale in lower Cook Inlet should not move forward without addressing our concerns in a way that is both meaningful and participatory. Our responsibility to our future generations of children that will be using the subsistence resources affected by oil and gas development in the lower Cook Inlet is very important. It is all of our responsibility to keep these resources in an uncontaminated state because you too have future generations of children relying on safe, healthy, and dependable access to and consumption of these resources. All of our futures depend on us not becoming complacent and accepting the inevitability of this type of development and the contamination that always comes with it. We say zero discharge to all existing fields in the Cook Inlet, zero discharge on all future development in the Cook Inlet. A requirement for state of the art technology on pipelines to shore from existing and future oil platforms. Study's that will clearly show us that oil development will not contaminate our subsistence resources. Only then can we tell you we will consider supporting lease sales in the Cook Inlet.

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006

In reference to the draft EIS for the proposed lease sale, including tracts in Lower Cook Inlet, we have the following comments:

007

1. Section VI. Consultation & Coordination: Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments) states that the U.S. Government will continue to work with Indian Tribes on a government-to-government basis to address issues concerning Indian Tribal self-government, trust resources, and Indian Tribal treaty and other rights. In relation to Department of Interior policy on Government-to-Government relations with Alaska Native Tribes, it states that "Consultation" means the timely process of meaningful intergovernmental dialogue between Departmental Bureaus and/or Office and federally recognized Tribes. At the Government-to-Government meeting with MMS on January 30th 2003 in Port Graham, the Tribal Council made a clear recommendation that when Government-to-Government happens, the Port Graham Village Council meet directly with the lead authorities agency, Secretary of Interior, Gale Norton. The issue of oil & gas in the

Alaska is not something that will be going away anytime soon, and if Gale Norton is firmly committed as stated on her web page; "*I am firmly committed to a process called the Four C's: they are consultation, cooperation, communication---all in the service of conservation*", Secretary Norton should make a asserted effort to meet with the Tribes of the Cook Inlet to address this concern.

007

The other clear recommendation made by the Port Graham Village Council is consultation should be, "*early and often.*" The Port Graham Village Council made a very strong recommendation that they need to be involved from the very early stages in the development of the EIS and consulted early in the process so that we can in fact have meaningful participation in the EIS or in the decision making process.

2. The Port Graham Village Council disagrees with the summary in the Water Quality section that states, "The water quality of lower Cook Inlet generally is good (i.e., unpolluted). The U.S. EPA released its latest Toxics Release Inventory (TRI) data for reporting year 2000. It states that Cook Inlet leads the state in manufacturing-related toxic discharges, with more than 1.67 million pounds of toxic pollution released in the region's air, water, and land. Due to reporting limitations, this figure does not include the billions of gallons of toxic production water and drilling wastes from Cook Inlet oil & gas operations.

008

3. The description on Regional Traditional Knowledge on Subsistence does not capture the traditional meaning of what is Traditional Knowledge. A research & analysis directorate titled, "A Community Guide to Protecting Indigenous Knowledge" by Simon Brascoupe and Howard Mann, defines Traditional Knowledge as an ancient, communal, holistic and spiritual knowledge that encompasses every aspect of human existence. They state that the emphasis should be on wisdom rather than on knowledge, that Traditional Knowledge must be understood within a spiritual realm, because knowledge cannot be separated from the spiritual. Traditional Knowledge includes major areas as:

009

- Agriculture and horticulture
- Astronomy
- Forestry
- Human health, traditional medicines and healing
- Knowledge of animals, fish and ecological systems
- Sustainable use of natural resources and the environment
- Learning systems and oral traditions
- Spirituality
- Traditional arts and culture

Artwork, designs, symbols, scientific and ecological methods, crafts, music, dance, songs, stories, foods, medicines and wellness all draw on Traditional Knowledge. The description in the Section III.C.3.d. On Regional Traditional Knowledge on Subsistence focused on hunting of seal and gathering other Traditional foods. The Port Graham Village Council is opposed to the use of specific names in this section, unless MMS has contacted them directly requesting

010

permission to use their name in this document. We also disagree with the use of Alutiiq word for resources in this section, what purpose does this serve?

011

4.The Port Graham Village Council has commented against the use of the survey data (referenced in III.C.3.f(1) Characteristics of Harvest Activities) from the 1997/1998 State of Alaska Department of Fish & Game (ADF&G) survey data to calculate consumption rates in their study. The Tribes have maintained that the ADF&G survey data are conservative numbers given to ADF&G for fear that true harvest data numbers may inhibit the ability of Tribes to harvest and gather traditional subsistence resources in a manner to which we are accustomed.

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5.The section III.C. 7 on Environmental Justice recognize Port Graham and an Indian Reorganization Act Council (IRA). Port Graham is not an IRA but Traditional Village Council.

013

6.In section IV.B.1.1(a) the Summary of Impacts on Subsistence Resources and harvest Patterns concludes that subsistence resources is only minimally impacted by proposed lease sale 191. The Port Graham Village Council strongly disagrees with this conclusion. There is a potential health risk present based on the reality of the high levels of mixed diet consumption of the traditional subsistence way-of-life. Clearly additional research is needed before actual risk can be evaluated.

014

In closing, the Port Graham Village Council clearly states that based on our Traditional Ecological Knowledge, the proposed lease sale, which will be permitted by EPA and ADEC, is directly linked to the source of contaminants found in our traditional foods. We urge for more contaminant sampling and, an actual human health assessment. We seek to know if our health is at risk from contaminants in our traditional foods and where the chemicals are coming from so that we can proactively strive to reduce, if not eliminate contaminants from our foods. Our responsibility to our future generations use of these resources is imperative, not only to our children and the seven generations to come but because your own future generations need to be able to use and have access to the resources in an safe manner. The environment can exist without us, but we cannot exist without our environment.

We are more than willing to work on a government-to-government basis with MMS and others to insure the resolution of these conflicts. Please contact me if you have any questions or if our staff may provide more information.

Sincerely,



Patrick Norman/Chief
Port Graham Village Council

Cc: Cook Inlet Tribes
Honorable Ted Stevens
Honorable Don Young

Honorable Lisa Murkowski
Governor Frank Murkowski
Gale Norton/DOI
John Iani/EPA
Council on Environmental Quality
Drue Pierce

MMS Response to Comment Document 018

Response 018-001.

For a discussion of the EPA contaminant study, please see Response 007-020, 010-027 and 010-042.

The MMS respects the protocols of traditional ecological knowledge about the linkage of oil-industry discharge to contaminants in subsistence foods. At the same time, the rigorous water quality and sediment sampling work that has been conducted in Cook Inlet has not specifically established these linkages. Please see Response 018-003 for further discussion. The MMS understands that the EPA is conducting tribal meetings concerning the reauthorization of its NPDES permitting and that it is permitting the zero discharge option and that it is the EPA's job to affect "zero discharge" under its own NPDES responsibilities. The MMS supports zero-discharge initiatives and believes that such a change would go a long way towards gathering greater subsistence consumer confidence in oil activities in Cook Inlet.

Response 018-002.

Please see Response 018-003.

Response 018-003.

Spills due to fuel transfer to shore are the responsibility of the State Department of Environmental Conservation. The State appears to have been quite aggressive lately with Cook Inlet pipeline spills. This is not to say that chemicals and contaminants from these activities have not entered the environment. What has not been demonstrated by water quality and sediment studies and the draft EPA contaminants in subsistence foods study are the linkages between specific sources and subsistence resources. This also is not to diminish the lingering effects of the *Exxon Valdez* oil spill in 1989. One way to address the issue of contaminants in subsistence foods is to develop a working group of Federal, State, local, and tribal experts to design and implement such a new and comprehensive sampling study. It appears at this point that the EPA study, because of design flaws and sampling issues, will not provide these bigger answers.

Response 018-004.

Please see Response 008-003.

Response 018-005.

The MMS regulations require that pipelines be designed, installed, operated, maintained, and abandoned to provide safe and pollution-free transportation of fluids (30 CFR 250.1000(a)). To meet this requirement, the operator must use the best available and safest pipeline technology (30 CFR 250.107).

Response 018-006.

Please see Response 009-040.

Response 018-007.

Please see Response 009-024.

The MMS made the draft EIS available to all potentially affected Tribes as soon as it was received from the printer to enable Tribes to have sufficient time to review the document before Government-to-Government consultations began. The EIS is not written by one person but by a team of subject authors who work independently of each other but under the oversight of a project coordinator. The writers assigned to the various sections of the EIS need time to determine what they are going to write; therefore, the document could not be sent out to Tribes before the entire draft document was received from the printers.

We welcomed written comments from Tribes during all of our Government-to-Government consultations. Also, the community liaison left his business card so that Tribes could contact him if they had any questions.

Response 018-008.

Talking about undefined contaminants in terms of millions of pounds of toxic pollution is meaningless. The data need to be sorted by contaminant and their importance evaluated through an understanding of their individual toxicity, both the absolute and relative magnitude of the individual input, and resulting concentrations or accumulation. This type of review was done in Section III.A.4 of the EIS. We also note that Toxics Release Inventories produced by EPA have shown decreasing volumes of contaminants in more recent years.

Response 018-009.

The MMS acknowledges that its use of traditional ecological knowledge in Section III.C.3.d focuses fairly exclusively on seal hunting and on the gathering of other traditional foods. In part, this is due to the way the EIS analysis is structured: effects on resource populations and by extension on harvest practices. In part, it is due to the written sources available, and most deal with the more pragmatic aspects of resources and harvests. We direct the reader to Section IV.B.1.p - Environmental Justice and specifically Sections IV.B.1.p(4) - Consumption of Fish and Game and IV.B.1.p(6) - Regional Traditional Knowledge on Contaminants, where a more holistic view of indigenous culture is discussed, particularly in quoted statements by Port Graham residents Lydia Robards and Violet Yeaton. In the subsistence-harvest patterns cumulative-effects discussion in Section V.C.5.l, Walter Meganack, Sr. and Elenor McMullen make broader and more culturally inclusive statements about local Alutiiq culture. See also Sections IV.B.1.1 - Effects on Subsistence-Harvest Patterns, V.C.5.m - Cumulative Effects on Sociocultural Systems, and V.C.5.p - Cumulative Effects on Environmental Justice. In addition, traditional ecological knowledge is used in the analysis of potential effects on endangered and threatened species (Section III.B.4).

Response 018-010.

The proper names included in this section came from publicly available sources. Because the Port Graham Village Council is opposed to their use, the specific names have been removed from the Port Graham portion of the Regional Traditional Knowledge on Subsistence section.

Response 018-011.

The Alutiiq words for resources have been removed from Section III.C.3.d as requested.

Response 018-012.

The MMS has noted from past public testimony and from the commenter's letter that the Port Graham Village Council does not stand behind the data collected by the State's Department of Fish and Game (ADF&G) in their subsistence-harvest survey in 1997/1998. Because no other subsistence data are available, the MMS must rely on the ADF&G survey data to make a credible assessment of subsistence-harvest practices to perform an effects analysis in the EIS. The ADF&G data are consistent with data collected by the ADF&G in the community in 1987, 1989, 1990, 1992, and 1993; and the Port Graham data are consistent with past harvest surveys for Tyonek, Nanwalek, Ninilchik, and Seldovia, in addition to the subsistence-dependant communities on Kodiak and the Southern Alaska Peninsula. Until a time comes when better data are available, the MMS is constrained to use the ADF&G surveys. In the future, the MMS, the ADF&G, and the Cook Inlet Tribes should work toward a collective solution to the problem of nonrepresentative subsistence-survey data.

Response 018-013.

The text has been changed to reflect this comment.

Response 018-014.

The intent of statements in Section IV.B.1.l(a) - Summary of Impacts on Subsistence Resources and Harvest Patterns is that low to moderate effects are expected to occur from routine activities, but a much higher level of effect is expected to occur in case of a large oil spill, which is considered an unlikely or accidental activity. For a discussion of health risks to subsistence consumers, see Section IV.B.1.p - Effects on Environmental Justice, specifically subsections IV.B.1p(4) - Consumption of Fish and Game and IV.B.1p(5) - Summary of Human Health Effects. The MMS agrees that additional research is needed to better assess risks to subsistence foods and linkages to the subsistence diet. See also Responses 007-020 and 007-021.

Sent: Tuesday, February 11, 2003 3:24 PM

Subject: FW: AOGA Comments on Draft EIS for OCS Lease Sales 191 and

-----Original Message-----

From: Theresa Rockhill [mailto:rockhill@aoga.org]

Sent: Tuesday, February 11, 2003 3:02 PM

To: AKEIS

Subject: AOGA Comments on Draft EIS for OCS Lease Sales 191 and 199

Attached are Alaska Oil and Gas Association (AOGA) comments on the Draft EIS for Proposed OCS Lease Sales 191 and 199, offshore Cook Inlet Alaska.

Judy Brady
Executive Director

Judith M. Brady
ALASKA OIL AND GAS ASSOCIATION
121 W. Fireweed Lane, Suite 207
Anchorage, Alaska 99503
Phone: 907-272-1481
Fax: 907-279-8114
email: brady@aoga.org

Alaska Oil and Gas Association

121 W. Fireweed Lane, Suite 207
Anchorage, Alaska 99503-2035
Phone: (907)272-1481 Fax: (907)279-8114
Judith M. Brady, Executive Director

February 11, 2002

Via Email: AKEIS@MMS.GOV

John Goll
Regional Director, Alaska OCS Region
Minerals Management Service
949 East 36th Avenue , Room 308
Anchorage Alaska, 99509-4663

RE: AOGA Comments on the Draft EIS prepared by the MMS for proposed OCS Lease Sales 191 and 199 offshore Cook Inlet Alaska

Dear Mr. Goll:

The Alaska Oil and Gas Association is a private, non-profit trade association. Its members are companies that represent the majority of oil and gas exploration, production, transportation, refining and marketing activities in Alaska.

AOGA appreciates the opportunity to submit comments on the Draft EIS for proposed OCS Lease Sales 191 and 199 offshore Cook Inlet Alaska.

The Alaska Oil & Gas Association strongly favors Alternative 1: Proposed Action for Lease Sales 191 and 199 with no deferrals. We believe the history of multiple baseline environmental studies of this area in conjunction with the history of lease sales in this area support Alternative 1.

Because of the substantial history of oil and gas leasing in Cook Inlet the EIS does not reflect any new issues except for the finding that the Cook Inlet beluga whale is deemed depleted under the National Marine Fisheries Act. This action should not impact further oil and gas leasing in Cook Inlet because of the concurrent NMFS finding that the decline of the beluga whale is not related to oil and gas activities.

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February 11, 2002

Page 2

Thank you for the opportunity to comment. Renewed OCS oil and gas lease sales in Cook Inlet will be an important piece of the national strategy to encourage U.S. oil and gas production. Our Association is very encouraged that the MMS is refocusing its commitment to Alaska basins, including Cook Inlet. We believe new MMS lease sales in Cook Inlet are necessary to our energy strategy and important to the economic well being of the State of Alaska.

Sincerely,

JUDITH M. BRADY
Executive Director

c:ocs191.199

MMS Response to Comment Document 019

Response to 019-001

In addition to the depleted status of Cook Inlet beluga whales, there are other new issues identified and discussed in the EIS relevant to threatened and endangered species since OCS Sale 149, and we give several examples here. Some issues are related to the fact that new information has resulted in the designation of multiple populations or population stocks in species that previously were viewed as a single stock. Such new information can lead to re-evaluation of the significance of any adverse effects. Some new issues have arisen because of changes in population status, population designations, or both. For example, since the last lease sale, there is now agreement that there are multiple populations of sea otters within Alaska. Due to an apparent substantial decline in population abundance within the range of the designated population western Alaska population stock of sea otters, this stock has been designated as a candidate species for listing under the ESA. Because of the demonstrated high oil-spill vulnerability of this species, we have undertaken extensive analysis of potential effects of the Proposed Action on this population stock. Since the last lease sale, the Alaska breeding population of the Steller's eider has been designated as threatened under the ESA. Lastly, data available from the post-*Exxon Valdez* oil-spill studies also has affected our evaluation of the potential for adverse effects to persist in some species and related ecological assemblages.

The current depleted status of the Cook Inlet beluga does affect our analysis. As pointed out in several places by the NMFS, the reduced population size, geographic and genetic isolation, and the apparent range compression of this stock increases the risk from anthropogenic modification of their environment. However, as we have also pointed out in our analyses, available information indicates that the decline in abundance was due primarily to a high and unsustainable take by Alaskan Native hunters, but that there may be other factors significantly contributing to the decline. The NMFS summarized that municipal, industrial, and recreational activities occurring in the upper inlet have modified habitat for the species and are individually or cumulatively of concern to NMFS. That said, prior to the high level of hunt, the Cook Inlet stock of beluga whales has coexisted in Cook Inlet with oil and gas activity for many decades with no apparent adverse impacts. The National Marine Fisheries Service (2000:45) stated: "Data do not exist which describe any behavioral observations or deleterious effect of..." previous spills in the regions on beluga whales or that "...accurately predict the effects of an oil spill on beluga whales." We have no information that would suggest that either routine activities or past oil spills that occurred in the inlet or entered the inlet from the Gulf of Alaska have had serious adverse impacts on the Cook Inlet beluga. The hunt by Alaskan Native hunters is now being regulated and limited. Thus, basing our analysis on all available information, but keeping in mind the increased vulnerability of the population due to their depleted state, we conclude that the activities associated with the proposed oil and gas lease sales in Cook Inlet could have adverse impacts on these populations, but that these impacts are unlikely to rise to the level of significance that we set for endangered species as an effect that would take more than a generation for the population to recover.

W. Findlay Abbott
Yukon Island, Kachemak Bay
P.O. Box 3000, Homer, AK 99603

February 5, 2003

RECEIVED
FEB 7 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Ave., Rm 308
Anchorage, AK 99508-4363

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear Mr. Goll and Alaska Mineral Management Service:

The environmental risks in the proposed lease areas are much greater than previous Cook Inlet oil developments. The water is deeper; the waves are bigger; there are more marine resources and human uses nearby. But I suspect many of us would not object to the leases if we believed our nation really needed that oil and gas at this time.

There are numerous existing oil and gas leases on the upper inlet and uplands which can produce more oil and gas with improved recovery methods and deeper wells. The industry has an incentive to hold and not develop leases as long as possible and not to tell us what oil and gas is likely present on them.

Our public oil royalties and taxation are about the lowest in the world. Other nations begin with royalty rates of 50% and then add the taxes. Our royalty rates are 12½%. We are being asked to privatize this vast acreage of public wealth at terms so favorable to the industry that it resembles the mining laws of the gold rush era. The oil leasing system is especially onerous because the oil companies own seven-eighths of a vast wealth, but pay no property tax on it, because we don't know how much oil and gas there is.

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We are being asked to privatize what might be the last sizable oil bonanza in South Central Alaska for a small royalty, some taxes, and some jobs. If we get a few billion in revenue, the industry will earn ten billion. We are asked to sell off this major public resource wealth so Americans can have cheap gasoline, big cars, and industries enjoy cheap fuel.

These public resources that we are about to sell, these pools of hydrocarbons under the ground worth billions of dollars have much higher and better uses than burning them up. Future generations will ask how we could burn up most of the great hydrocarbon fields when reusable plastics, organic compounds, and lubricants are such long lasting and precious uses.

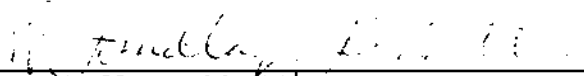
Selling this public asset at this time under the proposed terms is simply not in the public interest. This oil resource should remain in public ownership for a least ten more years. The resource should be held as a reserve for the future.

Our public leaders who advocate leasing as rapidly as possible are concerned with short term aims and not long term public benefits. Our State government and political community do not maintain an appropriate arms-length relationship to the industry. We operate somewhat like a third world nation.

Our leaders and agencies are so compromised that a major corporation can declare itself immune from truthful reporting requirements. A de facto "silent conspiracy" maintains the myth that Exxon spilled only 11 million gallons. The evidence is ample and conclusive: the oil spill was about 30 million gallons (if you request the documents and arguments that prove this I will gladly supply copies). Our leaders don't want to know the truth, apparently that would be unfriendly to the industry. We cannot trust our leaders to stand up for long term public interests.

We would be far stronger as a nation and a region if we put the proposed lease sale on hold for the immediate future. I request that you please adopt a policy withholding Lease Sale 191 and 199 for at least ten years in order to obtain better returns to the public and serve higher and better uses for the hydrocarbons. Please think of the long term benefits of canceling the proposed Lease Sale.

Sincerely,


W. Findlay Abbott

cc:

Governor Frank Murkowski
Box 110001
Juneau, AK 99811-0001

Secretary Gale A. Norton
Department of the Interior
1849 C Street, NW
Washington, D.C. 20240

Page two.

MMS Response to Comment Document 020

Response 020-001.

Comment noted. No response is required.

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FEB 19 2003

AgriumREGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKAChris Tworek
Vice President, Supply ManagementAgrium U.S. Inc.
13131 Lake Fraser Drive S.E.
Calgary, Alberta, Canada T2J 7E8
Telephone: (403) 225-7000
Direct Line: (403) 225-7468
Facsimile: (403) 225-7616
Email: ctworek@agrium.comMMS Alaska OCS Office
949 E. 36th, Room 308
Anchorage, Alaska 99508-4363*Via Email: AKEIS@mms.gov***The U. S. Department of Interior, Minerals Management Service, is requesting comments regarding proposed OCS Lease Sale 191 and OCS Lease Sale 199.**

Agrium Inc. is a leading global producer and marketer of fertilizer and a major retail supplier of agricultural products and services in North America. It produces and markets four primary groups of fertilizers: nitrogen, phosphate, potash and sulphur. The Kenai facility, Agrium Kenai Nitrogen Operations (Agrium KNO), employs around 300 individuals and annually produces approximately two million tons of ammonia and urea fertilizer. Primary markets for these products include Korea, Japan, Taiwan, Mexico, Thailand, and the Pacific Northwest.

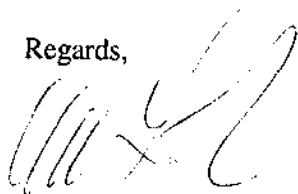
Principal raw materials used for the manufacture of ammonia and urea are natural gas, water, and air. Agrium KNO uses an average of 53.0 BCF of natural gas per year to develop these value added products. A reliable and competitively priced supply of natural gas is necessary to keep the plant operational.

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Agrium is supportive of MMS's efforts to conduct Lease Sales 191 and 199 in Cook Inlet with the modifications as proposed by Alternatives 3 and 4. With the development of the OCS this will provide an opportunity for Agrium to continue operations and contribute to the economic stability of the Kenai Peninsula. Based on the information contained in the environmental impact statement, the OCS offers a high potential for new natural gas reserves to meet the future demands of Alaskans and value added industries located in Cook Inlet.

Should you have any questions please feel free to contact me.

Regards,



C.W. Tworek

MMS Response to Comment Document 021**Response 021-001**

Under the scenario in Appendix B, maximum annual production of sales gas would be 17.9 billion cubic feet per year. As such, no single project or source will completely satisfy the demand, but each will make a contribution to satisfying demand throughout Southcentral Alaska.



Chamber of Commerce

* P.O. Box 610, Anchor Point, Alaska 99554 * Mile 156 Sterling Hwy * (907) 235-2600 *

January 20, 2003

Regional Director John Goll
MMS Alaska OSC Region
949 E 36th Ave. Rm 308
Anchorage, AK 99508-4363

RE: Lease sales 191 & 199

Mr. Goll:

At our Membership meeting held on January 14th, 2003 the Board of directors of the Anchor Point Chamber of Commerce asked me to write to you to express our support of the oil & gas leases mentioned above.

We believe that this will bring much needed, good paying, jobs to the local community and help with decreasing our dependence of foreign oil. We would like to make it clear that we **do not** believe the environmental groups and their claims of doom and gloom concerning the operations safety record and ability to do the drilling without catastrophic environmental damage. We have full confidence of the companies that operate in Alaska.

We plan to have one or more of our representatives at the January 23rd meeting in Homer to voice support of the sales.

If there is anything we can do to help please let us know.

Kathy Foms, President

RECEIVED

JAN 23 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

MMS Response to Comment Document 022

No response is needed.

2/7/03

Minerals Management Service
949 East 36th Avenue
Anchorage, AK 99603

RECEIVED

FEB 12 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

I am a life-long Alaskan resident, and a resident of the Kenai Peninsula since 1981. I am writing this letter to express my opposition to lease sales 191 and 199. Myself and many Kenai Peninsula residents have spoken and written against these sales, as they did years ago when this was an issue. We feel the waters of Cook Inlet should be off-limits to oil and gas development, now and forever. Period.

It is unfathomable to me that anyone would think this is a good idea. Consider the projected one-in-five chance of a spill and the extreme weather and tidal conditions in the lease areas. Balance that against the biological richness and importance of the waters and shores of Cook Inlet and an economy that depends on a clean and unspoiled environment for commercial and sport fishing, tourism, and subsistence harvesting of fish, shellfish and game. What you get is short-term corporate financial gain at the expense of Cook Inlet's local economies, our local environment, and lifestyle and cultural values, should an oil spill occur. A one-in-five chance. Think about it.

I cannot even BEGIN to understand how Cook Inlet oil production is exempt from regulations prohibiting the dumping of waste drill materials into our water. Neither can I understand the lack of tanker escorts in Cook Inlet. Until these situations are rectified for current oil drilling and transport operations, I feel it is the height of negligence to even consider more lease sales and oil development.

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The oil and gas resources that could be extracted from Cook Inlet would only satisfy for a few days the United States' gluttonous appetite for petroleum. The efforts of our government should be directed towards alternative energy sources and making more efficient use of existing oil resources for fuel and manufacturing. Current policies giving SUV buyers tax breaks to encourage sales of these wasteful vehicles shows the current administration's bias towards big industry, again at the expense of our environment, health and safety. When will it end?

It could start here, in Cook Inlet. The risk is too great, the benefits too fleeting, to allow lease sales 191 and 199. Please do all you can to stop these from going forward. A clean and biologically productive Cook Inlet is the greatest legacy we can leave our children, and future generations. Thank you.

Sincerely,



David S. Anderson
PO Box 475
Anchor Point, AK 99556

MMS Response to Comment Document 023

Response 023-001.

Please see Response 008-003.

Response 023-002.

Please see Response 007-045.

RECEIVED

FEB 4 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Box 182

Seldovia AK

99663

29 Jan 2003

Mr John Gall
Regional Director
Mineral Management Service
Alaska OCS Region
949 E 36th Ave. Rm. 308
Anchorage AK 99508

Dear Mr. Gall:

I am opposed to oil leasing
in Lower Cook Inlet.
According to my information,
there is enough oil in
Lower Cook Inlet to supply
the country for 1 week. The
benefit to risk ratio does
not make this a good idea.

Oil companies are allowed to
dump toxic waste into
Cook Inlet on the theory
that the tide will take it
somewhere else. Maybe the

people somewhere else don't want Cook Inlet's toxic waste either. But they can't know so they can't squeak about it. They can just go on eating their seafood. Yummy.

I am a commercial salmon fisherman. The co-op I belong to produces high quality fish for people to eat. Now the oil companies want our fish to swim thru their poison. Do you eat fish?

This is not just in case of a spill. This is standard operating procedure.

001 The Environmental Impact Statement is based on 1 exploratory well. Interesting. Is the oil activity then going to be limited to 1 exploratory well? I think not.

Statistically this would be a sample. How many wells would eventually be in

002

Cook Inlet? The sample has to be expanded to the total number of wells for the numbers to mean anything. If that is not done, the Environmental Impact Statement is just a bunch of whitewashed BS.

I worked on the attempt to clean up the Exxon Valdez mess. I saw one of the fishermen fined because his crew cleaned up too much oil.

A group of fishermen found green oil deep on the water in a small cove. They wouldn't let us on it until the oil had soaked into the beach. Then told us to leave the rocks.

No, I don't think the oil companies are going to intentionally dump oil in the water. After all, it is worth money. However,

when an oil spill occurs their record shows they couldn't care less about cleaning it up.

003 If this lease sale is allowed, it is essential that the industry be required, as part of the terms of the lease, to fund local response teams. This should be required at the time of the sale.

004 It is also essential that base-line biological studies be carried out to find out what is here now. These studies should be funded by the industry but carried out by the Alaska Dept. of Fish and Game so that the industry cannot pressure the researchers, as has reportedly happened in the past.

Sincerely,
Greta Boyer

MMS Response to Comment Document 024**Response 024-001.**

The EIS is not based on one exploratory well. Section II.B.3.a and Appendix B present the activities associated with exploration drilling. The scenario used to analyze potential effects from a lease sale anticipates two exploration wells would be drilled on tracts leased in Sale 191, and two exploration wells would be drilled on tracts leased in Sale 199. From these four exploration wells, a single field would be discovered. Three delineation wells would be drilled to define the field's boundary.

Response 024-002.

See also Response 024-001.

Section II.B.3.b and Appendix B present the activities associated with exploration drilling. The scenario used to analyze potential effects from a lease sale anticipates that a single platform would be constructed to develop the field. A total of 60 production and disposal wells would be drilled from the platform. Section V examines the cumulative effects from all past, present, and reasonably foreseeable development in the Cook Inlet. Infrastructure from this activity is listed in Table V-11, V-12, and V-13, respectively.

Response 024-003.

Please see Response 008-002.

Response 024-004.

Please see Response 009-040.

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JAN 23 2003

Comment Sheet--Cook Inlet Multi-Sale Public Hearing

REGIONAL DIRECTOR, ALASKA DC
Minerals Management Service
ANCHORAGE, ALASKA

Mr Goll stated that the South Central Alaska "needs energy". I believe we have energy. We have extreme tide fluctuations and consistent wind capabilities. We could utilize technology to use this energy in a way that creates sustainable jobs, economy, communities without the risk of permanently spoiling our food, water, and air. Mr Goll stated that the mms has a small division looking at alternative energy solutions for far into the future. If you have the energy + resources to go through a 10 year process to get an oil + gas lease, why wait to pursue sensible energy solutions. Why wait until it is too late? The financial benefit for the oil industry and politicians does not seem to outweigh the cost to my home and my community.

I do not support oil + Gas lease sales in lower Cook Inlet. I do not wish to see oil spilled in my home.

If you are going to allow these lease sales, I would plead with you to require double hulled tankers and tug escorts in Cook Inlet. I think that if we hold the oil companies responsible for their pollution and require prevention planning we will see that it is most economical to pursue alternative energy solutions for our area.

Thank you for your time
Thank you for your energy.

Thank you for considering my home as though it was your own.

Thank you for considering our future, our sustenance, and our community.

Sincerely, Megan Brinson

PO Box 118
 Homer AK 996

MMS Response to Comment Document 025**Response 025-001**

The scenario for the development of resources from Sales 191 and 199 does not envision the transport of OCS crude oil by tanker. The Oil Pollution Act of 1990 requires that double-hull tankers be phased in by 2015. The 2001 Annual Report of the Cook Inlet Regional Citizens Advisory Council reported that double-hull tankers are transporting the majority of crude oil through the Cook Inlet. Please see Response 007-045 for the response regarding escort tugs.

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FEB 6 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Date: February 4, 2003

From: Gerald R. Brookman
715 Muir Avenue
Kenai, Alaska 99611-8816

To: Minerals Management Service
ATTENTION: Mr. John Goll, Regional Director
949 East 36th Avenue, Room 308
Anchorage, Alaska 99508-4363

Dear Mr. Goll:

I attended the public hearing on the draft environmental impact statement on the proposed OCS oil and gas sales in Cook Inlet (numbers 191 and 199) which was held in Kenai on January 25th. I chose not to make a statement at that time, but to study the matter further and submit my comments in writing.

At this hearing, many speakers strongly recommended that the proposed sales go forward, giving as their reasons that this would create jobs, add to the borough's tax base, and in general add to the economic prosperity of this area. With all due respect, I believe these arguments are irrelevant to an environmental impact statement. The only comments I heard expressed at that hearing concerning environmental impact were vague general statements to the effect that the oil industry has done a good job in this area in the past, and is capable of doing so in any exploration and production that would occur in the proposed lease sale areas. I do question the validity of such statements.

I understand that the probability of a large oil spill occurring as a result of the proposed sales is estimated at 19%. While this is a relatively low probability, the consequences of such a spill would be so great as to have a disastrous impact on the fisheries of Lower Cook Inlet that it should rule out the production of oil in this area. Renewable resource production, which, properly managed, can continue into the future indefinitely, should not be risked for the sake of relatively short term nonrenewable resource production. The lingering effects of the Exxon Valdez oil spill are still very evident nearly fourteen years later; this should be a lesson for us, as to what can happen in the event of an accident. The weather in lower Cook Inlet presents serious problems, and while the design of production facilities can take weather into consideration, they cannot completely guarantee against spills due to severe weather events. An undersea pipeline could be breached by a severe earthquake; those of us who were here in 1964 can testify from experience that such earthquakes do occur in this part of the world. In addition, the effects of long-term low level spills can negatively impact fisheries.

001

Brookman to MMS re: proposed lease sales 191 and 199 - Page 2

The points made by the organization, "Cook Inlet Keeper" are, I believe, valid and deserving of your serious consideration. These include [my changes/additions in brackets]:

The public owns the oil and gas resources on the Outer Continental Shelf, and any decisions committing such resources to development must be in the public interest.

The industrialization of lower Cook Inlet is inconsistent with the economic, social, aesthetic and cultural values of the lower Cook Inlet region, its residents, and its visitors.

Alaska and the U.S. should adopt energy policies based on renewable energy sources such as wind, tidal, and solar power, rather than developing nonrenewable fossil fuels in areas of high risk. Clean energy technologies [should be] the direction of the future economy, rather than remaining mired in an archaic addiction to fossil fuels, with multinational corporations dictating how and where production will occur.

Industry has demonstrated time and again that once oil hits the water, it cannot be effectively cleaned up. The only way to prevent oil spills is to move beyond the fossil fuel economy.

MMS should determine the environmental sensitivity of areas within the sale boundaries, and use this information to prioritize the more sensitive areas as "no rig zones". This should include deleting tracts around Kachemak Bay, Kennedy entrance, Stevenson entrance, the Barren Islands, Kamishak Bay, Tuxedni Bay, the Coasts of Katmai and Lake Clark National Parks, [Shuyak State Park, and all other environmentally sensitive areas that could be impacted by an oil spill originating in the proposed lease sale area].

003

If the lease sale proceeds, and production exceeds MMS's current estimates, then MMS should halt all oil and gas activities within the lease sale area and prepare a supplemental EIS that will give the public and decision makers a more accurate analysis of the environmental and socioeconomic consequences of offshore oil and gas development in lower Cook Inlet.

002

While I am not sure whether or not it is relevant to this statement, it is customary for persons commenting on such matters as this to state their length of residence in Alaska. I have resided in Alaska since 1957, and in Kenai since 1978, and I intend to remain here for whatever length of time I have remaining. This is my home, and I believe that all who reside or visit here should treat it with the respect it deserves.

Sincerely,



MMS Response to Comment Document 026

Response 026-001.

Under NEPA, an EIS is to consider effects on the economy and sociocultural systems as well as on flora and fauna. Employment, personal income, and tax revenues are important dimensions of measuring economic effects.

Response 026-002.

Please see Response 009-038.

Response 026-003.

This also responds to Comments 007-012, 009-036, 029-001, 031-001, 044-003, 047-007, 054-003, 064-001, 086-006, and 103-005.

The alternatives selected for analysis in the draft EIS resulted from an analysis of issues and alternatives considered in past lease sales, including those described in the Sale 149 final EIS, analysis of the geologic potential of the area (Appendix B), the other resources in the area, and information and issues received as part of the scoping process, described in Section I.C. From this information, we identified two areas for consideration as deferrals—the Lower Kenai Peninsula (Alternative III) and the Barren Islands (Alternative IV).

Additional requests to defer areas from the sale were received in the comments on the draft EIS. We considered the comments that asked for possible new deferrals of environmentally sensitive areas, including Kennedy Entrance, Stevenson Entrance, Kachemak Bay, Tuxedni Bay, Kamishak Bay, Katmai National Park, Lake Clark National Park, Shuyak State Park, and all other sensitive areas that could be impacted by an oil spill. Many of these requests suggested these areas be classified as so-called “no-rig zones,” which would not allow OCS development and production facilities to be placed on the tract. Comment, 047-007 included specifically identified tracts: OPD NO 05-01 6829-6830, 6832-6833, 6879-6883, 6929-6933, 6979-6984, 7029-7034, 7080-7084, 7130-7136, 7183-7186; No. 05-02 6308-6313, 6358-6363, 6408-6413, 6459-6463, 6508-6513, 6558-6662, 6708-6712, 6758-6761, 6808-6811, 6858-6862, 6908-6913, 6958-6963, 7008-7013, 7051-7063, 7101-7113, 7151-7163; OPD NO 05-03 No. 6034-6037, 6085-6087, 6135-6137, 6185-6187, 6235-6237, 6285-6287, 6333-6337, 6382-6387; and OPD NO 05-04 No. 6002-6007, 6051-6057, 6101-6107, 6151-6157, 6201-6207, 6251-6257, 6301-6306, and 6351-6355. Another comment suggested areas not offered in Sale 149 be deferred as no-rig zones.

Section I.C.2, discusses this possible new alternative and explains why it was considered but not included for further study.

Document 027



COOK INLET FISHERMAN'S FUND

Non-profit Advocate for all Commercial Fishing Gear Types in Area H
 P.O. Box 39408 Naitlchik, AK 99639 FAX 907-260-5614

January 31, 2003

To: Kenai Peninsula Borough Assembly:

The Cook Inlet Fisherman's Fund is the oldest commercial fishing organization located within the Cook Inlet basin and represents over 390 active members. The membership is comprised of all user groups including but not limited to, Drift Gill Net, Set Gill Net, Seiners and Halibut Long Liners. This organization has been successfully representing not only commercial fishing interests within Cook Inlet, but also represents the interests of all families of the commercial fishing support industries. Our organization is the only such entity in Cook Inlet whose membership is made up of all users, united together for a common cause.

Our main goal and organizational mission is to create sustainable jobs and opportunities within the Cook Inlet region. We believe that these goals include the oil and gas industries. We believe that all phases of oil and gas exploration, development and production should go forward in an environmentally responsible manner that allows for the maximization of resource development while protecting the existing historical commercial fishing industry in Cook Inlet.

The Cook Inlet Fisherman's Fund supports oil and gas development in the Federal Outer Continental Shelf waters of Cook Inlet under the five points of the Tri Borough Resolution that include some additional conditions set forth by our organization:

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1. No off-shore loading of tankers.
2. Specific plans to minimize and avoid commercial fishing gear conflicts with the exploration and development of Oil and Gas.
3. The oil and gas exploration companies shall have adequate spill prevention and response capabilities.
4. Identification of specific critical habitat areas as well as the means to protect them.
5. Provisions for local government revenue sharing.
6. That the commercial fishermen do not lose any fishing opportunities, time or any of their historical fishing grounds.

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 John McCombs, Vice Pres.
 Dave Martin, Treasurer
 Janet Lucas, Secretary

Board of Directors

Dan Ducker Butch Leman
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 Chris Garcia

Support Staff

Joe Malatesta, Sr., Consultant
 John McCombs, Editor
 Deidre McCombs, Technical Editor

D-027



COOK INLET FISHERMAN'S FUND

Non-profit Advocate for all Commercial Fishing Gear Types in Area H
P.O. Box 39408 Nulchik, AK 99639 FAX 907-260-5614

The Cook Inlet Fisherman's Fund hereby requests that when any form of public watch organization is created, we are guaranteed a seat on said board.

002

In concussion, our organization has added some additional language in the Tri Borough Resolution that protects our views. The Cook Inlet Fisherman's Fund would like to publicly announce that our Consultant and the entire Board of Directors, support Lease Sales 191 and 199. We would like it publicly noticed that our organization has in the past and will in the future, work hand and hand with the oil and gas industries to reach the goal of creating jobs for our community.

Doug Blossom
DOUG BLOSSOM
PRESIDENT CIFF

Joseph A. Malatesta Sr.
JOSEPH A. MALATESTA SR.
CONSULTANT

John McCombs
JOHN MCCOMBS
VICE PRESIDENT CIFF

cc. Governor Murkowski
cc. Lt. Governor Loren Leman

Officers

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ROBINSON & ASSOCIATES

35401 Kenai Spur Highway
Soldotna, AK 99669
Telephone (907) 262-9164
Fax (907) 262-7034

TELECOPY COVER SHEET

PLEASE DELIVER THE FOLLOWING PAGES TO:

Name: JOHN GOLL

Telecopier Number: 907-271-6805 Date: 1/31/2003

Total Number Of Pages: 3 Including Cover Sheet

In Re Subject/File No.: LEASE SALE 191 & 199

If you do not receive all the pages or if you have problems, please contact JOE MALATESTA SR. at above phone number.

Hard Copy To Follow By U.S. Mail: Yes No

Remarks: _____

FROM COOK INLET FISHERMANS FUND

Joe Malatesta Sr.
CONSULTANT

MMS Response to Comment Document 027**Response 027-001.**

Please see Response 005-027.

Response 027-002.

Stipulation 1 - Protection of Fisheries requires that prior to submitting an EP or DPP, the lessee shall review planned activities with directly affected fishing organizations, subsistence communities, and port authorities to avoid unreasonable fishing-gear conflicts. Fishing interests will have the opportunity to review and comment on the plans as part of the regulatory review process. The organization has been identified in the MMS database as one that represents the interests of commercial fishermen.

Comment Sheet--Cook Inlet Multi-Sale Public Hearing

I attended the hearings in Homer, but had to leave before testifying due to the number of people present. I thought the testimonials to be very educational, thoughtful and civil and was once again impressed with the caliber of the people living here in this small hamlet by the sea. I hope you took away with you how passionate we are here about our way of life and the incredible beauty and diversity of this unique place. You heard many compelling reasons why we are opposed to oil & gas leases in lower Cook Inlet. Among them the powerful forces of nature that live and visit here. Volcanic eruptions, earthquakes and the second largest tides in the world are three extremely good reasons to avoid drilling. Many folks here make their living in either the tourist industry or fishing, and neither of these are compatible with the oil & gas industry. Therein lies the difference between Homer and Kenai/Soldotna. They are an oil driven economy. The absence of any tugs for the express purpose of escorting tankers and the absence of oil spill response vessels also is a travesty and no further exploration should be done without adequate protection & prevention.

I think lease sale 191 and 199 should be canned. Its a bad idea. The risks are too great. Please consider removing the lower Cook Inlet from this and any further lease sales.

Thank You.

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2 11 2003

Valerie Linn

REGIONAL DIRECTOR, ALASKA DCS
Minerals Management Service
ANCHORAGE, ALASKA

VII-233

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MMS Response to Comment Document 028

Response 028-001.

Please see Responses 009-028 and 009-013.

Response 028-002.

Please see Response 007-045.

Response 028-003.

Please see Response 008-002.

February 3, 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Ave., Rm. 308
Anchorage, Alaska 99508-4363

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FEB 4 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

RE: Proposed Lower Cook Inlet 2.5 million Acre Lease Sale (Lease Sale 191 & 199)

Good Day:

I am writing to you to oppose the proposed Lease Sales in Lower Cook Inlet (#191 & #199). These areas include some very sensitive areas to include the mouth of Kachemak Bay, and Kennedy and Stevenson Entrances near the Barren Islands.

Cook Inlet is still recovering from the devastating effects of the Valdez oil spill. It is the only coastal waterbody where existing oil and gas production dumps billions of gallons of toxic waste into sensitive fisheries. No tug escorts are required in these turbulent waters. There are already a broad array of oil-type contaminants in fish and shellfish that subsistence users consume in this area. Why risk a large spill in these rich, productive marine waters; these waters cannot be put at such a risk; these are pristine, unspoiled areas that people rely on for their food. These waters support many wildlife species (as well as fish). Bears, birds, sea lions, whales and others. Five National Wildlife Refuges, four National Parks and Critical Habitat Areas are here. Migratory birds use this critical area also. Tourism relies on this area and its wildlife and beauty. Subsistence relies on this area. This area is unique and unspoiled and the risk of oil spills is very large.

I am very concerned about the analysis in the draft EIS for this area. I am concerned about the environment. There should be permanent exclusions from leasing activities in these sensitive areas. There should be tug escorts and strict pipeline designs in place.

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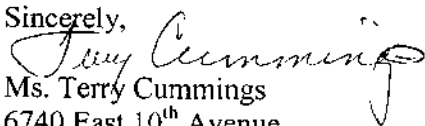
Studies should be conducted on the potential harm to biological resources of Cook Inlet and the people who consume them. The potential harm to Beluga whales and Steller Sea Lions should be studied. This is all in the interest of the public, and industrialization of lower Cook Inlet should be consistent with the economic, social, aesthetic and cultural values of the region, its people and visitors.

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Alaska and the US should adopt energy policies based on renewable sources such as wind or solar power. There is too much to risk in developing nonrenewable fossil fuels in these areas of high risk. Oil cannot be effectively cleaned up once it hits the water. Prevention is the only thing that can and should be done.

Sincerely,

Ms. Terry Cummings
6740 East 10th Avenue
Anchorage, Alaska 99504

MMS Response to Comment Document 029**Response 029-001.**

Please see Response 026-003.

Response 029-002.

Please see Response 007-045.

Response 029-003.

The MMS regulations require that pipelines be designed, installed, operated, maintained, and abandoned to provide safe and pollution-free transportation of fluids (30 CFR 250.1000(a)). To meet this requirement, the operator must use the best available and safest pipeline technology (30 CFR 250.107).

Response 029-004.

Please see Responses 010-027 and 010-042.

Response 029-005.

We have undertaken analysis of the potential for the Proposed Action to cause adverse effects on both beluga whales and Steller sea lions. We have summarized available information about the population status, distribution, abundance, ecology, threats, and other relevant types of information about the Cook Inlet stock of beluga whale and Steller sea lions in Section III.B.4.b(1) and Section III.B.4.b(8), respectively. Our analyses of potential adverse effects on the Cook Inlet beluga and on the Steller sea lions are found in various parts of Section IV.B.1.f, IV.B.3.a, IV.B.4.a, IV.C.4, IV.D.6, IV.E.4, and IV.F.3.f. Cumulative effects are discussed in Section V.C.5.f. We conclude that there could be some adverse effects to both species from activities associated with the proposed action. Because of this, we have engaged in consultation with the NMFS under Section 7 of the ESA. The NMFS has written their Biological Opinion under Section 7 of the ESA of the potential for activities associated with the proposed OCS oil and gas lease sales to have adverse effects, to jeopardize the continued existence of, and to adversely modify the critical habitat of, Steller sea lions (and other species listed under the ESA). We include this Biological Opinion in Appendix C. In their written comments to the MMS (see Section VII containing comments) on our analysis of the potential effects of the Proposed Action on Cook Inlet beluga whales, the NMFS wrote: "We appreciate MMS's attention to this important Cook Inlet species. The discussion and analysis within the draft EIS are very thorough and present an accurate accounting of the stock and the effects of hunting and resource development on this depleted marine mammal."

8 February 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 E 36th Ave. Room 308
Anchorage, Alaska 99508-4363

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FEB 10 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear Mr. Goll;

I am opposed to oil and gas lease/sale 191 and 199.
I have lived in Homer for the last 21 years. I have worked both as a commercial fisherman and as a water taxi operator.

I have fished in every season of the year and have a good working knowledge of the risks inherent in working the lower Cook Inlet. The weather, tides and seismic activity are all real risks that need to be properly addressed. Any exploration here runs the risk of accident due to these very real factors. Also there are no tugs providing emergency stand-by response or escort service for tanker traffic. This has been of high concern for the residents of lower Cook Inlet for years.

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My commercial fishing experience includes, but is not limited to, lower Cook Inlet salmon seining, lower Cook Inlet Dungeness crab fishing, lower Cook Inlet tanner crab fishing and the Pacific cod fishery. Except for the salmon fishery, which tends to take place on the beach or in the water column, these fisheries take place in deep water and are prosecuted with gear types that rest on the bottom. In assessing the impacts of oil exploration on the habitat the MMS should not rely on data gathered from the upper inlet oil wells because the upper inlet has an entirely different bottom configuration. Comparing the upper Cook Inlet to the lower Cook Inlet is like comparing apples to oranges.

003

The lower Cook Inlet has what we commercial fishermen refer to as a "live bottom", the upper Cook Inlet doesn't. The bottom species that are commercially viable in the lower Cook Inlet include, but are not limited to, scallops, Bairdi tanner crab, Dungeness crab, halibut, herring, yellow fin sole, pacific cod, and octopus. The upper Cook Inlet has very few or none of these. The impacts upon these species as well as any other commercial and non-commercial species must be assessed before any exploration takes place.

My water taxi experience has given me the chance to see this area through the eyes of people who come to visit. People come from very long distances to see nature's untouched magnificence. Indeed, for many this is a major and unique life experience. To come see Alaska in all its glory is a life's dream. The very nature of the lower Cook Inlet's pristine appearance has an economic value. If a value could be assigned to pristine scenic beauty what would it be, what would be the loss? This must be assessed before any governing body can make a rational decision.

Those of us in the visitor and tourism trade have worked very hard to develop, and protect, this area for a sustainable livelihood. So when the draft EIS refers to job creation

it neglects to mention how many jobs will be lost. From my perspective there will only be a displacement of jobs. The **jobs created to jobs lost** ratio must be evaluated before any lease/sale can move forward.

004

Regardless of environmental risks, what this oil and gas lease/sale represents is a major shift in the economic base for our community.

I believe the space-use conflicts have not been properly addressed in the draft EIS. For instance, the view with an off-shore oil platform versus no platform must be considered a space-use conflict and analyzed for net loss of value. Many B&Bs and lodges and sightseeing tours have spent a great deal of money marketing the view, sans off-shore platforms.

005

Further, there has been no calculation of the area around an off-shore oil rig that is restricted due to homeland security reasons. If restrictions are put in place, an off-shore platform would occupy a larger area than just the platform itself. Has this been adequately addressed? What is the area surrounding an off-shore oil platform that is restricted to transit? This would constitute a substantial space-use conflict.

006

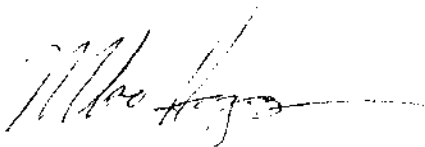
If an oil spill should occur, your own EIS calculates a 19% chance, the public perception of the damage may, and probably would, exceed the actual extent of the affected area. In other words, if there was a spill that impacted a three mile stretch of coastline the public perception would probably think that the entire lower Cook Inlet was affected and make changes in their travel plans to exclude Homer. The draft EIS definitely does not address this.

007

For economic and environmental reasons that have not been adequately addressed, I oppose lease/sale 191 and 199.

I believe this administration should show leadership by supporting the development of alternative fuels and energy. Until that happens we will continue down the road to economic and environmental degradation.

Respectfully,



Mako Haggerty
PO Box 2001
Homer, AK 99603

Cc Governor Frank Murkowski
Cc Secretary Gale A Norton

MMS Response to Comment Document 030

Response 030-001.

Each operator is required to develop an oil-spill-contingency plan that is specific to the facility or region where they are working. In developing spill-response strategies and scenarios, the operator must take into consideration their operating environment and address those challenges accordingly.

Response 030-002.

Please see Response 007-045.

Response 030-003.

The MMS included detailed descriptions of lower Cook Inlet in Sections III.A.1.b - Offshore Geology, III.A.2 - Climate and Meteorology, III.A.3 - Oceanography, III.A.4 - Water Quality, and III.B.1 - Lower Trophic-Level Organisms. Most species included in the species accounts in Section III.B.2 - Fisheries Resources occur in lower and/or upper Cook Inlet; there is no scientific evidence to indicate that there is an ecological barrier preventing these species from using one portion (upper versus lower) of Cook Inlet. Also, as noted in Section III.B.3.b(2) - Habitats of Particular Concern, the only living substrates identified in the North Pacific Fisheries Management Council tables are kelp forests used by Atka mackerel eggs and adults. Cook Inlet, Shelikof Strait, and Kennedy Entrance have few notable regions of eelgrass and kelp except within Kachemak Bay.

The MMS disagrees with the commenter's assertion that the MMS should not rely on data gathered concerning offshore oil and gas industry activities or impacts from upper Cook Inlet. We believe it is important to assess such information with other available information, as done in the draft EIS. There are lessons to be learned from industry's activities in upper Cook Inlet. If following the advice as suggested by the commenter, the MMS would not need to consider the impacts associated with the *Exxon Valdez* oil spill, because it significantly contrasts with the types and scale of activities and impacts associated with the proposed action. The MMS certainly does not concur with such logic and has considered impacts of offshore oil and gas operations from an assortment of sources and regions.

The MMS has analyzed the impacts to fisheries populations inhabiting the lower Cook Inlet. Although additional information has been inspected and analyzed, our analysis concludes that exploratory operations (for example, seismic surveys, drilling discharges, and exploration sites) associated with the proposed lease sales would not result in significant impacts to scallops, tanner crab, Dungeness crab, halibut, herring, yellowfin sole, Pacific cod, and octopus. Likewise, production and development operations would not significantly impact these species. Additionally, the MMS expects that Stipulation No. 1 (Protection of Fisheries) will minimize conflicts that could arise with oil and gas operations in the lower Cook Inlet with various fisheries groups. The MMS also notes that it anticipates that the placement of two offshore oil and gas platforms very well might benefit some of the species for which the commenter expressed concern. These platforms will provide refuge and additional substrate for benthic organisms to colonize.

Response 030-004.

We analyze the potential employment created in Section IV.B.1.j - Economy. We analyze the potential effects on sport fishing in Section IV.B.1.o. We have reliable data on the value of sport fishing but not on employment. Sport fishing is an important part of the tourism industry. We do not have reliable data on employment in the tourism industry. We do assess the effects on recreation, tourism, and visual resources qualitatively in Section IV.B.1.n.

Response 030-005.

Please see Response 009-014.

Response 030-006.

Please see response 009-023.

Response 030-007.

Please see Response 009-027.



Kachemak Bay Conservation Society
734 Ben Walters Lane • Suite 202
 Homer, AK 99603-3734
 (907) 235-2062 • kbcsc@xyz.net

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 FEB 10 2003

REGIONAL DIRECTOR, ALASKA OCS
 Minerals Management Service
 ANCHORAGE, ALASKA

John Goll, Regional Director
 MMS AK, OCS Region
 949 E. 36th Ave., Rm 308
 Anchorage, AK 99508-4363

Dear Mr. Goll:

The Kachemak Bay Conservation Society (KBCS) is a membership organization whose mission is to protect the environment of the Kachemak Bay region and encourage sustainable use and stewardship of resources through advocacy, education/information, and collaboration. We represent citizens from all walks of life in the Kachemak Bay area and beyond.

The Kachemak Bay Conservation Society strongly opposes Oil and Gas Lease Sales 191 and 199. The two and a half million acres being considered for lease borders five National Refuges, four National Parks and seven Critical Habitat Areas, which are known nationally and internationally for their incredible wildlife, scenic beauty, and recreational and fishing resources.

The area being considered for lease is prone to earthquakes, volcanic eruptions, extreme tides, and hurricane-force winds. The FIS states that there is a one-in-five chance of a large oil spill. This is too great a risk to commercial fishing, tourism, subsistence, and fish and wildlife resources and their habitats. The residents of lower Cook Inlet have consistently and overwhelmingly opposed oil and gas development and have consistently mentioned risks of oil spills as one of their major concerns.

The Kachemak Bay Conservation Society believes oil development in lower Cook Inlet is inconsistent with the economic, social, aesthetic and cultural values of the lower Cook Inlet region, its residents and its visitors. The area continues to have serious problems with pollution from oil byproducts. In areas of such high risk, we strongly support the adoption of energy policies based on renewable energy sources such as wind, tidal, and solar power, rather than development of nonrenewable fossil fuels.

In the event the lease sale does proceed, KBCS believes MMS should determine the environmental sensitivity of areas within the sale boundaries and use this information to designate areas as "no rig zones." Such areas may include, but are not limited to, areas around Kachemak Bay, Kennedy entrance, Stevenson entrance, the Barren Islands, Kamishak Bay, Tuxedni Bay, and the coasts of Katmai and Lake Clark National Parks.

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In addition, if expected oil production exceeds MMS current estimates, then MMS should halt all oil and gas activities within the lease sale area and prepare a supplemental EIS that will give the public and decision makers a more accurate analysis of the environmental & socioeconomic consequences of offshore oil and gas development in lower Cook Inlet.

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Thank you for the opportunity to express our concerns on this critical issue.

Sincerely,

Roberta Highland, President

cc: Representative Paul Seaton
 Senator Alan Austerman

MMS Response to Comment Document 031

Response 031-001.

Please see response 026-003.

Response 031-002.

Please see Response 009-038.

Comment Sheet--Cook Inlet Multi-Sale

RECEIVED

JAN 28 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

I would like to register my OPPOSITION to the Cook Inlet Multi-Sale. Following are some of importance to me:

- The need expressed by OIL-BASED industries in middle Kuiu Peninsula does NOT outweigh the importance of needs for commercial fishing and tourism based industries in the entire Peninsula. The presence of oil development, even without accidents, adversely affects the aesthetics of the area and adds unacceptable levels of pollution to a closed water system where commercial fishermen are trying to establish organic wild fish stocks.

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Oil development represents an unacceptable risk to waters that support subsistence lifestyles.

Oil development presents unacceptable risks to National Parks + Refuges bounded by this lease sale (or included in the lease sale).

Oil or gas development at this time is a temporary fix for energy needs. Conservation and alternatives to oil/gas use must be pursued as soon as possible.

As citizens, we know that we cannot count on the oil industry to look out for our best interest.

IF this sale goes through, it is essential that our government develop stringent guidelines and enforce those guidelines, to protect the waters of Cook Inlet, the beaches and tidal lands bounding it, and all of the creatures that live in, on or around the water, including human residents of this area.

Heimta Nigman
PO Box 262 Seldovia, AK 99663-0262

907-234-7445

MMS Response to Comment Document 032**Response 032-001.**

Please see Response 009-014.

Response 032-002.

Please see Responses 010-027 and 010-042. There is neither an issue with nor a threat from the offshore oil and gas industry in terms of establishing a category of organic wild fish stock. Unfortunately, that threat is derived from global fallout of persistent organic pollutants (Ewald et al., 1998).

11 February 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 E 36th Ave. Room 308
Anchorage, AK 99508-4363

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FEB 12 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear Mr. Goll;

The Kachemak Bay State Parks Citizen Advisory Board (KBSPCAB) opposes the oil and gas lease/sale #191 and #199.

This lease/sale threatens the quality of experience in the Kachemak Bay State Park.

The Exxon Valdez oil spill in 1989 did extensive damage to the outer coast of the lower Kenai Peninsula. We are still dealing with the impacts from that spill. Although the spill affected many aspects of life in and around Kachemak Bay State Park (KBSP) we would like to address two areas of concern; environmental and economic.

Environmentally, oil exploration and development threatens many miles of coast line in KBSP. We don't believe the gains of development outweigh the risks on this biologically delicate and sensitive area. Recent studies show that even the upper Cook Inlet off-shore oil wells are affecting the inter-tidal life on the lower Kenai Peninsula. If, as your records show, there is a 19% chance of a spill what areas are most likely to be impacted? What species will suffer the greatest adversity? How should KBSP prepare to respond?

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Economically, this oil lease/sale poses a great threat to the tourism and visitor industry. This industry has taken years to develop. One small accident could jeopardize an entire long-term and sustainable industry. How will off-shore exploration affect the desirability of KBSP as destination for tourist and visitors? What effect would an oil spill or any publicized degradation have on the numbers of tourist and visitors to KBSP?

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We don't believe the draft EIS adequately addresses these concerns. On the contrary we believe the EIS only serves to raise these concerns as well as many others.

Respectfully,
Patrick Houlihan

Patrick Houlihan, chair
Kachemak Bay State Parks Citizen Advisory Board

Cc Governor Frank Murkowski
Cc Secretary Gale A Norton

MMS Response to Comment Document 033

Response 033-001.

The MMS OSRA model estimates a 19% chance that one or more large oil spills may occur as a result of the proposed lease sales. The OSRA, models, assumptions, and results are provided in Appendix A of the EIS. Risk probabilities to specific areas are variable, depending on the launch area of the spill, season (summer versus winter), and the period elapsed since the spill occurred (for example, 3, 10, or 30 days). Tables A.2-1 through A.2-32 provide such probabilities.

Oil spills are accidental events, and the timing and scale of a spill are unpredictable. The species most at risk will vary, depending on the timing of the accident. An oil spill occurring in spring would affect different fisheries resources, prey, and habitat differently than one occurring in autumn. Where an accidental spill enters the environment and environmental factors acting on it also determine its disposition and the species at risk. Some accidental spills do not reach intertidal communities; instead they disperse, evaporate, and degrade offshore. In such instances, pelagic finfishes and larval shellfishes may be exposed, although data indicate little harm comes to adult finfishes in open-water systems. More information regarding species most at risk from a large oil spill may be found in Sections IV.B.1.d - Fisheries Resources, IV.B.1.e - Essential Fish Habitat, IV.B.1.f - Endangered and Threatened Species, IV.B.1.g - Marine and Coastal Birds, IV.B.1.h - Nonendangered Marine Mammals, and IV.B.1.i - Terrestrial Mammals.

Oil-spill prevention and emergency-response plans already are prepared for Cook Inlet. Kachemak Bay State Park falls within the Cook Inlet area plan (<http://www.asgdc.state.ak.us/maps/cplans/subareas.html#cook>). The response plan is available at <http://www.akrrt.org/CIplan/CItoc.shtml>. Interested groups may want to attend meetings of the ARRT to learn more about planning emergency response to oil spills in the region. Additional information on the ARRT can be accessed at <http://www.akrrt.org>. Another alternative to getting involved in planning and response actions includes contacting the CIRCAC; information on CIRCAC may be found at <http://www.circac.org>.

Response 033-002.

Please see Responses 009-027 and 009-028.

**John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Avenue, Rm. 308
Anchorage, Alaska 99508-4363**

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FEB 3 2003

**REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA**

JANUARY 30, 2003

Dear Mr. Goll, and the other staff members involved in producing the current O & G Leases Sales 191 and 199 Draft EIS;

This Letter to you serves as my written public comment on the current O & G Lease Sales 191 and 199 Draft EIS. Please enter this entire document into the Record of public input and comment that you have solicited for this Draft EIS.

I am a long-term resident and landowner in the Kachemak Bay area. I reside in Fritz Creek, an unorganized community located on Kachemak Bay several miles northeast of Homer, Alaska.

Recommendations / comments:

1. I request that the MMS adopt "Alternative III" and "Alternative IV", and incorporate them into the Proposed Action of the Final EIS. Most importantly, The MMS should expand your "Lower Kenai Peninsula Deferral-Alternative III" northward several miles to include the Federal waters lying to the west of the entire broad mouth of Kachemak Bay. I have included a copy of your map that shows the Deferral Alternatives III and IV. I have drawn-in the extension to Alternative III that I am requesting that you adopt as part of the upcoming Final EIS and Record of Decision.

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In addition to the reasons listed in the Draft EIS favoring establishment of the Lower Kenai Peninsula Deferral-Alternative III, I am requesting that you include a discussion of the very important Visual Resources and scenic values that will be protected and maintained via the establishment of Kenai Peninsula Deferral-Alternative III (and its northward extension into the areas I have drawn on the attached Map). Drilling rigs and oil and gas production platforms within federal waters will be immediately and highly visible from all of the very popular scenic overlooks located from Homer northward into Anchor Point. Please note that these overlooks are located at an elevation of 1,000 feet or higher. This visual aspect sets the local viewing horizon many, many miles further out into Cook inlet! This issue is not discussed in the Draft EIS. Drilling rigs, oil and gas production platforms, and oil industry-related traffic will indeed be visually intrusive from the very popular Baycrest Overlook, (located along the highway just north of Homer), and from many other similarly situated viewpoints located between Homer and Anchor point. Oil and gas production platforms, massive industrial

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facilities that they are, will be brilliantly lit-up at night. This will render them even more visually intrusive at night. Please include a discussion of the above environmental impacts, along with proposed mitigations for the same, in your Final EIS.

- 2. The MMS should determine the environmental sensitivity of areas within the sale boundaries, and use this information to prioritize most sensitive areas as "no rig zones".
- 3. The public owns the oil and gas resources on the OCS, and any decisions committing such resources to development must be in the public interest. The industrialization of Lower Cook Inlet is inconsistent with the economic, social, aesthetic, and cultural values of the Lower Cook Inlet region, its residents, and its many, many visitors.
- 4. MMS must commit to tug escorts for laden tankers in the proposed leasing area.
- 5. MMS must require zero discharge from offshore oil and gas platform.

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Please record, consider, acknowledge, and address all of the issues that I have raised within the five numbered comments that I have made to you above. Thank you.

Sincerely,



Michael W. Kliemann

P.O. Box 15163
 (54210 Wilderness Lane)
 Fritz Creek, Alaska 99603-6163

MAP

Attachment to my public
comment letter of 01/30/03.

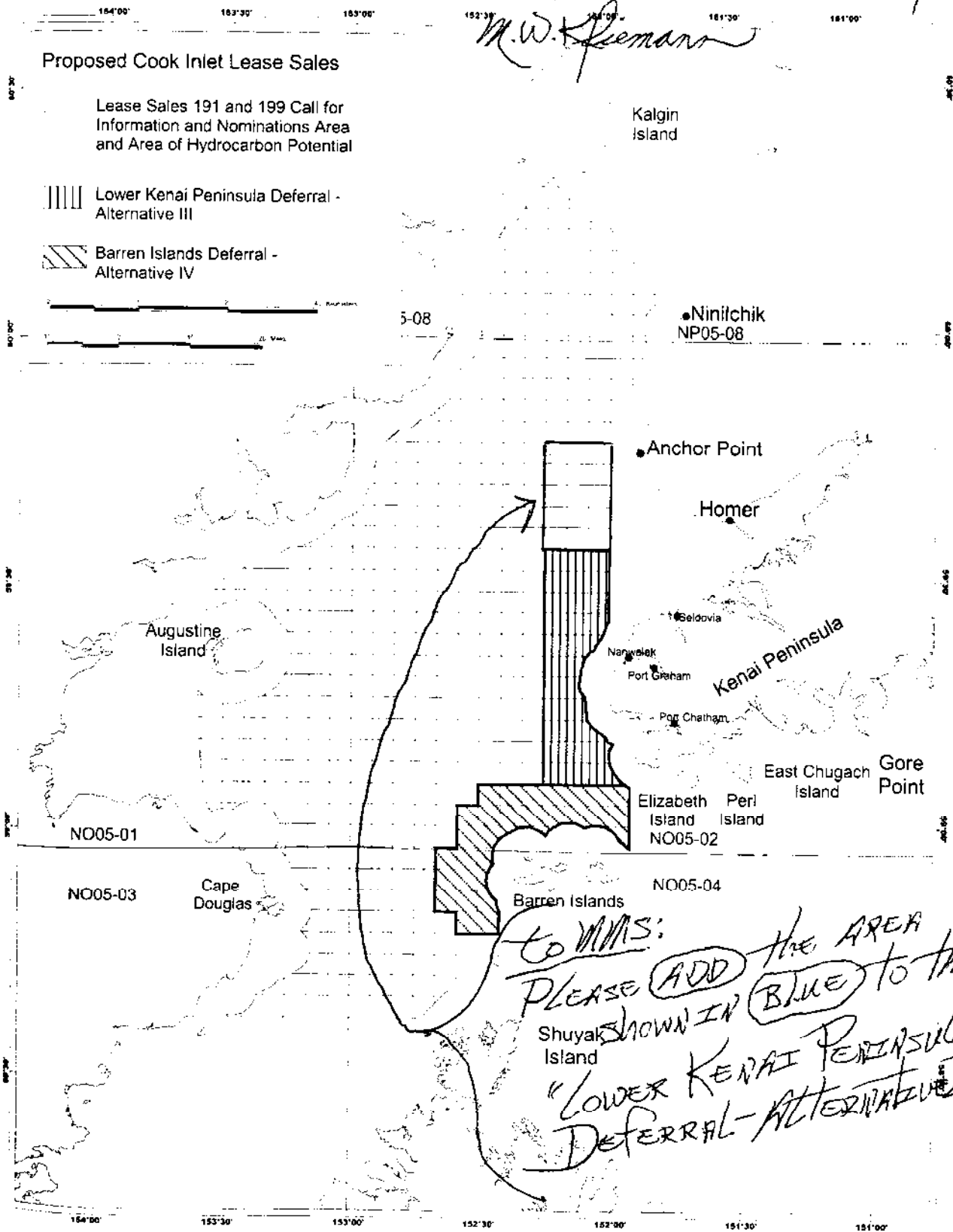
M.W. Stearns

Proposed Cook Inlet Lease Sales

Lease Sales 191 and 199 Call for
Information and Nominations Area
and Area of Hydrocarbon Potential

Lower Kenai Peninsula Deferral -
Alternative III

Barren Islands Deferral -
Alternative IV



to NMS:
PLEASE ADD the AREA
SHOWN IN BLUE to the
"LOWER KENAI PENINSULA
DEFERRAL - ALTERNATIVE III"

Figure I.A-1 Area of Proposed Cook Inlet OCS Lease Sales 191 and 199

MMS Response to Comment Document 044

Response 044-001.

Also, please see Responses 101-001, 055-003, and 068-002.

The alternatives selected for analysis in the draft EIS resulted from an analysis of issues and alternatives considered in past lease sales, including those described in the Sale 149 final EIS, analysis of the geologic potential of the area (Appendix B), the other resources in the area, and information and issues received as part of the scoping process, described in Section I.C. From this information, we identified two areas for consideration as deferral alternatives—the Lower Kenai Peninsula (Alternative III) and the Barren Islands (Alternative IV).

Additional requests to defer areas from the sale were received in the comments on the draft EIS. We considered the comments that asked for an expanded Alternative III deferral, from Kachemak Bay northward to Anchor Point or Ninilchik, because of the value of the area as habitat and fishing grounds and to reduce visual impacts. Requests for this deferral included specifically identified tracts: OPD NO 05-02 tracts 6260-6263, 6310-6313, 6360-6363, 6410-6413, and 6460-6463.

The EIS analyzes impacts to habitat throughout the Cook Inlet program area. In particular, Alternative IV protects much of the valuable habitat around the Barren Islands, where Alternative III protects important subsistence resource areas (and the habitat that supports it) of the Lower Kenai Peninsula. Extending the northern boundary of the area deferred under Alternative III appears to offer very little additional protection to critical or sensitive habitats when considered in the context of the entire program area.

Impacts to visual resources are analyzed in Section IV.B.1.n. The EIS considers that area of visual effects, the visual resource impact area, to extend 8 kilometers (5 miles) around an offshore platform. As shown in Figure IV.A.2, only a small portion of the visual impact resource area analyzed in the scenario crosses the coastline in the vicinity of Anchor Point, and none crosses the area from Ninilchik to Anchor Point. Furthermore, because of the geography of the area, much of the coastline and the Sterling Highway, which is a scenic highway and the main public viewing access point in the area, are more than 8 kilometers from the area that could be leased. That is, south of Anchor Point, much of the coastline from which the public can view the offshore area lies outside the visual resource impact area that could result from this lease sale.

Section I.C.2, discusses this modified alternative and explains why it was considered but not included for further study.

Response 044-002.

The EIS does include a discussion of visual resources and scenic values in Alternative III, but the deferral issue relates primarily to protection of critical habitat and reduction of spatial conflict with subsistence users. The potential impact of leasing activities on visual resources is not expected to extend into park or conservation areas or other places of high scenic interest. Homer residents should have no significant effect to their routine aesthetic experiences. Keep in mind that exploration and development scenarios for Sales 191 and 199 anticipate the potential construction of only one production platform located many miles offshore (Table B-2). The processing of any recovered oil and gas is expected to take place at facilities within existing industrial areas such as Nikiski. The EIS acknowledges in Section IV.B.1.n(3) that some visual resources could be affected by the presence of a drilling unit, but then explains how many different variables can interact to influence individual opinions about aesthetic quality. This puts them beyond the reach of reliable scientific quantification. It also is relevant that the public exhibits a greater diversity of opinion about aesthetics than is commonly realized. Some residents, for example, have expressed their perception in public hearings that a producing oil platform provides a comforting sign of economic reassurance. Others express a feeling of inspiration when they view the beauty of nature as a backdrop for human enterprise.

Response 044-003.

Please see Response 026-003.

Response 044-004.

Please see Response 007-045.

Response 044-005.

Please see Response 008-003.

Written by Doug Hoester 235-3875 Environmental Health Specialist
Comment Sheet--Cook Inlet Multi-Sale Public Hearing DEC 93-96

- I feel that your Environmental Impact statement is very inadequate in trying to determine the true environmental impact of these proposed projects. I have experience in writing and reading EIS's. This one is no doubt very fancy and flashy. Nice maps lists etc. However it puts an obvious rosey glow on possible spills. That's great I am for looking on the bright side. But honestly this is my home, I am not leaving - ever. When playing Russian roulette with our home there is no bright side.

- I believe the noise impact is severely understated. We all noticed when we were building the dock expansion the whales stopped coming. They came back when the pounding and noise was over. You can not begin to imagine the impact on sea mammals from noise pollution. Much of their perception comes from sound. You do not know the impact.

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* - Is there anything in there about past oil spills around here and how they were handled? What mistakes were made.

002

Doug Hoester

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JAN 23 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

MMS Response to Comment Document 045

Response 045-001.

We do not agree that we have underestimated, or analyzed insufficiently, the potential for noise to impact whales or other marine mammals. We provide extensive background information on potential impacts of noise on marine mammals in Section IV.B.1.f(3)(b). Analyses of potential effects of exploration-related noise on marine mammals are provided in Sections IV.B.1.f(3)(c)(1) and IV.B.1.f(3)(d) through IV.B.1.f(3)(f). Analyses of potential effects of development and production-related noise on marine mammals are provided in Sections IV.B.1.f(4)(a) through IV.B.1.f(4)(c)3. Our conclusions about, and summary of, potential adverse effects of noise (and other potential adverse effects) on all potentially affected ESA species are provided in Sections IV.B.1.f(1) and IV.B.1.f(2), respectively. Conclusions about cumulative effects, including effects of noise, are discussed in Section V.C.5.f(1), while other discussions of cumulative impacts of noise are found in Section V.C.5.f(3).

Response 045-002.

Past oil spills are analyzed in a qualitative fashion to look at the amount of oil that has been spilled. Known past oil spills are indicated in Appendix A.

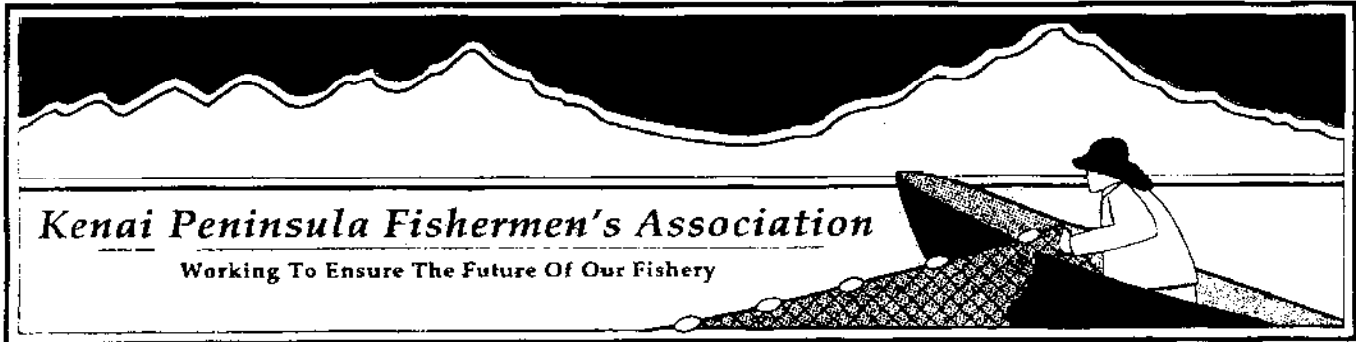
Cook Inlet Spill Prevention and Response, Inc. (CISPRI) is a major spill-response organization in the Cook Inlet. The nonprofit corporation was formed in October 1990 to provide personnel and oil-spill equipment to respond to any kind of oil spill at the request of a member company. Operators of various facilities contract with CISPRI for response activities. The U.S. Coast Guard designated CISPRI a Class E Oil Spill Removal Organization, which is the highest level of designation and is based on spill-containment and removal requirements for an offshore/ocean response. The CISPRI's response area extends from Palmer to the Barren Islands and into the Gulf of Alaska, and their response center is located at Mile 26.5 North Spur Road near Nikiski, Alaska. In the event of a spill, the location serves as the emergency operations center for all Federal, State, and industry personnel.

Spill drills have become regular events throughout Southcentral Alaska since the *Exxon Valdez* went aground in 1989. More than 10 years ago, Congress told the oil industry and Coast Guard to be ready for the next big oil spill. That broad directive translates into roughly several drills a year for CISPRI, and one to two larger, cooperative drills a year in sensitive areas like Kachemak Bay.

Certain parties interested in oil and hazardous substance spill response formed the Standard Oil Spill Response Management System (STORMS) Task Force to develop an Incident Command System that took into account the unique needs of oil and hazardous substance spill response, while adhering as much as possible to NIIMS. The STORMS Task Force produced the first version of the "oilized" Incident Command System Field Operations Guide in 1996. An updated version of the Field Operations Guide was prepared by the Alaska Department of Environmental Conservation in 1998, which incorporated parts of the Alaska Clean Seas Technical Manual, and also captured the lessons learned from spills and drills in Alaska.

Council staff members, volunteers, and contractors observe, monitor and report on spill-response drills, exercises, and training throughout the region to provide citizens, regulatory agencies, and responders with information about the state of readiness and make recommendations for improvement.

The environment of Cook Inlet can present extremes that might make it difficult to effectively contain and clean up a major spill. Spill responders in Cook Inlet face a difficult task. Strong currents and large tides in the Inlet move oil rapidly. Winter ice, darkness, and severe weather can endanger responders and interfere with the recovery of spilled oil. Thick ice could block access to spilled oil; while broken ice might actually help capture floating oil. Darkness increases the difficulty in observing oil on water. Severe weather could put responders at risk.



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 FEB 11 2003

Mineral Management Service
 Comments on 191(2004) and 199 (2006)

February 11, 2003

REGIONAL DIRECTOR, ALASKA OCS
 Minerals Management Service
 ANCHORAGE, ALASKA

The Kenai Peninsula Fishermen's Association have been representatives of the Commercial Fishing industry in Cook Inlet since 1956. Primarily a set-net voice in the community, we have the largest representation of approximately 60% of the limited entry salmon permit holders in Area "H".

We are "cautiously concerned" about this lease sale 191 and 199.

It is our view that we are the near-shore lease holders and in state waters and believe that we are entitled to review and comment on any negative affects that might interfere with our operations.

We wish to be "good neighbors" and would request that any exploration plans and subsequent production programs include our concerns. It is extremely important that we receive information about these plans in a timely manner.

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We are members of the Cook Inlet Regional Citizens Advisory Council and support this organization in its efforts to bring parties together for in depth discussions and to implement analysis that will gain confidence for all concerned. Proper funding for this group is vital to maintain a "good neighbor" policy for the three different industries that operate within Cook Inlet and the Kenai Peninsula.

Dereference to the Commercial Fishing industry in the EIS had some erroneous conclusions in that it refers to our industry that does more damage to the marine bottom due to our "dragging". It is obvious that the author has no idea of the type of gear we use in the inlet and their should be an thorough and true study of the impacts of exploration and development on these unique and "dragger less" fisheries. We also do not agree with the time allowed for salmon cycles to return after an incident. Cycles of salmon are in two,three, four, five, six and seven. Considering the time of life cycle in a minimum of three to repair it could conceivably take 21 years to have a harvestable surplus of King Salmon return to this area.

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In conclusion, we do not oppose this lease sale at this time. It is our strong belief that if the principles of "Best Available Technology" is used and that high standards of financial responsibility are upheld these leases can be developed with minimal impact to the environment and the people dependent on a clean environment.

Sincerely Yours,



Paul A. Shadura II
President - Kenai Peninsula Fishermen's Association

MMS Response to Comment Document 046**Response 046-001**

Please see Response 027-002.

Response 046-002.

The conclusions referring to Cook Inlet commercial-fishery methodology have been removed.

Response 046-003.

It is not clear as to the “incident” referred to in the comment; however, we assume it references the impacts of a large oil spill and the recovery of salmon in the region. We have clarified for readers of the EIS that our significance criteria and thresholds are based on population-level impacts to fisheries resources in the central Gulf of Alaska. It is not limited to multiple stocks or subpopulations of fisheries resources occurring only within Cook Inlet.

Our analysis indicates that a large oil spill might impact some stocks or subpopulations of fisheries resources in Cook Inlet and adjacent waters (for example, Shelikof Strait); the EIS has been revised to clarify these impacts. To be more precise, however, for the various salmon populations inhabiting the central Gulf of Alaska (for example, pink, chum, silver), a large oil spill may cause acute losses of eggs and larvae of those cohorts of salmon returning to spawn around the time of the spill. However, as noted in the EIS, eggs and juvenile stages exposed to oil persisting in sediments of spawning and nursery habitats impacted by the spill may experience lethal and sublethal effects decreasing survival, growth, fitness, and fecundity. Nonetheless, there would be millions of salmon from these subpopulations that would remain at sea and not return to the region for subsequent years. Moreover, a large oil spill may impact only a few or some of the anadromous spawning streams of the region. Therefore, many stocks or subpopulations of Cook Inlet are not likely to be affected at all by a large oil spill in the Inlet.

In the event of a very large oil spill, we expect that it might result in a significant impact to fisheries resources, essential fish habitat, and commercial fisheries in the region. Recovery from such an impact may take more than a decade.

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FEB 11 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Michael A LeMay
57480 Clover, Ave.
Homer, AK 99603

February, 07 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 East 36th Ave., Room 308
Anchorage, Alaska 99508

Dear Mr. Goll,

Please include these comments for the public record as you evaluate the proposed oil and gas Lease Sales 191 & 199.

001

I am the owner/operator of the Good Karma Inn which lies approximately 5.5 miles east of the city center. I have invested a great deal of energy and monies here because it is quite simply one of the most beautiful places on the face of the Earth. I am very proud and fortunate to be a part of the eco-tourism trend here and my business is predicated on a pristine environment including clean waters and healthy fisheries. I would like the MMS to survey the considerable number of businesses here on the lower Kenai Peninsula who cater to tourism. Our local Chamber of Commerce can attest to the number of folks engaged in these various hospitality related endeavors. This area's incomparable beauty attests to its current highest and best use. I am always delighted to witness and hear of my guests' absolute joy at our eye-filling vistas. Isn't there an economic value to pristine, virginal, awe-inspiring beauty? It is your duty to assess this economic worth. Most certainly the industrialization of lower Cook Inlet is inconsistent with the economic, social, aesthetic and cultural values of the Cook Inlet region's residents and its astonished visitors.

My understanding of the draft EIS is that there is no appreciable net gain in energy jobs from these proposed leases. What about my job and the jobs of untold others which could be lost if and when a large spill or incremental pollution occurs? Please give us a full analysis of the impacts to tourism and to all recreational resources in your final EIS.

002

I would like your agency to explain a glaring discrepancy between these 2 proposed leases and Lease Sale 149 of 7 years ago. Today your EIS predicts a 19% chance of a major spill, yet in 1996 that figure was 72%..... What has changed? In fact, the current area compared to Lease Sale 149 is approximately 25% larger. What if the risk is far closer to 72% than to the 19% ??????

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There are many sensitive habitats in your proposed leasing area. Overall these waters have been called the "biological engine" of the Gulf of Alaska. Fishermen refer to this region as having a "live bottom". Here lies the lifeblood that's so vital to our healthy fisheries. How will you quantify this value? What about our halibut, salmon, shrimp, sole, cod, octopus, crab, scallops, and herring? Are our fisheries so pristine that we could stand a little pollution?

004

I trust that you will consider the continued pressure on Cook Inlet's Beluga whales. Their population has crashed 50% in the last 4 years. Please remember that Stellar Sea Lions are an endangered species. Their pup production has declined over 70% over the past 30 years in lower Cook Inlet. You must, of course, examine potential effects on seals, otters,

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seabirds, shorebirds, seaducks, and coastal brown bears.

Kindly note that lower Cook Inlet borders Katmai National Park, Lake Clark National Park, McNeil River Bear Sanctuary, Alaska Maritime National Wildlife Refuge, and McNeil River Game Sanctuary.

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The proposed leasing area lies within the most seismically active region in North America. This area is also subject to extremely rough seas, severe storms, and some of the strongest tides near our continent.

For all of these reasons, I oppose oil & gas Lease Sales 191 & 199. I emphatically support the "no-project alternative".

If you choose to ignore the sincere wishes of the overwhelming majority of citizens who live in the lower Cook Inlet communities, the accompanying map is my proposed alternative.

007

In addition to Deferral Alternatives III and IV, please delete all areas that I have shaded in orange. My reasoning should be obvious from the above text.

Furthermore, these lease sales should be subject to and contingent upon "ZERO DISCHARGES". While it may not seem politically expedient to do so, MMS has the authority to make this Finding because of all of the aforementioned facts and scenarios. Please do not shirk your responsibility in this matter and shift it to the EPA..

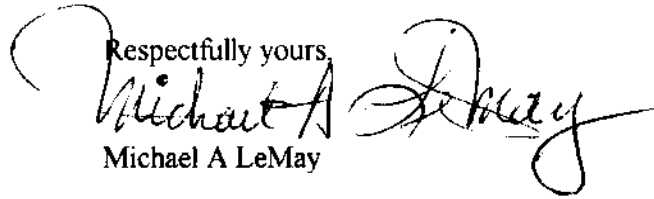
008

MMS must also commit to tug escorts for laden tankers wherever found in Cook Inlet.

009

Perhaps the highest and best use for the oil and gas in lower Cook Inlet is simply to leave it alone for now. However technologically advanced we seem today, present day methods may seem brutish in 50 years. Must our generation drill and burn all of this available resource in our lifetime ????? What about America's future needs? I trust that our grandchildren will be far wiser than their short-sighted grandparents.

Kindly acknowledge and address all of these recorded comments

Respectfully yours,

Michael A LeMay

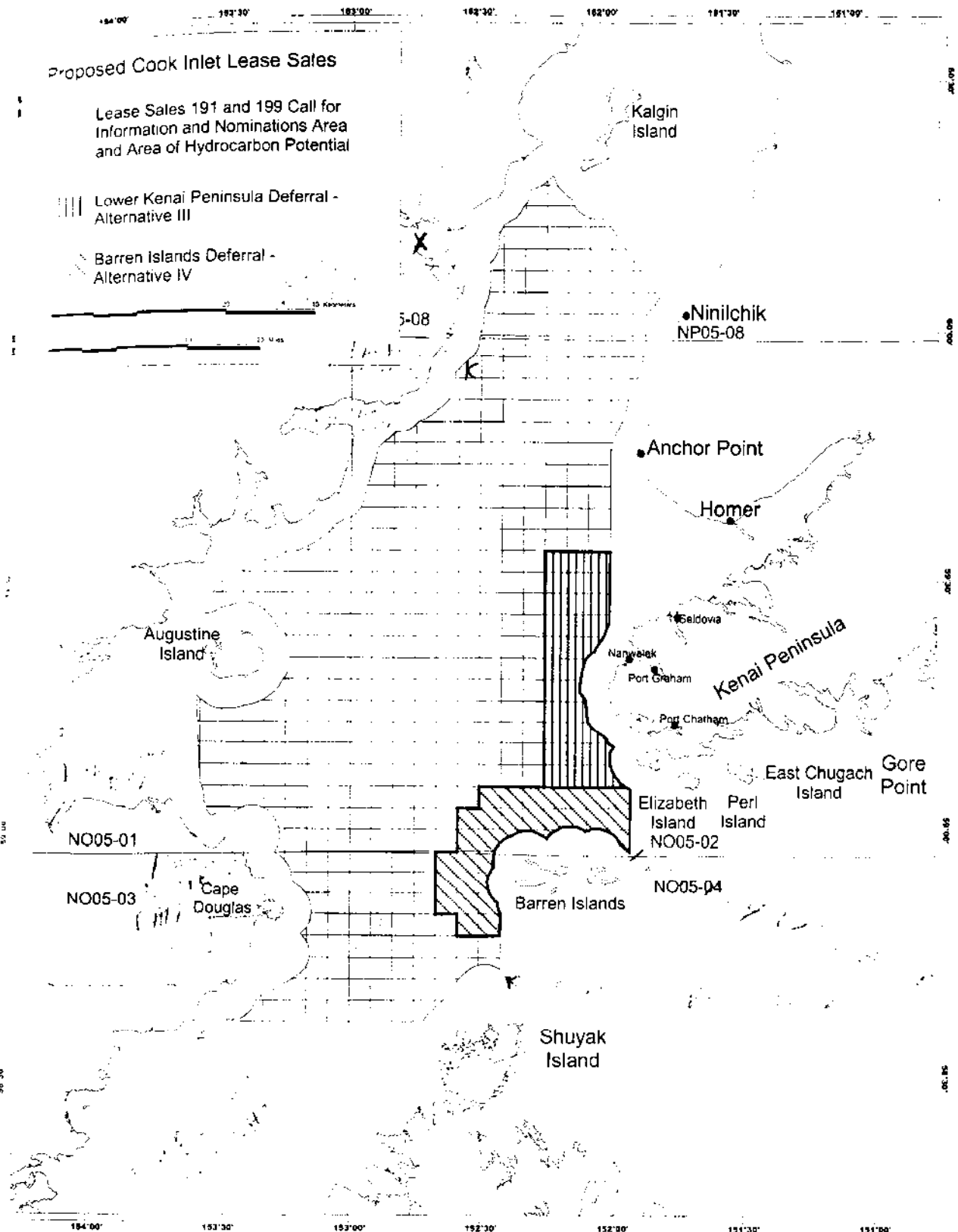


Figure I.A-1 Area of Proposed Cook Inlet OCS Lease Sales 191 and 199

AREAS to be additionally deleted



Mr. Michael Le May
57480 Clover Ave
Homer AK 99603

MMS Response to Comment Document 047

Response 047-001.

There certainly are economic, social, aesthetic, and cultural values to scenic beauty. The point remains that Sales 191 and 199 are not expected to infringe on either the beautiful scenery or the vibrant tourism associated with Homer. Please see also Responses 009-014 and 009-027.

Response 047-002.

Please see Responses 009-027 and 009-028.

Response 047-003.

This also responds to Comment 054-002.

Oil-spill estimates are not based on the size of the area considered for leasing. Oil-spill estimates are based on the assumed resource volume. As explained in Appendix B, production is assumed to be 140 million barrels of oil and 190 billion cubic feet of natural gas developed from a single platform with a 25-mile pipeline to shore to carry production to processing plants. This scenario assumes less production and less infrastructure than the scenario used in the Sale 149 analysis.

Response 047-004.

The MMS has taken measures to minimize the routine impacts of offshore oil and gas industry operations on live bottom communities in the lower Cook Inlet with Stipulation 2. Neither the offshore oil and gas industry nor the MMS are responsible for harvesting halibut, salmon, shrimp, sole, cod, octopus, crabs, scallops, and herring. While relatively small areas of the seafloor would be modified by construction activities, routine offshore oil and gas activities are not expected to result in measurable impacts to these resources, as might other user groups of Cook Inlet. Oil spills are accidental events, however, and the MMS and the offshore oil and gas industry have gone to great lengths to minimize the potential for oil spills. A large or very large oil spill, however, is of grave concern to all, which is why considerable measures are taken in advance in the preparation to respond to such an oil spill, as specified in the region's OSCP (a copy can be viewed at: <http://www.akrrt.org/plans.shtml>).

Response 047-005.

An analysis of potential effects on beluga whales, sea lions, harbor seals, sea otters, birds, and coastal brown bears is included in the EIS in Sections IV.B.1.f - Endangered and Threatened Species, IV.B.1.g - Marine and Coastal Birds, IV.B.1.h - Nondangered Marine Mammals, and IV.B.1.i - Terrestrial Mammals.

Please see also Responses 010-007, 016-005, 019-001, 029-005, 057-003, 057-004, 057-005, and 057-006.

Additionally, the MMS has concluded formal consultation under Section 7 of the ESA with the NMFS regarding the potential adverse effects of the Proposed Action on Steller sea lions, their designated critical habitat, and other endangered species. Their final Biological Opinion, which includes their analyses of potential adverse effects and the potential for the proposed action to jeopardize the existence of any listed species and to adversely modify or destroy designated critical habitat, is included in Appendix C.

Response 0047-006.

Because the Proposed Action is relative to the lower Cook Inlet, virtually all of the analyses contained in the document relate to the lower and upper Cook Inlet. References to this body of water are scattered through the document, and the geographical relationship of the Cook Inlet to the parks mentioned are indicated.

Response 047-007.

Please see Response 026-003.

Response 047-008.

Please see Response 008-003.

Response 047-009.

Please see Response 007-045.

John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Ave. Rm. 308
Anchorage, Alaska 99508-4363

RECEIVED

FEB 10 2003

5 February 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

RE: Comments on Oil Drilling and Draft Environmental Impact Statement
Oil Lease Sales 191 and 199 in Lower Cook Inlet

Dear sir

As a 30 year resident of Alaska, a 20-year veteran commercial fisherman, a working marine mammal biologist, and from extensive personal experience with the *Exxon Valdez* oil spill, I would like to make the following comments. From the standpoint of biological diversity and the commercial and subsistence value of the Lower Cook inlet, as well as the potential loss of the growing tourist/retirement economy in Homer and the potential loss of the subsistence values in the area, **leasing in any area south of Anchor Point is unwise and unwarranted at this time.** A 20% chance of an oil spill is still too much risk considering the potential damages to other aspects of the Lower Inlet economy. Too much risk is likely to produce no significant new jobs (as stated by the Draft EIS). Although many residents on the Upper Kenai Peninsula may support this drilling proposal, they have nothing to lose, as their oil-based economy would not suffer in the event of a spill, or from the negative visual impacts of oil development. **I ask that you delay these lease sales as proposed indefinitely at this time.**

Specific comments from the perspective of marine mammal biology:

You play down or neglect to fully acknowledge the effects of the *Exxon Valdez* oil spill on cetaceans as it appears in the literature and recent reports. The argument that the known deaths of killer whales following the EVOS were circumstantial has all but been discarded over the many years of pre-spill and continuing research. The mortality spike following the spill remains unprecedented, non repeated, nor described in any other populations in the North Pacific despite years of monitoring. Check the most recently released reports from the *Exxon Valdez* oil spill Trustee Council

001

You neglect to fully acknowledge the extremely hazardous nature of petroleum vapors to marine mammals that might be caught in fresh oil. Immediate death and irreparable lung damage is the effect that is most often associated with hydrocarbon vapors as stated by Geraci and St. Aubin, 1982 and others), but you do not give it the weight it deserves.

002

Your assessment of humpback and fin whale populations in the lower inlet is sadly lacking. The south end of the lease area can be a very important feeding area for the animals in particular years. You talk about marine mammal populations being dispersed and less susceptible to oil spill effects, yet large numbers of fin and humpback whales can be quite concentrated adjacent or within the lease zone. You state that humpbacks were not affected by the EVOS... but you fail to mention this is solely because nearly all of

003

these animals were still on their Hawaiian wintering grounds. The path of the oil traversed known important humpback feeding grounds and could have been disastrous for these whales if it had occurred later in the year. You need to contact US Fish and Wildlife Service biologists in Homer and the National Marine Mammal Laboratory /Seattle to get a more detailed impression of humpback distribution in the lower inlet/Barren Islands.

003

To put the endangered western Steller sea lions at additional risk from the possibility of a spill at rookeries such as Sugarloaf is foolish considering the millions of dollars being spent to remedy the sea lion decline.

004

Belugas were at one time common in the lower inlet; their lack there now is due to over harvest in the Upper Inlet. If they do recover, they will again populate the lower Inlet in substantial numbers. As a depleted species we should also consider that perhaps an additional threat to the few animals that do remain in the lower Inlet is not warranted.

005

In regard the EIS portrayal of the need to drill here reduce transport of foreign oil in tankers: It seems incredibly presumptuous and hypocritical for a federal administration that has made little or no effort to improve vehicle fuel standards nor push for other means of energy conservation, to propose more offshore drilling and its associated risks as a means for reducing the chance of oil spills by foreign import tankers. Energy conservation would reduce oil imports by foreign tankers with absolutely zero risk of an oil spill. Let's visit that option first.

Sincerely,



Craig Matkin
60920 MaryAllen Ave
Homer, Alaska 99603

cc: Governor Frank Murkowski
Secretary Gale Norton

MMS Response to Comment Document 048

Response 048-001.

We disagree that we “play down or neglect to fully acknowledge the effects of the” *Exxon Valdez* oil spill on cetaceans. We consider the impacts of oil spills, including effects from the *Exxon Valdez* spill, on cetaceans in many sections and also refer the commenter to Response 048-002.

Regarding the issue of the certainty of a causal link between the disappearance of killer whales in the AB pod and the *Exxon Valdez* oil spill, St. Aubin and Geraci (1994), in their chapter summarizing and presenting conclusions about the impacts of oil on marine mammals, refer to

...the hotly debated issue of whether seven missing killer whales had succumbed to oil or had even been in the vicinity at the time of the spill.... The association, however, remains circumstantial: no animals were seen in distress, the missing whales had last been sighted 6 months before the spill, and no carcasses were found for pathologic or toxicologic studies.

There also is an alternate explanation that the whales may have been shot by longline fishermen, as was documented in years before the oil spill and reported in Dahlheim and Matkin (1994). “The apparent mortality of the 14 missing whales is complicated by the past history of the...pod’s interactions with the...longline fishery.... In 1985, we received reports of fishing crews shooting at killer whales to frighten whales.... Subsequent photographic data...suggested the presence of bullet wounds on 10 whales; 5 more whales had possible bullet wounds. Five of the 10 whales with certain wounds have not been seen since and are assumed dead” (Dahlheim and Matkin, 1994:167). These authors concluded that “...it is possible that some proportion of the 14 whales missing after EVOS could have been shot...,” but they concluded it was unlikely. However, they also reported no direct information showing a causal link between the disappearance of either the first seven whales and the later loss of the additional six whales to the *Exxon Valdez* spill. They state: “The loss of the six additional whales during the 1990 season...is more difficult to explain from oil effects, but might have been associated with residual effects or other indirect effects....” Dahlheim and Matkin (1994:170) concluded that: “The cause(s) for 14 killer whales missing from the AB pod is unknown.” There is no new information that directly links the disappearance of any of these whales to the spill. Barring new information from the period directly before or during the spill that establishes a more direct link between the whale’s disappearance and the *Exxon Valdez* spill, this issue cannot be resolved. Thus, we believe that the summary statements by St. Aubin and Geraci (1994) and by Dahlheim and Matkin (1994) remain as accurate now as they were in 1994.

Additionally, after receiving this comment, we contacted *Exxon Valdez* Oil Spill Trustee Council staff to determine whether there was additional information that more conclusively established a link between the disappearance of the killer whales and the spill. By classifying the orcas as an injured species, the Trustee Council is making an acknowledgement that the disappearance of the whales could have been caused by the *Exxon Valdez* spill. This is based on the fact that there was exposure of the pod to oil (at least some members of the pod were observed swimming in slicks), and some individuals disappeared from the pod. However, the Trustee Council has not concluded that there is a certain causal link between the disappearance of the killer whales and the spill. Additionally, the Trustee Council agrees that there are alternate hypotheses about the cause(s) of disappearances of these whales. Trustee scientific staff agree with the conclusion that the cause of disappearance of the killer whales from the AB pod following the *Exxon Valdez* oil spill will never be known (Mundy, 2003, pers. commun.).

Lastly, we refer the commenter to the Trustee Council’s most recent *Summary of Injured Resources* for killer whales at: http://www.oilspill.state.ak.us/facts/status_orca.html. There, the Trustee Council states the following:

The original link between the AB pod losses and the oil spill was largely circumstantial, although the pod was observed surfacing in an Exxon Valdez oil slick following the spill in 1989. The rate of disappearance and likely mortality of killer whales in this well-studied pod far exceeded rates observed for other pods in British Columbia and Puget Sound over the last 30 years, and in the northern Gulf of Alaska over the last 18 years. Another possible cause for the disappearance of

the whales in the AB pod was the shooting of killer whales due to conflicts with long-line fisheries prior to the oil spill. Although the original shootings may not have immediately resulted in death for some animals, it is possible the injuries weakened them over time and contributed to premature mortality. In this way it is possible that the effects from the conflicts in the 1980s were still apparent in the 1990s.

Despite the aforementioned uncertainty about the impact of the *Exxon Valdez* oil spill on cetaceans, in our analyses we consider the possibility that the disappearance of these whales, and even the postspill mortality of the gray whales, could have been due to the spill. We then take the perspective that other cetaceans that are in the path of fresh oil from a very large spill could be killed. After consideration of the population distribution of the cetaceans that potentially could be so exposed to a very large spill, we consider the potential population-level ramifications if this were to occur. Thus, in contrast to the commenter's viewpoint about the tone of our analyses, we believe that our analyses err on the side of assuming an effect could occur to cetacean species that are threatened, endangered, or candidates under the ESA, should these types of animals be present in an area when a large or very large spill occurred.

Response 048-002.

We disagree that we have failed to fully acknowledge the extremely hazardous nature of vapors from freshly spilled oil or given "it the weight it deserves." Background information, analysis, and discussion of potential effects of oil spills on marine mammals that are listed as either threatened or endangered or as candidates under the ESA are given in Sections IV.B.1.f(2), IV.B.1.f(4), V.C.5.f(3), and especially in IV.F.3.f. Regarding the general statements made by the commenter, we refer you specifically to Section IV.F.3.f(2)(b).

The assessment (acknowledgement) of the potential effects of oil (petroleum) vapor inhalation on cetaceans is located in Section IV.B.1.h(3)(b)2)b) - Effects of Inhalation. We acknowledge that these vapors would be harmful to the whales. However, the whales are very likely to avoid continued exposure to toxic vapors, as Geraci and St Aubin (1982) mentioned in their report on potential effects of oil and gas on cetaceans. Only whales that may be trapped in a small ice lead covered with oil are likely to inhale enough toxic vapors to cause serious health effects (Geraci and St Aubin, 1982). Such a scenario is very unlikely to occur in Cook Inlet, where ice cover and open water continuously change with the tides.

Response 048-003.

We do not believe there is sufficient information available to support the statement from the commenter that the reason that humpback whales were not affected by the *Exxon Valdez* oil spill "...is *solely*" (italics added) "because nearly all of these animals were still on their Hawaiian wintering grounds" when the spill occurred. While the timing of the *Exxon Valdez* spill certainly lessened the potential for acute impact from the spill on this species, it can never be known what the impact would have been had the whales been present in concentrations similar to those typical in the summer. von Zeigesar, Miller, and Dalheim (1994) reported that: "Even though most of the oil had drifted out of PWS before the peak in humpback...abundance..." they "...may have been exposed to residual oil..." They cited the following "potential impacts" (presumably reasons for undertaking the study, which presumably would not have occurred had there been the consensus that the whales could not be affected due to timing issues): displacement from important feeding areas, reduction in prey, or possibly physiological impacts resulting in reproductive failure or mortality. It is not clear that large numbers of humpbacks would have remained in oiled areas, had they been present. It is not known what impacts they would have suffered had they been in the region when the vast majority of the spilled oil was present. We discuss the uncertainty regarding the potential effects of exposure to fresh crude on large cetaceans following large marine oil spills. We point out that while certain components of fresh crude oil are known to be quite hazardous to many species of mammals, many of the types of adverse effects that have been documented for other species could not, or are unlikely to be, detected in exposed cetaceans, due to the difficulties in studying them. We refer the commenter to Sections IV.B.1.f(2), IV.B.1.f(4)(a), IV.B.1.f(4)(c)1), IV.B.3.a(1), IV.B.4.a(1), and IV.F.3.f(2)(b) for our summary and analysis of this issue.

Throughout the period of development of our EIS and, in one instance, following the receipt of comments, we have been in contact with numerous cetacean biologists and other scientists (including, but not limited to, S. Moore, S. Mizroch, D. Zweifelhofer, J. Waite, K. Stafford, B. Mahoney, C. Field, and C. Field) from

organizations such as the National Marine Mammal Laboratory, NMFS's protected resources offices, the Kodiak National Wildlife Refuge, the Kachemak Bay National Estuarine Research Reserve, and other relevant offices. Many of these individuals provided us with unpublished data, reports, unpublished and published manuscripts, and other information. Regarding humpbacks and fin whales specifically, we received excellent cooperation from both S. Mizroch and J. Waite, both of whom made available unpublished information, manuscripts, and data related to the use of the proposed sale area and/or adjacent areas by these two species. We also received comments from NMFS on the draft EIS (please see Comment Document 001-031). We have modified our conclusions about potential impacts to humpback whales in the region of the Barren Islands to indicate that larger groups of humpbacks could be impacted, if a large spill occurred in the Barren Islands during the summer months when humpbacks are feeding there. Lastly, we note that we initiated, consulted with, and have recently completed consultation with NMFS under Section 7 of the ESA. The NMFS has written their Biological Opinion under Section 7 of the ESA on the potential for activities associated with the proposed Cook Inlet sales to have adverse effects on and to jeopardize the continued existence of species listed as threatened and endangered under the ESA, including humpback whales. We include this Biological Opinion in Appendix C. We have incorporated all data available to MMS from the National Marine Mammal Laboratory in our summaries and analyses.

Response 048-004.

We share concern about the current endangered and threatened status of the western and eastern populations of Steller sea lions, respectively. The depth and tone of our synthesis of information and of our analyses of potential effects reflects this concern. We refer the commenter to Sections III.B.4.b(8)(a), IV.B.1.f, IV.B.3, IV.B.4, IV.C.4, IV.D.6, IV.E.4, IV.F.3.f, and V.C.5.f for this information. We also recently have concluded consultation with the NMFS under Section 7 of the ESA. The NMFS has written their Biological Opinion under Section 7 of the ESA of the potential for activities associated with the proposed Cook Inlet sales to have adverse effects on, to jeopardize the continued existence of, and to destroy or adversely modify the critical habitat of, Steller sea lions and other species listed under the ESA. We include this Biological Opinion in Appendix C.

Response 048-005.

Please see Responses 016-005 and 019-001.

P. O. Box 957
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February 10, 2003
FAX: (907)235-5597

John Goll
Regional Director
MMS Alaska OCS Region
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RECEIVED
FEB 10 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

FAX: (907)271-6805

Dear Mr. Goll:

As 35 year resident of Alaska, I strongly urge you to withdraw Lease Sale 191 and 199 for Lower Cook Inlet. While I recognize the Federal Government's desire to develop resources and increase revenues, this sale has the potential for extremely negative, even catastrophic, impacts in several respects.

One of the best protections Alaska can have is diversification of its economic base. Currently the lower Cook Inlet, and Homer in particular have developed an economy based on tourism and fishing (both charter and commercial) and a growing oyster mariculture industry.. Development of oil platforms in the area could greatly damage these currently viable industries.

001

- The tourists who come to Homer are attracted by its spectacular scenic beauty, the wildlife, exceptional charter fishing, kayaking, hiking and enjoyment of relatively unspoiled natural beauty. They will not find the sight of oil platforms and the accompanying industrialization an attraction. As one charter operator stated, his customers often are so taken by the beauty of Kachemak Bay and Lower Cook Inlet that they are thrilled with the opportunity to just be out there even if they never catch a fish. Upper Cook Inlet, where oil platforms currently exist, does not possess the same attractions.

002

- Many people are choosing Homer as a retirement location. They bring income and resources without diluting the jobs for others who need them. Their primary reason for choosing Homer is its attractiveness as a community and its tremendous natural beauty and accessibility to relatively undisturbed wildlife and recreation.

003

- Oil is not a people intensive industry. The few jobs generated by oil will displace the many jobs generated by tourism, fisheries, aquaculture and people who value this community for its great natural beauty.

004

Lower Cook Inlet and Kachemak Bay are exceptional areas. recognized worldwide for their beauty and importance in supporting a diverse marine and wildlife population. As evidence, there are numerous public lands set aside for protection in this area—the Katmai National Park, Lake Clark National Park, The Alaska Maritime National Wildlife Refuge, McNeil River Bear

Sanctuary, Kachemak Bay State Park, Kachemak Bay Critical Habitat Areas, . The Alaska Oceans and Islands Visitors Center is currently being constructed in Homer, thanks to the efforts of the Alaska Congressional Delegation. The development of oil and gas leases in Lower Cook Inlet is inimicable to the survival of these natural wonders. There are places for oil development that are not "jewels of nature".

- Adding additional oil platforms to lower Cook Inlet will unacceptably increase the environmental risk and could result in the destruction of animals, fish and all the industries so completely related to their presence. During the early summer following the Exxon Valdez oil spill I was fishing for Dungeness Crab along the Katmai Coast on the west side of Shelikof Strait. Oil from the spill inundated that area and crabbing became no longer viable there. An oil spill on Lower Cook Inlet and Shelikof Strait, areas subject to severe weather and tidal patterns not to mention 5 active volcanoes, would severely affect animals, birds, fish, and the tourist economy developed in the area. The Kodiak Island, Lake and Peninsula and Cook Inlet Fisheries would all be affected. Given the history of settlement with Exxon of Oil Spill court awards, I have no confidence that the oil industry has the best interests of local residents or the State at heart. The damage from the Exxon Valdez oil spill still is evident..

There are many more reasons for concern regarding the proposed lease sale. I strongly urge you to heed the testimony of Homer residents and withdraw Cook Inlet Gas Lease Sales 191 & 199. Your actions in preserving this exceptionally unique and beautiful area will be much appreciated.

Sincerely,

Catherine McCarthy
Catherine McCarthy

MMS Response to Comment Document 049**Response 049-001.**

Please see Response 009-028.

Response 049-002.

Please see Response 009-014.

Response 049-003.

Please see Response 009-028.

Response 049-004.

The proposed sale is not expected to create more than about 300 jobs, with many of them filled by Kenai residents. The draft EIS acknowledged (on pages IV-139 and 140) that some limited population growth might occur because of immigrants seeking employment in the oil industry. However, it is expected that the limited potential influx will have little or no impact on existing sociocultural patterns.

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FEB 11 2003

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February 10, 2003
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REGIONAL DIRECTOR, ALASKA OCS
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ANCHORAGE, ALASKA

John Goll, Regional Director
MMS Alaska OCS Region
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FAX: (907) 271-6805

Dear Mr. Goll:

I attended the Homer community meeting at the High School on 1-23-03. I empathized with you and your group facing what might be termed a hostile audience. You did well in keeping the tone civil, it could have been otherwise.

Firstly, as a Homer resident since 1997, an Alaskan since 1987, a hard rock exploration geologist since 1970, I can find no logical reason to allow lease sales 191 and 199. It is too great a risk for too little gain. Nothing has happened to make it safer since 1996 when the area lease was cancelled. It is still true that the great majority of people living in the affected area remain concerned about this sale area because of the unique resource values, the potential spill risk and the overwhelming opposition to the sale from Alaskans who live in the affected area."(Gov. Tony Knowles 1996).

Secondly, the areal scope of these lease sales is in close proximity to the Border Range Fault which extends from northern Kodiak to Seldovia and into Kachemak Bay. The existence of this major structural lineament is not mentioned in the E.I.S. A major tectonic shift, similar to the Denali Fault in 2002, could cause significant submarine landslides, which could raise havoc with any oil drilling platform or submerged pipeline. It is a total unknown factor if volcanic activity would be a precursor or an aftermath to a tectonic event. Volcanism is a very real and well-documented event in the Cook Inlet region, eg. Mt Douglas, Saint Augustine, Mt Iliamna, Mt Redoubt and Mt Spurr. What would be the impact of such an event on an operating oil or gas well, or even a capped one on the ocean floor?

Thirdly, on February 7, 2003, Unocal announced it was going to close its oil platform in upper Cook Inlet because it was no longer profitable. How can that be with oil prices above \$30.00 per barrel? If it is unprofitable now why waste money and risk a 1 in 5 chance of a major spill on lease sale 191 and 199? Why place production and profit ahead of the safety of the critical habitat area encompassed in the proposed lease sales?

Fourthly, why should anyone trust an oil industry to act responsibly in this critical area if that same industry fosters the corporate behavior of the Exxon Corporation i.e. to not pay its' court ordered settlement from the 1989 Exxon Valdez oil spill. Such a payoff could generate funds for harnessing wind power and other alternative energy sources.

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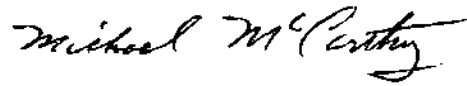
D-050

Finally, what is the logic of leasing an area, namely the Barren Islands area, for oil and gas exploration when the current and storm action are so great that the best technology employed by the U.S. Coast Guard and the National Oceanographic and Atmospheric Administration cannot maintain a navigation aid on site because of the hostile environment. The risk of a spill incident here is far greater than the 1 in 5 quoted in the E.I.S.

004

Please consider this plea to withdraw lease sales 191 and 199. Thank you for your consideration in this most serious matter.

Sincerely,



Michael McCarthy

MMS Response to Comment Document 050

Responses 050-001 and 050-002.

The Border Ranges Fault is Mesozoic to Tertiary (approximately 70 million years) in age and is not an active fault. Also the Bruin Bay Fault along the western part of the Inlet is an ancient inactive fault zone with no major movement since the Oligocene, 30 million years ago.

The seafloor of Cook Inlet does not have significantly steep slopes that would become unstable; this might only happen at the shelf edge in the Gulf of Alaska.

Unless sited directly over the tectonic offset-fault rupture, platforms would not be affected by an earthquake. These structures must be built to withstand anticipated structural loads as defined in 30 CFR 250 Subpart I. Subpart I also provides for an independent third-party platform-verification process. Geologic hazards, including subsurface faults, are identified before a well is drilled or a platform installed. An active fault beneath a proposed drilling platform would be identified and avoided. A tsunami caused by an earthquake would not affect an offshore platform, because the wave height in water depths associated with the sale area would be low.

A volcanic eruption from Mount Augustine (worst-case scenario) could have an effect on a drilling platform in several ways. (1) Ash fall could affect electrical generation, machinery, and human health. (2) A large-scale debris flow from the flanks of the volcano could enter the sea and cause a tsunami, and the basal avalanche of blocks and boulders may extend as far as 5 kilometers from the shoreline. (3) If a structure were located within 5-10 kilometers of the volcano and the volcano had a catastrophic lateral-blast eruption (like Mount St. Helens), the rig structure could be damaged or destroyed.

In the first case, depending on the volume of ash, operations could continue but personnel would have to be diligent about changing air filters on machinery, wearing personal protective gear, and monitoring the eruption and anticipated volcanic activity. If the ash volume is too great or predicted to be too much for these measures, the rig would be shut in and evacuated or, if it is a mobile unit, moved off site. In the second case, all personnel would be evacuated and the rig shut in or a floating rig moved offsite. In the third, the worst-case scenario, the rig would be evacuated, operations shut down, and the well shut in and possibly plugged and abandoned. Exploration wells could be shut in and the hole plugged. Development wells all have subsea valves that automatically would shut in the wells. If there were enough time, these wells also could be plugged. Because the safety valves are subsea, they would not be affected by volcanic debris. Also in the worst case, subsea pipelines at risk also would be shut down.

A volcanic eruption, especially of Mt. Augustine, could cause either a massive debris flow extending over water that deposits large blocks of debris some distance from the shoreline, or a lateral blast that could throw large pieces of debris several kilometers. This could damage a subsea pipeline if it was within 5-10 kilometers of the shore and exposed on the seafloor. A tsunami would not have a significant effect on a submarine pipeline except possibly as it nears the shoreline.

Response 050-003.

Regarding UNOCAL's announcement to abandon the Dillon platform despite current high oil prices, it must be acknowledged that all oil fields have a life cycle that ends with abandonment. The Dillon platform was installed in 1966 on the Middle Ground Shoal field, and production began the following year. As of 1990, approximately 95% of the oil and gas reserves in the field were depleted and, in 1992, the Dillon platform was temporarily shut in. Partly due to higher oil and gas prices, the platform was restarted and continued to produce until the present. After 35 years of production, income from slow-flowing wells does not offset costs for safely maintaining the facility. This prompted the operator to permanently shut down the Dillon platform. Other oil and gas platforms are likely to be shut down over the next decade for the same reasons. Installing new platforms on discoveries in the Cook Inlet will help to replace petroleum reserves that supply the energy and fuel needs for the economy of Southcentral Alaska. The economic costs and environmental risks of importing oil and gas to feed local markets are likely to be higher than safely regulating new production operations in the Cook Inlet.

Response 050-004.

Alternative IV, the Barren Islands Deferral, considers the effects of deferring tracts around the area from leasing. Section III.A of the EIS examines the general and dominant physical, oceanographic, and meteorological conditions in the area. Section IV.A.4 and Appendix A present the basis for our oil-spill estimates. Because OCS facilities must be constructed to withstand the environmental conditions, the spill rate for the area around the Barren Islands would be the same for other locations in the proposed sale area.

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FEB 4 2003

2-3-03

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear MMS,

In regard to the oil lease sales that will be occurring in the Cook Inlet, this is my opinion.

I don't want another oil spill or anything like it. Every time I gather subsistence foods I worry about the safety in eating it. Subsistence is a very strong part of our culture. At the same time I don't want the devastation of what another oil spill would do to our people.

The lease sales will happen and when they do I want to hear from Gov. Norton, Governor Markowski and the oil companies that they will insure that every precaution will be taken to protect our subsistence foods, our spirituality, our people, our lifestyle.

I want to hear the above dignitaries asking our village for input, to include us in the decision making. And then to honestly listen and act.

I would like to hear that we will be given funding to conduct our own

toxin testing on subsistence foods
so that we have peace of mind.
I want to hear this nation, this state,
start talking and acting upon alternative
energy sources. We have the 2nd highest
tides in the world, right here in the
Cook Inlet, lets start harnessing it.

I want 0% discharge into the Inlet.

I want to hear that President Bush,
Governor Murkowski and the oil companies
care about us!

Sincerely



Deborah McAllen

Port Graham

MMS Response to Comment Document 051

Response 051-001

Please see Response 009-024 regarding the Secretary of the Interior.

Regarding Governor Murkowski; that is a matter of State-Tribal relations. Please see the Millennium Agreement, which was signed by then Governor Knowles for guidelines regarding State-Tribal Government-to-Government relations.

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FEB 12 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Michael S. O'Meara
P.O. Box 361
Homer, Alaska 99603

February 11, 2003

John Goll, Regional Director
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Anchorage, AK 99508-4363

Dear John,

I enjoyed meeting you and your staff at the January 23 DEIS Hearings for Proposed Lower Cook Inlet Oil and Gas Sales 191 and 199 in Homer. Starting as we did, with some personal background on yourselves, did seem to soften the mood of the crowd even though most of the folks oppose leasing in the Lower Cook Inlet. Please add my following comments in opposition to OCS Sales 191 and 199 to the official hearing record. I'll send a hard copy by snail mail.

Having reviewed pertinent parts of the DEIS for Proposed Oil and Gas Lease Sales 191 and 199, I'm writing in support of Alternative II, No Lease Sale. I've lived adjacent to Lower Cook Inlet waters for 27 years and have become intimately familiar with the area's physical features, climate, biological richness, scenic beauty, peoples, and economy. In spite of the judgments expressed by MMS in the DEIS, I am firmly convinced that oil and gas development in the lower inlet would prove destructive to the environment, people, and economy in both the short and long term. I would also remind you that the communities of Homer, Seldovia, Port Graham and Nanwalek, those most likely to be effected by the proposed sale, have expressed overwhelming opposition. One could write a very lengthy document in support of withdrawing this proposed sale but I will limit myself to a few points.

Exclusion Zones

In the event that you decide to move ahead with the proposed lease sales, I suggest that Alternative III, Lower Kenai Peninsula Deferral, and Alternative IV, Barren islands Deferral, be combined and adopted. At the same time I would urge you to form a cooperative group representing legitimate, local environmental interests, commercial fishermen, subsistence users, sport fishermen, the visitor industry, biological resource managers, and others to help define additional sensitive areas to be excluded. There are many places within the proposed sale area that merit exclusion, either due to their sensitivity or because of their proximity to other vulnerable locations. A complete list of exclusion zones thus developed should be included as part of the FEIS.

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Single Scenario Impact Assessment

The D.E.I.S. is deficient because it only examines potential impacts from a single scenario – one field of 140 million gallons of oil and 190 billion cubic feet of natural gas; one production platform; one, 25-mile pipeline. There is no way to assure that exploration will not lead to much greater development. I seriously doubt the MMS would refuse to allow a much higher level of development to take place in the event that industry interest proved higher than expected and

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significant finds resulted. Additional scenarios should be added to the FEIS to reflect the full range of possibilities.

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Exploration and Production Discharges

The D.E.I.S. is insufficient in its discussion of discharges because it fails to stipulate limits, instead relying on **assumptions** of EPA action. There is no assurance that any restrictions beyond those now imposed for Upper Cook Inlet will, in reality, be applied.

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IV.B.1.a(3)(b) and (3)(c):

“...are expected to inject these drilling fluids...”

“...produced waters are expected to be injected...”

It may not be the intent but it certainly appears that MMS is involved here in a strategy to see no significant discharge restrictions, beyond those presently in place in Upper Cook Inlet, applied to potential activities in Lower Cook Inlet. Those of us with experience know that EPA is easily cowed by the power of the petroleum industry and is unlikely to apply a higher standard once leases are sold. It is my understanding that the MMS does have the regulatory authority to impose zero discharge requirements as a stipulation of the leases. If you choose to proceed with this ill-conceived proposal to sell leases in Lower Cook Inlet, you need to do so.

Sociocultural Impact Assessment

The DEIS is deficient in its evaluation of potential impacts to communities and the local economy. Statements in Section IV.B.1.m(1) that “the action would not introduce qualitatively new activities to the area” and that “Analysis identified no effects from routine operations...” are insupportable. There is no history of oil or natural gas production in Lower Cook Inlet or on the Lower Kenai Peninsula. And Lower Peninsula communities have already been effected, simply by the proposal to sell Lower Inlet leases. Last year a small group of Anchor Point speculators joined forces with the Kenai Peninsula Borough Mayor to hatch a scheme to develop a harbor. A major impetus was to lure oil support vessels and other activities associated with exploration and development to Anchor Point. Had it succeeded, the scheme would have burdened some 2,720 taxpayers over a 128 square mile area with a significant, added tax burden. In the hope of “cashing in” on a perceived oil and gas boom, the Anchor River Inn recently built a dormitory-style addition to house petroleum workers. And land speculation appears to be on the rise once again in the area.

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There has also been escalation in the animosity felt between people in the Central Peninsula communities and Kachemak Bay area communities. Central Peninsula communities, especially Kenai, Soldotna, and Nikiski have been heavily dependent on the oil and gas industry for many years. They are essentially “company towns” and many people there doubt they can continue to exist without new oil and gas development. Their values and interests resemble those of people from industrialized areas throughout the nation. Kachemak Bay communities have never shown an interest in industrialization and people here openly rebel against the idea of depending on any single element of the economy for their survival. You know all this, of course, but may not

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realize how this most recent MMS proposal has widened the long-standing gap between these two areas. For the first time in my 27 years on the Peninsula, I'm hearing very serious suggestions from both sides that it may be time to form a separate Southern Kenai Peninsula Borough. Regardless of how one might feel about such a prospect or whether or not it ever happens, this escalation constitutes a significant effect as a result of the proposed sale.

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All this simply serves to illustrate how incomplete the DEIS analysis of sociocultural effects actually is. The FEIS needs to consider how this proposal has already started to change communities and what is likely to happen in the event of a sale, exploration, and possible production of oil and gas in Lower Cook Inlet.

Economic Benefits Questionable

The MMS asserts that the sale is aimed at finding natural gas and serving the local market. This looks an awful lot like a ruse to dupe gas-hungry locals into getting behind your proposal. In reality, there is no way to determine either petroleum industry intent or what may be discovered as a result of exploration. Oil and gas marketing decisions are beyond the purview of the MMS or any federal or state agency. Industry characteristically makes marketing decisions based upon national and international strategy. There is no assurance that anything produced in Lower Cook Inlet will find its way to local consumers.

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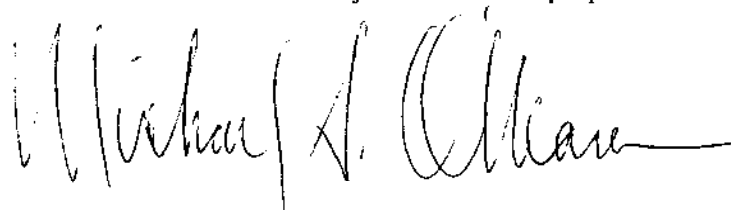
No Significant Impact

There is no scientific basis for evaluation of the significance of possible impacts. Without question, there is a substantial and growing body of scientific data for the proposed sale area. Unfortunately, it's still not adequate to tell use much about the fate of pollutants from existing development in the Upper Inlet and there is certainly no comprehensive understanding of regional ecosystem dynamics. In spite of all the research cited in the DEIS, we all know that determination of significance has nothing at all to do with the science. As voluminous as it is, it still can't justify risking the environment, people, and economy of the region. On the contrary, much of the science you quote provides every reason for a prudent person to assume that oil and gas development is too risky for Lower Cook Inlet. Clearly, determining the significance of potential impacts from proposed OCS Sales 191 and 199 will be a political decision. Someone dependent on harvesting much of their food from the region's waters is likely to assess significance quite differently than a bureaucrat in an Anchorage or Washington DC office.

In the end, this whole issue is a matter of power. As potential victims of public policy the people you will put at risk by selling oil and gas leases in Lower Cook Inlet can only ask that you show some sense of concern and humanity in determining our futures. You have the power to destroy us for the benefit of a few multinational corporations and there is little we can do in our own defense. Please come down on the side of reason an justice - cancel proposed OCS Sales 191 and 199.

Sincerely,

Michael S. O'Meara



MMS Response to Comment Document 052**Response 052-001.**

Please see Response 009-040.

Response 052-002.

Please see Response 007-003 regarding the derivation of the estimate production scenario and “high-case” scenario.

Response 052-003.

Please see Response 008-003.

Response 052-004.

This comment also responds to Comment 113-003.

The point is well taken that any industrial undertaking will have potential effects at primary, secondary, and tertiary levels of concern. When the textual analysis anticipates “no effects from routine operations,” it is referring to significant measurable changes in primary socioeconomic indicators such as demographic trends, direct employment, commercial fishing, subsistence harvests, tourist and recreational activities, and all the other concerns explored throughout the EIS. The phrase does not mean to deny that a wide variety of unpredictable and uncontrollable ripple effects might be set in motion. Change and speculation on change is the existential condition of modernity that occurs independently of the oil industry. We will never have data sufficient to meet all information needs or to dispel all potential anxieties, and it is beyond the scope of an EIS to gauge and mitigate all derivative impacts.

Response 052-005.

Please see Response 052-004. It also is worth noting that political fragmentation typically derives from multiple causes over long-term horizons.

Response 052-006.

Please see Response 009-034.

February 4, 2003

Minerals Management Service
949 East 36th Ave.
Room 308
Anchorage, AK 99509

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FEB 10 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear Friends:

I am deeply concerned about the proposed lower Cook Inlet oil lease sales for two main reasons:


--After many years of observing policymaking in natural resources development and management, and the plainly visible impacts of resource extraction, I am convinced we do not have a real and credible methodology for measuring cumulative impacts. Until we do, I believe the precautionary principle should be applied. Thus we should err on the side of NOT developing new oil and gas fields, especially in areas as ecologically sensitive and climatologically dynamic as lower Cook Inlet.

--Our system for evaluating and setting priorities and weighing risks in resource extraction don't truly provide an authentic option of NOT developing some areas, for whatever reason - ecological, economic, aesthetic, spiritual. To the extent the non-development option is given any credence at all, it is not sufficiently integrated with other policymaking for resource management and development to insure a rigorous and objective review. Thus, MMS goes about leasing because it has a mandate to do so, but there is little if any real reference to the priorities of other agencies, to any other aspect of the public interest. In other words, MMS can say it is in the public interest to lease, but the "public interest" is a large notion indeed, extremely complex and multi-dimensional. I don't believe the system currently in place for MMS to evaluate sale options is sufficiently rigorous, objective or informed to fulfill either the leasing laws or NEPA.

I should add that as time has gone by, we have actually been investing less rather than more in the kind of scientific baseline and monitoring studies and research to have any idea what we are doing with resource development.

MMS has the discretion to put off leasing in lower Cook Inlet until these concerns are addressed. I urge you to exercise this discretion.

Sincerely,


Jeff Richardson
Box 1393
Homer, Alaska 99603

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MMS Response to Comment Document 053

Response 053-001.

We do have a “credible” methodology for measuring cumulative effects. Because cumulative effects must include the past and future events, there will always be speculation as to the precision of determining these effects. Past events can more readily be discussed with respect to recovery as measured by the present status of the population. Estimates of future events (15-20 years), especially oil and gas exploration and production activity, always have been more difficult. The MMS always assumed the effects of considerably more exploration and development from future events than actually has occurred. Where appropriate or where uncertainty exists with respect to forecasting effects on important populations, monitoring programs have been used to provide a real-time assessment of effects.

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FEB 11 2003

Barbara s. Seaman
PO Box 2843
Homer, Alaska 99603

February 8, 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Ave., Rm 308
Anchorage, AK 99508-4363

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear Mr. Goll,

Since 1979, I have lived and worked and raised a family in the Kachemak Bay area. Although I usually refrain from involving myself in controversial community issues, once again, I feel it important to write of my strong opposition to the upcoming proposed lease sales that will significantly impact Cook Inlet. As I understand it, MMS is proposing to lease in this area again, through Lease Sale 191, scheduled for 2004, and Lease Sale 199 scheduled for 2006. I further understand that MMS has added back tracts in sensitive areas including the mouth of Kachemak Bay, and Kennedy and Stevenson Entrances near the Barren Islands.

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The size of this sale is larger than the last proposed lease area, however, MMS has determined that there will be fewer impacts, apparently due to lower production. This plan will only employ 210 direct workers at its peak, but will result in a 19% chance of a large oil spill. With less oversight of operations and spill prevention, MMS has downgraded the risk of a large spill from 72% to 19%, without justification. I'm not willing to see our commercial and recreational fisheries, our tourism industry, our quality of life, or our subsistence food sources run the risk of a 1 in 5 chance of a major oil spill in Lower Cook Inlet, should development ensue. Its far too big a price to pay for so little oil.

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No leasing should begin until MMS has deferred development in key sensitive habitats, including near Kachemak Bay, Kennedy entrance, Stevenson entrance, the Barren Islands, Kamishak Bay, Tuxedni Bay, and the coasts of Katmai and Lake Clark National Park. These areas should be permanently excluded from future leasing activities. This region is nationally known and recognized for its rich biological diversity, which is the sustainable base for a large part of our local economy. In addition, tug escorts for laden tankers in the proposed leasing areas must be mandatory. And, studies should take place designed specifically to understand whether ongoing and future oil pollution is harming or will harm the biological resources of Cook Inlet.

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Industry has demonstrated time and time again that once oil hits the water, it cannot be effectively cleaned-up. We've seen it firsthand. Please take heed of this community's voice -- together, we are saying again that oil development in southern Cook Inlet's waters does not provide enough economic benefit to sustain our community or enhance our quality of life. Thank you for this opportunity for the community to more clearly define its character.

Sincerely,


Barbara S. Seaman

cc. Governor Frank Murkowski
Office of the Governor
Box 110001 1849 C Street
Juneau, Alaska 99811-0001

cc. Secretary Gale A Norton
Department of the Interior
Washington, D.C. 20240

MMS Response to Comment Document 054**Response 054-001.**

Section I.A outlines the process for identifying the proposed sale area. The area covered by this EIS is similar to areas examined in past MMS Cook Inlet EIS's. As noted in Section I.C, requests to consider areas for deferral were received in the scoping process and incorporated into Alternatives III and IV, which examine the effects of deferring tracts at the mouth of Kachemak Bay and Lower Kenai Peninsula and the Barren Islands, respectively. The EIS studies potential effects of leasing on the resources of the Cook Inlet area. The extent of the area ultimately offered for lease will be determined by the Secretary of the Interior in the Proposed Notice of Sale and the Final Notice of Sale.

Response 054-002.

Please see Response 047-003.

Response 054-003.

Please see Response 026-003.

Response 054-004.

Please see Response 007-045.

Response 054-005.

Please see Response 009-040.

In so far as I see it, there are three very basic things wrong with this latest Cook Inlet Planning Area. **First** of all it has one major flaw which should be corrected before anything else takes place. According to my information, this is the only off-shore area in the whole nation where it is legal to inject drilling spoils back into the earth. This in one of the richest fishing regions in the nation -and the most subject to serious damage from any spillage or leakage. Therefore, Prohibition of this is the first thing that should be done before any further planning is done along these lines. Then **secondly**, the area being opened up for leasing all at one time is far, far too large. There is basically no infrastructure in place anywhere within this enormous area to begin with, so that it is very unlikely that there will be any interest in the lower portions at this time. Why not open the upper section first and see what can be developed in this smaller but more accessible area first. This could be an area roughly from Anchor Point diagonally down almost to the Augustine Is. area. Any gas or oil development is going to have to come ashore somewhere North of Anchor Point anyway. Nothing else can be very practical. **Finally**, the two alternate areas off the mouth of Kachemak Bay and the Native holdings off of Seldovia and Port Graham should be pulled from any offering as far too risky, Indeed, the area off the mouth of Kachemak Bay should continue up to near Anchor Point. None of this area should be leased as it is far too valuable as habitat and for fishing. My advice is back to the drawing board, folks! What little oil may be out in this vast region is in no great frantic need to be developed at this time. If anything, it grows more valuable left in place for the future when our means for extracting it become more proficient and possibly less poluting.

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JAN 23 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

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Richard W. Tyler

VII-285



Mr. Richard W. Tyler
P.O. Box 1281
Homer, AK 99603

MMS Response to Comment Document 055**Response 055-001.**

This also responds to Comment 068-001.

Reinjection of drilling spoils back into the earth is a widely used method in many offshore areas of the United States, including Cook Inlet. Depending on conditions, reinjection may be environmentally preferred to discharging the spoils into the marine environment or burying them in a landfill.

Response 055-002.

Please see Response 007-047.

Response 055-003.

Please see Response 044-001.

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JAN 23 2003



Document 056

United Cook Inlet Drift Association

REGIONAL DIRECTOR, ALASKA OCS 53961 K-Beach Rd, Ste E, Soldotna, AK 99669 ~ (907) 260-9436 ~ fax (907) 260-9438
Minerals Management Service
ANCHORAGE, ALASKA

Outer Continental Shelf Lease Sales in Cook Inlet

Thank you for this opportunity to put into the public record the opinion and position of the United Cook Inlet Drift Association (UCIDA) regarding the proposed lease sales numbers 191 & 199.

On behalf of the UCIDA Board of Directors, we support lease sales 191 & 199. This support is in recognition that for over thirty years we as fishermen have successfully commercially fished while many oil and gas developments have occurred both on land and in the waters of Upper Cook Inlet. This support for the oil and gas industry is relatively new and will continue providing we have no loss of fishing area or fishing time as a result of lease sales 191 & 199.

As you may know the commercial fishing industry in Cook Inlet directly affects the income of over a thousand families. We need to point out that there are important social, family and heritage values involved in commercial fishing. We would like and expect the Minerals Management Service and the successful lessees to create a joint management council to hear and consider our concerns as the exploration and production phases of these projects go forward. These joint management councils are to provide representatives of the commercial fishing industry a forum to participate in the decisions concerning exploration and production practice and procedures as these relate to commercial fishing. Our goal is to ensure that there is no lost fishing time or areas.

UCIDA needs to draw to everyone's attention that we want to constructively participate while at the same time ensure no net loss of habitat or environmental degradation. Unfortunately we, in the commercial fishing industry have had to deal with two rather serious and troublesome events concerning major impacts on our industry i.e. Glacier Bay and the Exxon Valdez.

We look forward to working with the oil and gas industry as these leases move forward. There are many commercial fishermen that are active in the SERVS, CIRCAC and oil spill response programs. These oil spill response programs are necessary and provide valuable training and clean-up capacity.

It is impossible for us to suggest now what we may ask to occur in either the exploration or production phases because those plans are yet to be developed. However, we do ask that a formal structure be put in place so that when plans are being made we can provide input from our industry. That's why we expect some form of a joint management council be created. We look forward to being significantly involved in the exploration and eventual production phases of lease sales 191 & 199.

UCIDA formally supports the five issues identified in the tri borough resolution.

Sincerely,

Handwritten signature of Roland R. Maw.

Roland R. Maw, PhD
UCIDA Executive Director

C: Governor Murkowski

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MMS Response to Comment Document 056

Response 056-001.

Please see Response 027-002.

From: AKEIS
Sent: Wednesday, February 12, 2003 7:45 AM
To:
Subject: Fwv: comments on Lease sale 191 &199



CBD comments on
Cook Inlet 191...

-----Original Message-----

From: Corrie Bosman [mailto:cbosman@biologicaldiversity.org]
Sent: Tuesday, February 11, 2003 3:39 PM
To: AKEIS
Subject: comments on Lease sale 191 &199

Corrie Bosman
Alaska Program
Center for Biological Diversity
Box 6157
Sitka, AK 99835
(907) 747-1463
<<http://www.biologicaldiversity.org>>



protecting endangered species and wild places through science, policy, education, and environmental law

MMS Alaska OCS Region
949 East 36th Avenue, Room 308
Anchorage, AK 99508-4363

February 11, 2003

**Comments on the DEIS for the
Cook Inlet Oil & Gas Lease Sales 191 & 199**

The following comments are submitted on behalf of the Center for Biological Diversity regarding Cook Inlet oil and gas lease sales 191& 199. The Center works to protect endangered species and biological diversity throughout the Pacific coast and in Alaska. The Center is very concerned about oil and gas activity in Cook Inlet and the impacts such development has on the unique wildlife resources and biological integrity of the Inlet ecosystem.

The waters of Cook Inlet are the biological heart of the world-class fisheries of the Gulf of Alaska, and they support a diverse range of fish and wildlife species. The Center is very concerned about the short and long-term impacts that an oil spill associated with these lease sales may have on Cook Inlet and its ecological integrity. Our concerns regarding oil spills are not speculative. Cook Inlet is notorious for its rough and icy waters. Winds in lower Cook Inlet can reach hurricane force, creating waves greater than 30 feet. Cook Inlet also has some of the strongest tides and current. Despite all these navigation concerns, Cook Inlet is the only port in the Nation where laden oil tankers go without tug escorts. Lower Cook Inlet is still suffering from the lingering effects of the

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PHONE: (907) 747-1463 • FAX: (907) 747-8873
cbosman@biologicaldiversity.org • <http://www.biologicaldiversity.org>

1989 *Exxon Valdez* oil spill (EVOS). The draft EIS for Lease Sale 191 and 199 considers a 1 in 5 chance of a large oil spill, which could seriously impact commercial fishing, tourism, subsistence, and fish and wildlife, but fails to analyze the cumulative effects of any sizeable spill on resources that are still recovering from the *Exxon Valdez* spill.

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The Center is also very concerned that adequate oil spill response capabilities do not exist in Cook Inlet. The draft EIS estimates that 10-20% of oil spilled in open water can be contained. However, when an oil sheen occurred in Cook Inlet behind the *Chesapeake Trader* in 1999, high winds and freezing spray prevented any response. All the oil spilled from the *Trader* was dispersed by wind and waves, and none of it was cleaned up. The DEIS estimates that spills occurring on land or solid ice will be cleaned up almost completely. However, the January 1999 Swanson River oil spill, which occurred on land during winter, was not contained until three weeks after it was identified, and cleanup took six months (and benzene contamination still remains).

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A large oil spill resulting from offshore oil and gas development in lower Cook Inlet will seriously impact wildlife populations. Depending on its size, timing and location, one oil spill could kill hundreds to possibly thousands of birds; result in high mortality and chronic impacts on sea otters; and taint food sources for coastal brown bears, whales, seals and sea lions, not to mention subsistence users.

The DEIS fails to adequately analyze the impacts and take a "hard-look" at the potential risks from Lease Sales 191 & 199 on the following resources as required by NEPA:

Beluga whale: The Center has been active in the efforts to gain protections for the Cook Inlet beluga whale populations. This geographically isolated, genetically distinct population has experienced as much as a 50% population decline in the past four years. For this reason, the Cook Inlet beluga population has been listed as a state species of concern. Best estimates suggest 350 or fewer whales remain in Cook Inlet. We believe that oil development has the potential to extirpate the Cook Inlet beluga whale population.

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Harbor Seals and Steller Sea Lions: The Cook Inlet is home to several important harbor seal rookeries. Like the beluga, due to a significant decline in populations in parts of their Alaska range this species is a state species of concern. Steller sea lions are an endangered species that breed in and near lower Cook Inlet. The Steller sea lion population has dropped dramatically over the past thirty years, with pup production declining 73% in lower Cook Inlet. The Center is very concerned that oil and gas development may pose undue risks to this endangered population.

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Sea otters: The Center is also very concerned about the risks posed from increased oil and gas development from lease sales 191 and 199 on the thousands of resident sea otters in and near lower Cook Inlet. Sea otters are a keystone species in nearshore habitats.

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Seabirds: The Barron Islands, in lower Cook Inlet, are part of the Alaska Maritime National Wildlife Refuge and home to more than 650,000 nesting seabirds, including rhinoceros and parakeet auklets, horned and tufted puffins, ancient murrelets, common and thick-billed murre, red-faced cormorants, and others. Duck and Chisik Island, which are located in Tuxedni Bay and support 78,000 nesting seabirds, have experienced a concerning decline in seabird productivity.

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Shorebirds: The entire population of Pribilof rock sandpipers over winter in Cook Inlet, making Cook Inlet the northernmost wintering habitat for shorebirds in North America. 20-40% of the western population of western sandpipers and 20% of dunlins stop over in Cook Inlet during the first few weeks of May on their migration to their arctic nesting grounds.

Sea Ducks: Steller's eider, oldsquaw, surf scoter and white-winged scoter are among the sea ducks that are declining in population and that overwinter in Cook Inlet. The Steller's eider is a threatened species under the Endangered Species Act, and overwinters along the Homer bluff north to Ninilchik.

Coastal brown bear: McNeil River State Game Sanctuary, located within the watershed, may have the highest concentration of brown bears in Alaska, where as many as 40 bears

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congregate along the McNeil River Falls at one time to feed on chum salmon. The coastal regions of Lake Clark and Katmai National Parks are also important feeding areas for coastal brown bears.

Commercial Fisheries: The DEIS fails to adequately disclose potential impacts to Cook Inlet’s commercial fisheries, a staple for Alaska’s economy. The document recognizes that a large oil spill (4,600 barrels) in lower Cook Inlet could result in a loss to commercial fisheries of about 22% to 37% per year for 2 years, and it is possible that a fishery could be closed for a whole season, resulting in a 100% loss for that year. Cook Inlet’s commercial fisheries have already seen a steady decline over the years, and an impact such as this could seriously affect the already stressed fisheries.

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Subsistence Resources: The DEIS recognizes that a large oil spill could seriously curtail subsistence practices of harvesting, sharing, and processing resources and threaten pivotal practices of traditional Native culture – practices only now recovering from the impacts and aftermath of the *Exxon Valdez* oil spill. The DEIS fails to adequately consider and disclose the extent of such damage and the long term risks an oil spill and development pose to subsistence resources and users.

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Sportfishing and Tourism: The DEIS estimates that a large oil spill could result in a loss of business in sportfishing of 20% or \$6 million for one year. The DEIS may underestimate the impacts that exploration and development may have on the displacement of sportfishing charters in lower Cook Inlet. Estimates for impacts to other tourism and recreational resources are not given full analysis in the DEIS as required by law.

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Conclusion:

According to the State of Alaska’s best interest finding for the Areawide oil and gas lease sale, Cook Inlet has “low to moderate petroleum potential.” Historically, there has been very little industry interest in oil and gas resources in Lower Cook Inlet. Interest has dropped from 87 tracts leased in 1977, to 13 tracts leased in 1981, to 2 tracts leased in 1997. From 1978 to 1985, 13 exploratory wells were drilled in lower Cook Inlet, all wells were plugged and abandoned with no discoveries announced. Since oil and gas development in relation to these lease sales has not been proven viable and the risks of such development on fish and wildlife in the Inlet are very high, the Center supports the no action alternative at this time.

Please keep us updated about this and any other oil and gas activity or development in Cook Inlet.

Sincerely,

Corrie Bosman
Alaska Program
Center for Biological Diversity

MMS Response to Comment Document 057

Response 057-001.

Recovery of populations from the 1989 *Exxon Valdez* spill is nearly complete. The likelihood of a large spill occurring and contacting the same populations prior to recovery is extremely remote. In the event of such an occurrence, the projected effect would extend the recovery period for the population. The more likely smaller spills have been considered, but this event is offset by the more unlikely event of a smaller spill contacting the same population prior to recovery.

Response 057-002.

As exploration activities in the Cook Inlet increase, it is up to the individual companies to ensure that sufficient oil-spill-response capacity exists. Each operator is required to submit an OSCP to the MMS discussing how they would respond to a release in weather conditions present in their area. The MMS evaluates these plans to verify that sufficient spill-response coverage is available. In the event of extreme weather conditions that prevent on-water recovery, oil-spill responders would deploy tracking buoys to maintain location of the spill and then respond when conditions permit.

Response 057-003.

We share concerns about the current depleted status of the Cook Inlet stock of beluga whales. However, we disagree that we have failed to adequately analyze the impacts and to take a “hard look” at the potential risks from Sales 191 and 199 on the Cook Inlet stock of beluga whales. We have summarized available information about the population status, distribution, abundance, ecology, threats, and other relevant types of information about the Cook Inlet stock of beluga whale in Section III.B.4.b(1)(e). We agree that the best available information indicates that the abundance of the Cook Inlet stock of beluga whales recently has declined substantially. Available information (see the section for references) suggest that this decline primarily was due to a high and unsustainable take by Alaskan Native hunters, but that there also may be other factors significantly contributing to the decline. The NMFS summarized that municipal, industrial, and recreational activities occurring in the upper inlet has modified habitat for the species and are individually or cumulatively of concern to the NMFS. As you likely are aware, the hunt by Alaskan Natives is now being regulated and limited. The conclusions from our analyses are found in various parts of Section IV.B.1.f and IV.F.3.f. Cumulative effects are discussed in Section V.C.5.f. We have discussed the potential for noise, disturbance, discharges, small oil spills, large oil spills, very large oil spills, and other potential factors to have adverse effects on this stock, and we refer the commenter to the aforementioned sections. We conclude that there could be some adverse effects to this stock from activities associated with the Proposed Action. Because of this, we have engaged in informal consultation under Section 7 of the ESA with the NMFS on this stock, despite the fact that they currently are not listed under the ESA. However, we do not believe it is likely that oil development would extirpate the Cook Inlet beluga whale population or even that it is likely there will be significant population-level effects from activities associated with the Proposed Action on this stock of whales. Even in the event of a very large spill, existing information, including the fate of this population stock following previous large spills that originated in, or entered, Cook Inlet, does not support the contention that there would be extirpation of this stock of whales. Because this stock is not listed under the ESA, it is not covered in NMFS’s Biological Opinion for this Proposed Action. However, in their written comments to the MMS (see Section VII containing comments) on our analysis of the potential effects of the Proposed Action on Cook Inlet beluga whales, the NMFS wrote: “We appreciate MMS’s attention to this important Cook Inlet species. The discussion and analysis within the DEIS are very thorough and present an accurate accounting of the stock and the effects of hunting and resource development on this depleted marine mammal.”

Response 057-004.

The MMS recognizes that there are several harbor seal haulout sites (rookeries) in Cook Inlet (see Map 16). The MMS also recognizes that harbor seal populations in the western Gulf of Alaska and the Kodiak area have declined in the past 30 years, and that harbor seals are a species of concern (see Section III.B.6.a).

We share concerns about the substantial decline of the western population of Steller sea lions. Both the depth and tone of our analyses reflect this concern. We do not agree that we have failed to adequately analyze the impacts and to take a “hard look” at the potential risks from Sales 191 and 199 on Steller sea lions. We have summarized available information about the population status, distribution, abundance, ecology, threats, and other relevant types of information about Steller sea lions in Section III.B.4.b(8). The results of our analyses of potential adverse effects of activities associated with proposed Cook Inlet Sales 191 and 199 are found in various parts of sections IV.B.1.f, IV.B.3.a, IV.B.4.a, IV.C.4, IV.D.6, IV.E.4, IV.F.3.f, and V.C.5.f. We have not received comments providing substantial new information about potential adverse effects from the proposed action on either potentially affected population stock of this species. Relatedly, we have recently concluded formal consultation with the NMFS under Section 7(a)(2) of the ESA. The NMFS Biological Opinion regarding the potential for the Proposed Action to jeopardize the existence of threatened and endangered species or to destroy or adversely modify designated critical habitat for species under their jurisdiction, including Steller sea lions and their critical habitat, is presented in Appendix C.

Response 057-005.

We do not agree that we have failed to adequately analyze the impacts and to take a “hard look” at the potential risks from Sales 191 and 199 on the designated western Alaska population stock of sea otters. We share concerns about the apparent decline of this population stock. Because of this concern and because (a) there was no existing recent document providing in-depth discussion and critical evaluation of available information on this stock, (b) of the demonstrated high level of vulnerability of sea otters to oil spills, and (c) of FWS comments to the MMS on the draft 5-year leasing EIS, we have provided detailed background information and have undertaken extensive analysis of the potential impacts of activities associated with the proposed action on this species, and particularly on the western population stock, which currently is a candidate species for listing under the ESA. We have summarized available information about the population status, distribution, abundance, ecology, threats, and other relevant types of information about the western Alaska population of sea otters in Section III.B.4.b(9). The results of our analyses of potential adverse effects of activities associated with the proposed Sales 191 and 199 are found in various parts of Sections IV.B.1.f, IV.B.3.a, IV.B.4.a, IV.C.4, IV.D.6, IV.E.4, IV.F.3.f, and V.C.5.f. We have not received comments providing substantial new information that indicates that we have underestimated the potential for the proposed action to have adverse effects on the western population stock of this species. We also recently have concluded consultation with the FWS under Section 7(a)(2) of the ESA regarding potential adverse effects of activities associated with the Proposed Action on threatened and endangered species under their jurisdiction. Although the western Alaska population of sea otters is not yet listed as threatened or endangered under the ESA, because of our concern over potential adverse effects on this population we included them in our ESA consultations with the FWS. We refer the commenter to the memoranda from the FWS to the MMS of February 18 and March 21, 2003 (in Appendix C), for the FWS conclusions regarding the seriousness of potential adverse effects on this species. These comments, and the comments from the FWS on our draft EIS (see Section VII), suggest that there is very little use of the proposed sale area by sea otters from the western Alaska population stock. If this information, which appears to be based on a recent aerial survey, accurately reflects typical year-round distributions of sea otters in Cook Inlet, then our analyses of the potential for sea otters from this stock to be adversely affected by routine operations associated with oil and gas exploration, development, and production may be overestimated. Because sea otter distribution can change greatly both seasonally and over time, we have not greatly modified our conclusions regarding the potential for this population stock to be affected by such activities. However, we have added clarifying statements to the text to incorporate the new information from the FWS.

Response 057-006.

The MMS believes that the analysis of potential impacts to marine and coastal birds presented in Section IV.B.g.1 is at the appropriate level of detail for a lease-sale EIS. However, additional information on shorebirds and other marine and coastal birds have been added to the section where appropriate in the final EIS. Please note that potential impacts to the Steller's eider from the Proposed Action are discussed in Sections IV.B.1.f(3)(g)4) and IV.B.1.f(4)(d)2).

We do not agree that we have failed to adequately analyze the impacts and to take a "hard look" at the potential risks from Sales 191 and 199 on the Alaska breeding population of Steller's eiders. We have summarized available information about the population status, distribution, abundance, ecology, threats, and other relevant types of information about the Alaska breeding population of Steller's eiders in Section III.B.4.c(1). This information includes unpublished information on abundance supplied by leading FWS Steller's eiders biologists and by local ADF&G biologists. The results of our analyses of potential adverse effects of activities associated with proposed Cook Inlet Sales 191 and 199 on Steller's eider are found in various parts of sections IV.B.1.f, IV.B.3.a, IV.B.4.a, IV.C.4, IV.D.6, IV.E.4, IV.F.3.f, and V.C.5.f. We have not received comments providing substantial new information that indicates that we have substantially underestimated the potential for the proposed action to have adverse effects on this species. Because of revised guidance from the FWS regarding the percentage of Steller's eider observed in wintering flocks that should be assumed to be from the American breeding population (see Comment 111-005 and our response to that comment), we have revised calculations about numbers of the ESA-listed population that could be adversely affected. However, due to uncertainties in breeding-population estimates, uncertainty about the actual breeding-population origin of individuals comprising wintering flocks, and uncertainty about the degree of population separation of Steller's eider that breed in eastern Russia versus those that breed in Alaska, we caution against overinterpretation of the significance of this adjustment. We recently have concluded consultation with the FWS under Section 7(a)(2) of the ESA regarding potential adverse effects of activities associated with the proposed action on threatened and endangered species under their jurisdiction. We refer the commenter to the memoranda from FWS to MMS of February 18, 2003, and March 21, 2003 (in Appendix C), for the conclusions of the FWS regarding the seriousness of potential adverse effects on this species.

Response 057-007.

The EIS recognizes that concentrations of brown bears occur along the coast of Cook Inlet and could be affected by the assumed 1,500- or 4,600-barrel spill. See Section IV.B.1.i(3)(f)2)b) - Effects on Brown Bears.

Response 057-008.

As amended in the EIS, some fisheries resources in Cook Inlet and adjacent waters are stressed and in decline. However, there is no evidence suggesting that offshore oil and gas activities in the region are responsible for these declines. The *Exxon Valdez* oil spill contributed to population declines; however, the spill was not the result of offshore oil and gas activities that the MMS has regulatory authority over. It was a tanker spill and under the jurisdiction of the U.S. Coast Guard. Declining fisheries resources in the region most likely are stressed further by continued overfishing pressure. While a large oil spill could adversely impact subpopulations of fisheries resources in Cook Inlet and adjacent waters, it is not likely to result in an overall decline in an overall resource population inhabiting the central Gulf of Alaska. In the event of a large spill, a closure is anticipated. The EIS states such closures might result in significant impacts to commercial fisheries. However, with such closures, we also anticipate resource overescapements that would compensate for eggs and juveniles lost as a result of the oil spill. As noted in the EIS, only some stocks or subpopulations could be impacted by a large oil spill, but not all stocks or subpopulations occurring in Cook Inlet. However, we do anticipate that a very large spill would cause a decline to some fisheries-resource populations in the region, and that these populations would require multiple generations to recover to their former status.

Response 057-009.

The MMS does not believe that it failed to adequately analyze impacts or take a “hard look” at the potential impacts to subsistence resources from Sales 191 and 199. We believe that the discussion in Section IV.B.1.1 - Effects on Subsistence-Harvest Patterns, especially subsection IV.B.1.1(a) - Summary of Impacts on Subsistence Resources and Harvest Patterns, adequately considers the extent of potential damage to subsistence resources and practices in the event of an oil spill. Results from studies conducted by the State of Alaska’s Department of Fish and Game (Fall and Utermohle, 1999; Fall et al., 2001) to assess effects from the *Exxon Valdez* spill are summarized and cited. See also Section IV.B.1.p - Effects on Environmental Justice, where the conclusion states that spill effects on subsistence resources and practices would represent disproportionate, high adverse effects on Alaskan Natives. For long-term effects, see the cumulative effects sections for Subsistence-Harvest Patterns (V.C.5.l) and Environmental Justice (V.C.5.p).

Response 057-010.

We believe that the analysis of potential effects on sport fishing in Section IV.B.1.o is adequate with respect to NEPA requirements, and that the estimation of the level of potential effects is reasonably accurate.

Response 057-011.

Please see Response 009-028.

From: AKEIS
Sent: Wednesday, February 12, 2003 9:07
To:
Subject: FW: 191 Comments

-----Original Message-----

From: SeeMoreDZ@aol.com [mailto:SeeMoreDZ@aol.com]
Sent: Tuesday, February 11, 2003 9:23 PM
To: AKEIS
Subject: 191 Comments

Please let me know that you receive this.

February 11, 2003

Dear Mr. Goll,

I am opposed to oil and gas lease sale 191. With regard to the sale and its DEIS, I would like to offer the following:

1. Cook Inlet is among the most volcanically and seismically active regions in the world. There is no place in the lease area safe from the effects of a terrestrial or marine related event associated with Mt. Augustine, Redoubt or Spur. The DEIS does not address the implications of an oil spill associated with a volcanic event nor does it address the subsequent effects of ash mixing with the oil. I would like to see this information discussed.

001

To put the volcanism in context, I would also like to see a discussion of the historical effects of major eruptions including tsunamis generated within waters associated near the lease area. There should also be a discussion of engineering technology capable of withstanding a worse case eruption and subsequent events. This should include platform structures, pipeline, docking facilities, etc.

002

What provisions does the MMS make for a response to a major spill that results from a major eruption-considering the damage to local communities that will already be associated with such eruption-as the community struggles to respond with damage to its normal ability to function due to a major eruption and possible damage from tsunami. what additional resources would need to be redundant in order for a community to respond to a spill at the same time.

003

2. I would like to request discussion about what provisions MMS will provide to assure or reduce the likely hood of discharge violations (air and water) that occur in the upper inlet. It must be assumed that unless current industry monitoring practices are enhanced, there will be discharges in excess of those provided by EPA regulations. What will be the effects of these discharges based on historic levels of regulation violations as applied to proposed drilling and production? This should be discussed. Further, what can or will MMS do to reduce the possibilities of such discharge violations.

004

The final EIS should include discussion of all discharges from anticipated production in Lower Cook Inlet-including both legal and illegal discharges (based on historical records of upper inlet discharge violations).

005

3. Water quality studies performed in Shelekof Straights do not provide a sufficient barometer of damage caused by upper Inlet oil production. A more complete study that includes water sampling in gyre areas as well as a well known variety of filter feeding marine animals throughout the Inlet would provide a more realistic assessment of the impact of increased exploration and production.

006

4. I believe it is erroneous to base large portions of the DEIS on a presumed "low level of industry interest" as stated by MMS representatives during the Homer public hearing on January 23rd, 2003. It is easy to see how the DEIS developed significantly lower spill probability assessments than the OCS Sale 149. However, I believe this is terribly misleading and must be changed in the EIS in order for the public or for the Secretary to make a fair determination about the risks associated with this sale. If industry interest is presumed to be low, then the lease

007

sale size should be reduced to reflect the specific areas. Otherwise, the EIS must provide data on a variety of conditions that might result from the lease sale-from limited through extensive development and exploitation. MMS has no way of know true industry interest during the time of lease offering. An untold number of world events could drive industry interest to be exceedingly high or exceeding low, and it is misleading and unfair for MMS to withhold information from the public. Please provide information in the EIS that includes the possibility of low, medium and high industry participation in the lease sale.

5. The DEIS lacks information and damage assessments on the impacts of brown bears in the lower Inlet as a result of drilling discharges and spills. Areas one eastern shore of lower Cook Inlet support as approximately one brown bear per square mile. The bears in this area depend on razor clams, salmon, and sedges among other foods. The EIS should include a more extensive discussion about the potential impacts on the bears and their food supply. This is vital because of a strong reliance in the health of the bear population and the lower Cook Inlet lands for tourism and wildlife monitoring. Homer businesses have invested several million dollars in tourism related to the lower Inlet bears. This includes hundreds of bear viewing charter flights and boat trips each summer-generating of a million dollars per year to the local economy. Further, my company, SeeMore Wildlife Systems Inc. has provided live video from McNeil River each summer. Our video feeds of the bears are featured on National Geographic, CNN, Discovery, and several other national media outlets. The presence of the bears at the river is directly related to the success of my company's summer operations, and any damage to the bears or their habitat will adversely affect my business-which employs five full time technicians and generates over three quarters of a million dollars each year to our local economy. The EIS must include a discussion of the potential impacts to the brown bears and brown bear habit as well as the affect such damage could have to local area businesses. This information is vital for a proper assessment of the risk of lease sale 191. I strongly urge that the area in Kamishak bay near and surrounding Mt. Augustine be removed from the sale area-as any intentional or unintentional release of harmful substances in these waters will damage valuable wildlife and employment in the lower Peninsula

Thank you for responding to my comments,

Daniel Zatz
3430 Main St.
Homer, AK 99603
February 11, 2003

Dear Mr. Goll,

I am opposed to oil and gas lease sale 191. With regard to the sale and its DEIS, I would like to offer the following:

1. Cook Inlet is among the most volcanically and seismically active regions in the world. There is no place in the lease are safe from the effects of a terrestrial or marine related event associated with Mt. Augustine, Redoubt or Spur. The DEIS does not address the implications of an oil spill associated with a volcanic event nor does it address the subsequent effects of ash mixing with the oil. I would like to see this information discussed.

To put the volcanism in context, I would also like to see a discussion of the historical effects of major eruptions including tsunamis generated within waters associated near the lease area. There should also be a discussion of engineering technology capable of withstanding a worse case eruption and subsequent events. This should include platform structures, pipeline, docking facilities, etc.

What provisions does the MMS make for a response to a major spill that results from a major eruption-considering the damage to local communities that will already be associated with such eruption-as the community struggles to respond with damage to its normal ability to function due to a major eruption and possible damage from tsunami, what additional resources would need to be redundant in order for a community to respond to a spill at the same time.

2. I would like to request discussion about what provisions MMS will provide to assure or reduce the likely hood of discharge violations (air and water) that occur in the upper inlet. It must be assumed that unless current industry monitoring practices are enhanced, there will be discharges in excess of those provided by EPA regulations. What will be the effects of these discharges based on historic levels of regulation violations as applied to proposed drilling and production? This should be discussed. Further, what can or will MMS do to reduce the possibilities of such discharge violations.

The final EIS should include discussion of all discharges from anticipated production in Lower Cook Inlet-including both legal and illegal discharges (based on historical records of upper inlet discharge violations).

3. Water quality studies performed in Shelekof Straights do not provide a sufficient barometer of damage caused by upper Inlet oil production. A more complete study that includes water sampling in gyre areas as well as a well known variety of filter feeding marine animals throughout the Inlet would provide a more realistic assessment of the impact of increased exploration and production.
4. I believe it is erroneous to base large portions of the DEIS on a presumed "low level of industry interest" as stated by MMS representatives during the Homer public hearing on January 23rd, 2003. It is easy to see how the DEIS developed significantly lower spill probability assessments than the OCS Sale 149. However, I believe this is terribly misleading and must be changed in the EIS in order for the public or for the Secretary to make a fair determination about the risks associated with this sale. If industry interest is presumed to be low, then the lease sale size should be reduced to reflect the specific areas. Otherwise, the EIS must provide data on a variety of conditions that might result from the lease sale-from limited through extensive development and exploitation. MMS has no way of know true industry interest during the time of lease offering. An untold number of world events could drive industry interest to be exceedingly high or exceeding low, and it is misleading and unfair for MMS to withhold information from the public. Please provide information in the EIS that includes the possibility of low, medium and high industry participation in the lease sale.
5. The DEIS lacks information and damage assessments on the impacts of brown bears in the lower Inlet as a result of drilling discharges and spills. Areas one eastern shore of lower Cook Inlet support as approximately one brown bear per square mile. The bears in this area depend on razor clams, salmon, and sedges among other foods. The EIS should include a more extensive discussion about the potential impacts on the bears and their food supply. This is vital because of a strong reliance in the health of the bear population and the lower Cook Inlet lands for tourism and wildlife monitoring. Homer businesses have invested several million dollars in tourism related to the lower Inlet bears. This includes hundreds of bear viewing charter flights and boat trips each summer-generating of a million dollars per year to the local economy. Further, my company, SeeMore Wildlife Systems inc. has provided live video from McNeil River each summer. Our video feeds of the bears are featured on National Geographic, CNN, Discovery, and several other national media outlets. The presence of the bears at the river is directly related to the success of my company's summer operations, and any damage to the bears or their habitat will adversely affect my business-which employs five full time technicians and generates over three quarters of a million dollars each year to our local economy. The EIS must include a discussion of the potential impacts to the brown bears and brown bear habit as well as the affect such damage could have to local area businesses. This information is vital for a proper assessment of the risk of lease sale 191. I strongly urge that the area in Kamishak bay near and surrounding Mt. Augustine be removed from the sale area-as any intentional or unintentional release of harmful substances in these waters will damage valuable wildlife and employment in the Lower Peninsula

Thank you for responding to my comments,

Daniel Zatz
3430 Main St.
Homer, AK 99603

MMS Response to Comment Document 058

Responses 058-001, 058-002, and 058-003.

The commenter calls for a discussion detailing the likely consequences of a major volcanic eruption as the cause of an oil spill. We do not analyze spills on a causal basis. The exposure variable is billion barrels of oil produced. Natural hazard events are included in the database we use to calculate the spill rates.

The fate of hydrocarbon contaminants released into OCS waters of Alaska will be controlled by simultaneous physical (for example, circulation, sediment transport and deposition); chemical (oil weathering and oil/suspended particulate matter [SPM] interactions); and biological (microbial) processes (Payne et al., 1984; Atlas et al., 1983). Interactions between spilled oil and SPM, in which volcanic ash would be considered, represent a major potential pathway for the dispersal and deposition of petroleum hydrocarbons in coastal environments.

Oil and SPM interactions occur through two primary mechanisms: (1) oil droplets collide with SPM and (2) molecular sorption of dissolved species. The parameters and/or conditions that might influence the rate of "reaction" between dispersed oil droplets and SPM are numerous; the concentrations of dispersed oil and SPM, size distribution of the oil droplets and SPM, composition of the oil and SPM, and the density of the oil and SPM all would have some effect on the rate of oil droplet/SPM associations and ultimate sedimentation. The solubility of individual hydrocarbon components in seawater also influences rates of molecular sorption of dissolved species onto SPM (Boehm, 1987). However, data from field and laboratory studies suggest that sorption of truly dissolved components is not important to the overall mass balance of an oil spill (Payne, Phillips, and Horn, 1987). Such adsorption, however, may be important for biological considerations. Sorption of oil onto suspended particles depends on the behavior of hydrocarbons and the nature of the particles.

In the EIS, we deal with geologic hazards in a general way only, because we do not know exactly where offshore operations will be. Before any exploration or production activities can begin and before an Application for Permit to Drill is approved, geologic hazards are carefully analyzed for each well or platform. We have several of these hazards analyses and reports from previous wells that add to our database for making hazards determination and mitigation. These well-site hazard reports include detailed analyses of seafloor and underground hazards and any external geological processes (such as volcanic eruptions) that pose a threat to the operations or personnel.

Depending on the proximity of the operations to any of the active volcanoes, especially Mt. Augustine, the EP or DPP and the Application for Permit to Drill for that well must include an assessment of hazards, volcanic- and seismic-activity monitoring, and emergency evacuation and shutdown procedures to account for potential hazards. Various mitigating measures would be developed and made available for implementing to ensure safety of personnel and the environment in case of an eruption. What these measures are depends on the proximity to the potential eruption, the eruption's expected mode, and the eruption's intensity.

If increased seismic activity is detected near a volcano, there will be real-time monitoring and consultation with the MMS and the U.S. Geological Survey's volcano observatory. If an eruption is deemed imminent, crews, according to their plan, will be prepared to protect equipment from ash fall and to evacuate the platform and, if necessary, shut in the well. An oil spill from a shut-in production or injection well(s) is very unlikely, because the well would be equipped with a subsurface safety valve that would close if a leak developed above the valve. Subsea pipelines in danger zones (in a blast area within a few kilometers of a catastrophic eruption, and nearshore where they are susceptible to tsunamis) also would be shut down.

Unless a platform is within the blast zone (approximately 5-10 kilometers) of a volcano that erupts as a lateral blast, the actual eruptive material will consist of ash and possibly lappilli (pea-sized material) and will not cause structure damage. Even if the platform is within the projected blast area, careful monitoring of the volcano will allow timely evacuation and shut down plans to be implemented.

The most likely sources for oil spills as the result of a catastrophic eruption (like a lateral blast) are capsized or grounded ships and vessels and damaged shore facilities that are hit by tsunamis generated by the volcanic material entering the water. In 1883, Mt. Augustine volcano erupted with a large debris flow that reached the ocean at Burr Point along the northern shore of the island. This eruption generated a 6 meter tsunami at Port Graham to the east and destroyed the boat harbor. In Augustine's 1976 and 1986 eruptions, ash caused some operators in the upper Cook Inlet to protect equipment and shut down some operations. In the Mount Spurr eruption of 1991-1992, lahars, or mud flows, threatened the Drift River Tank Farm.

A volcanic eruption from Mt. Augustine (worst-case scenario) could have an effect on a drilling platform in several ways.

(1) Ash fall could affect electrical generation, machinery, and human health. Should this happen, depending on the volume of ash, operations could continue. However, the operator would have to be diligent about changing air filters on machinery, and personnel would have to wear protective gear. In addition, the eruption and anticipated volcanic activity would have to be monitored closely. If the volume of ash is too great or is predicted to be too much for these measures, the rig would be shut in and evacuated or, if it is a mobile unit, moved off site.

(2) A large-scale debris flow from the flanks of the volcano could enter the sea and cause a tsunami, and the basal avalanche of blocks and boulders could extend as far as 5 kilometers from the shoreline. In this scenario, careful monitoring of the volcano would allow all personnel to be evacuated and the rig shut in or, if it is a mobile unit, moved off site, before the eruption.

(3) If a structure is located within 5-10 kilometers of the volcano and it has a catastrophic lateral blast eruption (like Mt. St. Helens), the rig structure could be damaged or destroyed. In this event, careful monitoring of the volcano would allow the rig to be evacuated and operations shut down. The well would be shut in and possibly plugged and abandoned.

Exploration wells could be shut-in and the hole plugged. Development wells all have subsea valves that would automatically shut in the wells. If there were enough time these wells could also be plugged. Since the safety valves are subsea, they would not be affected by volcanic debris. Also in the "worse-case" subsea pipelines at risk would also be shut down.

Response 058-004.

This concern is addressed in Section V.C.5.a of the EIS. In particular, the EIS includes discussions of both historical rates of oil spillage and projected future rates of spillage in Cook Inlet. Note that most noncompliance issues with the prior general NPDES permit in Cook Inlet were primarily with reporting rather than significant discharges. The current NPDES permit has enhanced monitoring requirements and future oil development will edge closer and closer to zero-discharge if not reach that goal, as evidenced by recent NPDES permit for the Osprey platform. One action that MMS has taken in the past in Alaska to reduce the likelihood of discharge violations was develop an Memorandum of Understanding (MOU) with the EPA for MMS inspectors to verify that NPDES monitoring requirements were being met. A similar MOU could be developed for Cook Inlet if considered warranted by the EPA and the MMS.

Air quality discharges are regulated by the EPA and the State of Alaska, not the MMS, and it is the EPA that issues air-emissions-discharge permits (required for the industrial projects). However, it is worth noting that essentially all of the discharge regulatory violations that have occurred in Upper Cook Inlet have been "paperwork" violations; i.e., record-keeping discrepancies, etc., rather than actual discharges violating emissions permits and standards.

It is also true that during MMS inspections of Federal oil and gas facilities, inspectors do note and report to the appropriate agencies any violations that they discover.

Response 058-005.

Please see Response 058-004.

Response 058-006.

The MMS and others have performed the suggested studies, as discussed in Sections III.A.4 and IV.B.1.a and Responses 007-021, 010-001, and 010-042.

Response 058-007.

For the reasonableness of the scenario, please see Response 007-001. For the level of industry interest, please see Response 007-047.

Response 058-008.

The EIS assesses potential impacts on brown bears in lower Cook Inlet from oil spills in Section IV.B.1.i(3)(f)2b) - Effects on Brown Bears. Brown bears are very unlikely to be exposed to any drilling discharges that would occur more than 3 miles offshore at the one drill platform assumed to occur under the Proposal. Potential contaminants in the discharges are very unlikely to contaminate clams or other food sources of brown bears located along the coast of Cook Inlet. The number of brown bears affected by an oil spill that could contact Kamishak Bay is likely to be small (fewer than 10 bears). This loss is not likely to have any effect on the number of brown bears present at the McNeil River during the summer. The bears that frequent the McNeil River come from a broad habitat area on the Alaska Peninsula. The assumed 1,500- or 4,600-barrel spill would contaminate only a small portion of the coastal habitat that these bears use when they are not feeding at the McNeil River. This spill is unlikely to have any effect on the salmon runs at the McNeil River (see Section IV.B.1.d - Effects on Fisheries Resources).

Please see also Response 009-028.

From: AKEIS
Sent: Wednesday, February 12, 2003 8:54
Subject: FW: Comment CI DEIS

-----Original Message-----

From: Tom Lakosh [mailto:lakosh@gci.net]
Sent: Tuesday, February 11, 2003 11:19 PM
To: AKEIS
Subject: Comment CI DEIS

TOM LAKOSH P.O. BOX 100648 ANCHORAGE, AK 99510 Ph/fax 563-7380 lakosh@gci.net

February 11, 2003

To:
John Goll
Regional Director, Minerals Management Service
Anchorage, AK. 99501 **VIA E-Mail** akeis@mms.gov

RE: Public Comment on the **Draft Environmental Impact Statement-Cook Inlet Planning Area, Sales 191 & 199** and Request for Enforcement of Existing Lease Stipulations and ILLs

Dear Mr. Goll:

Would you please accept this public comment on the DEIS for the proposed Cook Inlet Lease Sales. Because my comments focus on the unlawful abrogation of regulatory oversight duties and material misrepresentation by lessees regarding oil spill mitigation, MMS is requested to evaluate lease compliance of existing Alaskan oil production leases in addition to revising the DEIS to conform with applicable law.

001

There are numerous state and federal regulations that mandate oil spill mitigation in a manner appropriate to the anticipated environmental conditions and with utilization of spill response technologies that are best and safest for the intended purpose. Both MMS and the Alaska Department of Environmental Conservation, (DEC), are have long been mandated to research and evaluate spill response technologies. Although the MMS Ohmsett facility has conducted substantial equipment testing and evaluation, DEC has only conducted limited and cursory investigations that are far below the mandated level of inquiry. Neither agency has fully applied their limited findings to evaluate, consistent with law, lessees'/permittees' spill response equipment and methods. This assertion is both a matter of fact and law, (see Alaska Court Case # 3AN 97-2572 CI and S-09619 Lakosh v. DEC). Ohmsett has spent several years developing the MORICE system to allow for spill recovery in ice-bearing waters but MMS has never required its North Slope or Cook Inlet, (CI), lessees to utilize the technology. Ohmsett has performed a comparative analysis of high-speed skimmers in 1996 but MMS has never required the CI response cooperatives to utilize the technology deemed best in the analysis. the JBF DIP 600, despite the ferocious CI tidal currents. Neither agency has properly researched, evaluated or developed technologies to effectively operate in the high seas often experienced in CI. Indeed spill mitigation, consistent with law, demands sufficient response equipment and methods that are appropriate for effective operation in all three of these problematic conditions.

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Existing lessees and lease applicants have an independent duty to submit mitigation plans that comply with applicable state and federal regulations. Although CI cooperatives do have limited fast current skimming capability, (e.g. Hyde Marine Inc. HIB skimmer(s)), there is insufficient high speed

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skimming capacity and there is no ability to respond in high seas or when ice is present. Use of the existing response inventories also presents a substantial safety hazard to responders where they may be compelled to respond in these problematic conditions. Attempts to extricate ice from booming operations is certainly hazardous, particularly if performed during peak currents or in high seas. The vast majority of the response inventory require the maintenance of a one-knot speed relative to the surface current. This limitation allows the spill to spread in length and width, impacting resources along the way and failing to meet the regulatory requirements of containing, controlling and preventing the further spread of the spill. Lessees, lease applicants and permittees cannot therefore represent that they have, or intend to, comply with the applicable leasing and permitting requirements.

Because time is short, I am attaching my comments on approval of the Valdez Marine Terminal oil spill contingency plan below, as many sections are relevant to your investigation and proper revision and resubmission of the instant DEIS.

Sincerely;

x|

Tom Lakosh

TOM LAKOSH P.O. BOX 100648 ANCHORAGE, AK 99510 Ph/fax 563-7380 lakosh@gci.net

February 10, 2003

To:

JPO and all State and Federal Agencies Mandated to Review the VMT Oil Spill Contingency Plan
411 West 4th Avenue
Anchorage, AK. 99501 VIA FACSIMILE 272-0690

RE: Public Comment on the VMT C-plan

Dear JPO and all State and Federal Agencies Mandated to Review the VMT Oil Spill Contingency Plan;

Would you please accept this public comment on the review of the VMT C-plan as a supplement to my prior testimony? The C-plan submitted for approval must be rejected as false and misleading as it

deliberately seeks to evade full satisfaction of the R-O-W Grant^[1], R-O-W Lease^[2] and applicable state laws. Individuals who collude with Alyeska Pipeline Service Company, (APSC), in deliberately perpetuating this false claim may be subject to liability under the False Claims Act, **TITLE 31. MONEY AND FINANCE SUBTITLE III. FINANCIAL MANAGEMENT CHAPTER 37. CLAIMS SUBCHAPTER III. CLAIMS AGAINST THE UNITED STATES GOVERNMENT Section 3729.** The instant C-plan represents a continuing violation of law that has been perpetuated for many years, here to fore.

The above referenced contracts and laws all require that permittee, APSC, is required to protect the environment, and the public and private uses therein, from oil spill damage using their "best efforts", "state-of-the-art technology", "best technology that was available at the time the contingency plan was submitted or renewed", "best available technology", "best practicable technology available", "best practicable engineering technology", "proven new technologies" and "technological breakthroughs". The comments below suggest specific components of the oil spill prevention and response regime that must be evaluated using the above technology and effort quality standards.

Facilities Replacement and Retrofit

The R-O-W Grant and Lease have been renewed for 30 years but the storage tanks and piping were never envisioned to retain their designed integrity for over 55 years. JPO agencies must update the codified minimum engineering standards and require, as part of a conditional plan approval^[3], a comprehensive evaluation of VMT facilities and an orderly replacement schedule of aging tanks and piping that are suffering, or certainly will suffer, degradation beyond the current minimum engineering

standards for integrity. The engineering standards used for designing replacement of facilities/piping must meet the contemporaneous standards at the time of replacement.

Improvement of Spill Containment, Control and Recovery

Spill containment, control and recovery were never properly designed to accommodate the high content of volatile natural gas liquids carried in the oil or the prospect of a catastrophic spill caused by a terrorist attack. These issues are grouped together because they both require retrofit and advanced planning to cope with a potential or actual burning spill and/or a large initial release of oil from multiple tanks or pipes. A terrorist attack, which has been deemed imminent for oil facilities, would seek to cause large breaches in storage tanks and/or pipelines, which would likely be set ablaze by the attack. Augmentation of the Terminal foam and water pressure with shore-side connection to fire tugs would be necessary to control multiple burning oil streams in order to prevent additional spills from structural failure of adjacent tanks/pipes. The current firewater pump system can only supply enough pressure to feed one side of the Terminal at a time and the foam supply is limited.

A large seam failure has been previously deemed to create a large wave that could escape secondary containment and even breach reinforced concrete containment walls. Coastal Japanese communities have developed numerous wave deflection technologies to prevent tsunami damage that must be considered for retrofit between tanks, to prevent multiple tank failures, and near the perimeter of secondary containment structures, to prevent oil escape. Similar wave/current deflection technologies must be considered for steep diversion trenches and for culverts at road crossings and in containment ponds to prevent washout of the culvert or culvert blocking efforts given a sudden large flow of oil. Where the cost of retrofit or upgrade is an issue, the analysis of "practicability" must include the full panoply of the economics of North Slope development and the TAPS across its past and planned operation in addition to the cost of the spill damage the technology would mitigate.

The high vapor content of oil and the potential for burning spills preclude the timely manual operation and construction of dikes and culvert blocking efforts. Planned dikes must be pre-positioned and culverts must have intrinsically safe, automated actuation mechanisms for culvert closure to preclude vapor and fire hazards to personnel. These automated culvert doors must be fire proof and have valved water bypass piping/hose included in the design.

On water "containment" in the vicinity of the VMT is a misnomer given the experience with spills from tankers into the "containment boom" surrounding the tankers at berth. On every occasion tidal currents have entrained virtually all oil under the boom. This boom has been reconfigured to act as deflection boom to an apex and is pre-positioned, upon arrival of the tanker, to allow for timely deflection of the oil and to prevent introduction of ignition sources on response vessels to the potentially high vapor area surrounding the tanker. Similar accommodation must be made for large spills from terminal tanks and piping. JPO has known since at least 1991 that North Sea terminals use pre-positioned, inflated boom that is cabled to offshore buoys for rapid deployment. There are mooring buoys already located around the terminal and additional buoys must be strategically located to rapidly deploy boom using the winches aboard moored response barges/vessels to deflect the oil to the

[4]

barge/vessel where high-capacity, swift current skimmers could recover the oil. These barges/vessels must effectively isolate all onboard ignition sources; use high engine air intake stacks; high and/or cooled engine exhausts with spark suppressors; and provide SCBA equipment to protect personnel from high vapor concentrations. Fire fighting tugs must plan to protect barges/vessels as they retreat from an advancing burning spill or to suppress vapors with the most effective AFFF.

The present system for securing boom to imbedded anchors on the shore at sensitive areas is inappropriate for the seas experienced in most of this area. Only the sturdiest landing craft could make a shore landing in one-meter seas to deploy the deflection boom, severely limiting the timeliness of sensitive area protection in adverse conditions. My experience as a commercial and subsistence set-netter has familiarized me with the technique of using running lines to shore anchors to allow for deployment of nets in adverse conditions. Running lines to offshore buoys must therefore be used to allow for the deployment of boom to shore anchors in rough seas.

Spill Detection and Tracking

I have repeatedly provided DEC with voluminous information regarding spill detection and tracking systems for use in aircraft and on vessels. DEC itself has issued RFAI's to Tanker C-plan Permittees regarding advanced technologies for spill detection, tracking and identification. DEC personnel have apparently deliberately withheld this information from JPO agencies as the record on appeal of the BLM TAPS review does not contain this and other material information nor have RFAI's been issued to review advancement of these technologies for the instant review. APSC must minimally install Infrared detectors, (e.g. <http://www.flir.com/maritime/products/seaflir/index.htm?id=0CB52265-9C2D-11D3-8A2500104BCE5660/lang=EN/ln=c6>), on the top of barge-tug masts to allow for the maximum possible encounter rate for the modified Transrec Barges during our 18-hour nights. Multiple advanced sensors employed in aerial surveillance are necessary for coordination of response over wide areas, (e.g. <http://www.vyh.fi/eng/intcoop/regional/response/dornier.htm>). Computer modeling and crab lights are simply insufficient to provide for timely maneuvering of barges and strategic deployment of wide ranging response task forces given the drastic effect local currents and winds can have on spill distribution.

Timely detection of leaks from Terminal pipes and near the base of storage tanks is not assured given that the same leak detection system on TAPS is not available for most of the VMT. Hydrocarbon detection cable should be installed at strategic locations in secondary containment and in areas where major pipelines would be expected to drain. Only then could the culvert gates, booming systems and response resources, as a whole be timely activated. Once pipe leaks have been detected, APSC must have multiple hydraulic clamps available for each size pipe, 12 inches or greater, with all attendant equipment necessary to suppress oil spray, with associated vapors, and apply the clamp. APSC should also maintain sufficient empty tank storage near water level to quickly drain at least half of the largest storage tank at the VMT or to receive recovered oil from secondary containment, containment ponds or from on-water spills. The degree of APSC response effort must also be evaluated in light of peak historical levels of personnel and equipment as well as the effort expended by owner companies to perform similarly complex and time dependant tasks.

Equipment List Deficiency

The equipment list only lists one tug to perform a numerous spill prevention and response tasks, including: transport and maneuvering of response barges; undocking of laden tankers at berths; immediate undocking of all tankers at berth given a tsunami; fire prevention and response; docking/low speed maneuvering of a tanker of opportunity, etc. APSC may not simply reference the Tanker Core Plan for any equipment or personnel as those resources are subject to discretionary transfer approval by DEC upon proper application by APSC after the spill occurs. There may be numerous valid reasons for DEC or the U.S.C.G or other approving agency to deny such a transfer of Tanker C-plan equipment at that time, (e.g. a tanker spill or laden tankers under escort). It is an unlawful conflation of the 18 AAC 75.470 transfer requirements and U.S.C.G. escorting requirements to assume automatic transfer of that equipment once a VMT spill occurs. Moreover, the R-O-W Grant doesn't provide for equipment transfer at all. The VMT equipment list must show the timely availability of the quantity and quality of all mandated equipment and personnel necessary to effectuate timely performance of the "IN REGION RPS MANDATES" as well as all spill prevention requirements utilizing equipment and personnel that may be concurrently in active deployment during a response as required by any state or federal agency with oversight duties of the respective C-plans. The critical example of the listing of only one tug to perform these multiple concurrent tug tasks is clearly fraudulent and is in direct conflict with the spill scenarios provided. Other numerous examples of concurrently dedicated equipment and personnel are too numerous to list here.

I hereby adopt and incorporate the attached comments of the PWS RCAC with the exceptions of: the deferral of the BAT analysis to a post-approval workgroup, at p. 12, and; Comments #s 7 and 11 on pp. 21-22. I reserve the right to submit additional comment after APSC and DEC/JPO provide the technology analyses mandated by law and contract as a prerequisite to C-plan review.

Sincerely;

Tom Lakosh

^[1] BLM uses the same C-plan to evaluate Grant compliance and it must therefore comply with Grant provisions and stipulations. The ACMP requires public review of such federal permit approvals and JPO has always touted state/federal cooperation on such approvals, (see DEIS/FEIS for R-O-W renewals).

^[2] The State still holds tidewater leases at the VMT that the main TAPS line also crosses, so the Lease still applies. Whether DNR or DEC enforces the Lease is irrelevant to the application of Lease provisions and stipulations to the contested C-plan.

^[3] The comments refer to a "conditional plan approval" presuming a resubmission of a C-plan that does not violate the False Claims Act.

^[4] Ohmsett and the U.S.C.G. have tested many swift current skimming systems each with varying limitations in: recovery rate; recovery efficiency; operation in high sea states; range of effectiveness in low or high currents, and; adaptability for use in ice-bearing waters. Expert opinion suggests that a combination of proven technologies would produce the most effective skimming system. Although execution of the technology analyses mandated by law and contract may prove otherwise, I suggest a combination of the following technologies to produce the optimal skimming system to contain the spill at its source and prevent its further spread. Modify the Transrec Barges to incorporate protective tunnels on each side that would house a MORICE ice/debris-handling belt, wave dampener, current dampener and two modified JBF DIP 600 skimmers. The tunnel would extend forward to catch the oil entrained in the bow wave of the barge. The wave dampener would consist of a wave-generator to create a wave opposite in amplitude to the sea-generated waves, thereby attenuating the variability of the waves reaching the skimmers. The current dampener would utilize mesh technology in the NOFI "Current Buster" at the bottom of the tunnel. The DIP 600 belt would be modified to be oleophilic to increase the recovery rate at very low current speeds. The oleophilic belt could incorporate bristles to improve transport of the slush/ice that makes it past the MORICE belt. The bristles may also improve oil recovery rates at low and high current speeds. The hydrofoil and baffle technologies utilized in Hyde Marine Inc.'s IIB skimmer may also improve low and high speed skimming respectively. Although the technologies to accommodate oil recovery in ice-bearing waters are not necessary for response in the immediate vicinity of the VMT, conditions may be so adverse as to allow the migration of oil into the ice fields generated by Columbia Glacier, and would certainly be necessary if the skimmer were listed in the Tanker C-plans and the tanker spill occurred in/near the ice fields.

MMS Response to Comment Document 059

Response 059-001.

Existing Alaska oil-production leases onshore and on State submerged lands are subject to regulation and compliance evaluation and enforcement by the State of Alaska.

Response 0059-002.

The MMS does not mandate specific equipment to be used in spill-response inventories. We require companies to have sufficient spill-response capability to respond to a worst-case discharge as defined in 30 CFR 254.47; how they attain that capacity is up to the individual company. Spill-response capability for MMS planning purposes also includes nonmechanical methods such as in situ burning and use of dispersants. The MMS conducts research along with the State and industry to increase the number of spill-response options available.

Response 059-003.

As exploration and development activities increase in the Cook Inlet, so must oil-spill-response inventories and capabilities. Each company conducting operations in the Cook Inlet must ensure that appropriate and sufficient oil-spill-response equipment is available. Operators are required to plan and prepare to operate in the arduous conditions that can exist in the Cook Inlet.

There also are multiple tactics that may be used to respond to a spill during times when ice is present. One such tactic is free skimming, which relies on the ice to contain and concentrate oil for recovery. Instead of deploying boom, spill responders maneuver into areas where the ice has concentrated spilled oil to a sufficient thickness for recovery. They deploy skimmers without the use of booms, giving them a greater ability to maneuver and respond to changing conditions and avoid the need to clear booms of ice.

In situ burning and dispersants also are potential response tactics that eliminate the need for boom during ice conditions.

Response 059-004.

Comments contained in the attachment relate to the Valdez Marine Terminal Oil Spill Contingency Plan. Because the Proposed Action is for leasing and because the scenario does not envision the tankering of OCS crude, comments on the marine terminal regarding facilities replacement and retrofit, containment of spills in the marine terminal, detection of leaks from terminal pipes, and cleanup equipment for the marine terminal are not relevant to the analysis in the EIS.

To John Goll, Regional Director

RECEIVED

JAN 29 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

In regard to public comment on ^{oil} lease sale 191 and 199. I
 am concerned about this sale because zero discharge of toxic drill mud and cuttings has not been
 mandated for this sale. If the process of this sale is to continue, zero discharge is the first
 and for most condition to apply. This Cook Inlet cannot be the only area of the country
 that has an EPA administered discharge exemption, because of the effects of
 bioaccumulation of contaminants in the food webs and chains, subsistence and
 marine, avian, terrestrial. EPA studies done in 1997 stated that
 contaminants are present in subsistence foods, effects are unknown. EPA regardless
 issues the Cook Inlet discharge exemption permit. That was unacceptable then and it is
 unacceptable now. There is no guarantee of zero discharge in this sale. Although EPA
 states "effects unknown," the effects of petroleum chemicals and heavy metals in drill
 mud and oil spills are well documented including liver, kidney, and fetus poisoning with
 tetragenic, mutagenic, carcinogenic, and endocrine disruption in immune, developmental,
 and maintainance functions. These toxins are then greatly magnified by 10000 to 100000
 x ambient solution through the agency of trophic succession. Toxins are not what I want
 in these living waters! The Exxon oil spill has prestressed the Inlet's creatures, sea otters
 are 33% of original population, stellar sealions decline 73%, beluga whales decline 50%,
 killer whales are 60% of original pop., harliquin duck and endangered iders theatend, wild
 pink salmond have tetragenic, mutagenic, generational damage, also tide zone creatures
 and any creature that consumes mussels or clams are stifled by lingering levels of
 contaminates. The EIS states 20% as it's lowest oil spill probability estimate, this is
 totally unacceptable! The EIS assumes zero discharge, yet this has not been decided.
 Cook Inlet is subject to extreme wind, ice and tide events, yet there are no tug escorts for
 any vessel. What happens if a laden disabled bunker fuel tanker smashes into a operating
 production platform? The Barren Islands are humpback and finwhale summer feeding
 areas, also threatened in this area are the historic and prehistoric cultures of
 subsistence, currently Port Gram Nanwalic. I think MMS should stop oil and gas lease
 sales in sensitive areas like Cook Inlet, and perhaps cast about for altermitive development
 in this area, for example, tidal movement power generation of which Cook Inlet would be
 par excellence, being 2nd highest tide surge in the world I think natural gas could be
 developed responsivly, with zero discharge of cutting mud and prossess contaminated
 waters reinjected, and if not done in ecologically critical or sensitive habitats. I think oil
 should not be used, as it requires extensive refining and is laden with toxics and prone to
 spill. 66% of oil is used as fuel. Pesticide and fertilizer are of short term utility as more
 and more of these must be used to achieve the same production level, the nitrogen fixating
 bacteria cease and the pesticide poisins spread and magnify, causing ecological
 degradation and eventual collapse. Perhaps some use for durable warm outdoor clothing
 and special plastic parts and matrixs are appropriate for low volume of some existing
 wells, but not to burn as a fuel, or new wells drilled. I want society to change to non
 petroleum energy and product production. We could utilize restaurant fry oil waste and
 dedicate vegetable oil crops for bio diesel production. There is lots of hydrogen in the
 oceans. I perceive hydrogen to be the ideal fuel, there is no carbon, only water, h₂o, is
 produced in reacton, either by combustion or by fuel cell electron flow, and can easily be
 reconstituted back to elemental h₂o by 1.24v applied electrolosis. Safe storage can be
 achieved with metal halide sponge matrix. Developing natural gas infrastructure will
 facilitate a transition to hydrogen as they are both similer explosive gases. I am willing to

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sacrifice any convenience, both individually and corporately to achieve this transition. During the preceding interim, the gas mileage limit of 18 miles per gal, should be doubled at least, or tripled with technology that has been available for the last 70 or so years, but that car manufactures have held patend on and have not yet enacted. Much of the technique is not rocket science, it merely facilitates smaller fuel partical size for more percent of fuel oxidized giving more power, less pollution per former fuel volume I don't want toxic waste or war as an energy and product byproduct! Please do what you can to encourage alternatives to petroleum. ...

Sincerely,
John C. Dodge
P.O. Box 2532
163 Fairview Dr
Homer, A.K. 99603

RECEIVED

JAN 29 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

MMS Response to Comment Document 060

Response 060-001.

Please see Response 008-003.

Response 060-002.

Because dissolved contaminants generally are found in extremely low concentrations in marine waters, simple but strong physical sorption onto surfaces can produce concentration factors of 10,000-100,000 for solid phase contaminants. No biological agency of trophic succession needs to be invoked. Thus, trace metals and hydrocarbons such as PAH's tend to be attached to particles with the greatest surface areas, the clays and silts. Regarding biomagnification up the food chain, of all the metals potentially associated with the oil and gas industry, only mercury consistently biomagnifies through the food chain (Lindberg et al., 1987). Many studies have reported on mercury levels in Cook Inlet biota from bivalves (Section III.A.4.b), to fish (Boehm 2001a), to marine mammals (Becker et al., 1995, 2000). Reported levels are indicative of an unpolluted environment, consistent with similar findings from dated Cook Inlet sediment cores. Trophic succession does not biomagnify biological concentrations of petroleum hydrocarbons up the food chain (National Research Council, 2003; D'Adamo et al., 1997).

Response 060-003.

While such disasters are possible, it is not likely that even if a disabled "laden bunker fuel tanker" collided with a production platform, a massive release of oil or related petroleum products would occur. For such a collision to happen, a tanker would have to plow into a drilling structure at high speed. The very notion of speed tends to mitigate the probability of a disabled tanker. Production platforms in areas where marine traffic is prevalent usually are equipped with radar and a number of navigational aids and markings. If necessary, the platform crew can activate annular and/or sheer rams that will truncate the pipe and stop the flow of oil in all but the most catastrophic of circumstances. There would be ample time for a platform crew, the tanker crew, the local spill-response bodies, and the U.S. Coast Guard to deal with a disabled tanker drifting with the tide.

Regarding the fate and effects of any spilled oil that might occur as a result of such a scenario, Section IV.B discusses effects to local resources from oil spills; Appendix A discusses the behavior and fate of crude oils and the probabilities of spilled oil contacting various resources and landfalls.

Travis Richardson
P.O box 2812 99603

1/30/03

Regional director John Goll
MMS Alaska OCS region
949 E.36th AVE, RM 308
Anchorage, AK 99508-4363

RECEIVED
JAN 31 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear John,

I am writing to express my opposition to the Cook Inlet lease sales 191 and 199 because of the threat by oil companies to our local economy.

Fishing and tourism have supported us for years and the construction of oil platforms would place a chokehold on Homer and other small inlet towns.

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I am told that there will be only one oil platform built, but if oil is found, the chances of more than one oil platform going up is substantial. I have lived in Alaska for all my life and I love this land in all its beauty. However, if you lease out this land and oil platforms are built you will taking away this beauty that is the trademark of Alaska.

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I am also told that the chance of a spill is around 19%, but that theory is based on the projection that only one oil platform will be built and your not taking into account the possibility of bad weather and natural disasters.

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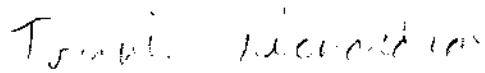
Then, there is the issue of the environment. This issue has been chewed over for years and always the outcome is the same that there will be a negative impact on the environment and there is no way to get around it.

Also, there is the problem of money. There is no doubt that Alaska is in need of money. I want to help Alaska too, but drilling in Cook Inlet is not the answer. Homer is

not likely to see much of the money if the area is leased plus there are lots of other spots to drill with less impact.

So the real question is, do we get our money from a couple of oil platforms that will shortly dry up or from the immense tourist and fishing economy that has supported us for years.

Sincerely,

A handwritten signature in cursive script that reads "Travis Richardson".

Travis Richardson

MMS Response to Comment Document 061**Response 061-001.**

Please see Response 009-028.

Response 061-002.

Please see Response 009-014.

Response 061-003.

The MMS estimates the chance of one or more large spills (greater than or equal to 1,000 barrels) occurring. The estimated mean number of spills is calculated by multiplying the resource volume times a spill rate. The spill rate is expressed as spills per billion barrels produced. The scenario assumes one platform would produce 140 million barrels of oil, but the oil-spill numbers are not calculated based on the number of platforms. The spill rate, based on the historical record of oil spills, is not estimated by causal factor. Natural hazards and bad weather are represented as causes of spills in the historical spill data. However, the exposure variable is billion barrels produced.

P.O. Box 3355
 Homer, AK 99603-3355
 e-mail: arturo@xyz.net
 11 February 2003

John Goll, Regional Director
 MMS Alaska OCS Region
 949 E. 36th Ave., Rm 308
 Anchorage, AK 99508-4363

Dear Mr. Goll:

I am commenting on the Draft Environmental Impact Statement for Oil and Gas Lease Sale 191 & 199.

I have three comments about specific parts of the DEIS that may warrant further attention. First, after reading Sections IV.B.1.f(3)(b)1) (Noise from Seismic Surveys) and IV.B.1.f(3)(d)2) (Effects of Exploration on Humpback and Fin Whales), I am concerned that although “Humpback whales are probably the most likely of the baleen whales to be impacted by OCS oil and gas exploration and development activities in Cook Inlet,” the impacts appear to be largely unknown. Also of concern is that “the total number of humpback whales that are likely to be impacted by exploration activities is unknown.” Many people know that at times, many humpback whales feed in and near the sale area, including cow/calf pairs (these pairs are “most likely to be impacted”). How many, however, is I think unknown. It seems to me that it would be a good idea to know more about the population of humpbacks in and near the sale area before exploration activities begin, so that impacts may be better quantified.

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Second, I think the DEIS could be more informative about the possible effects on the razor clam fishery. Many people use this resource. The DEIS states in several places, “In any area contacted by oil, populations of intertidal organisms could be depressed measurably for about a year, and small amounts of oil likely would persist in the shoreline sediments for more than a decade, a significant impact.” What does this mean for human use of the razor clam beds? Would clam beds contacted by oil be unusable for more than a decade?

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Third, I wonder about the “visual resource impact area” analysis of Section IV.B.1.n. (Effects of Lease Sale 191 on Recreation, Tourism, and Visual Resources). The analysis assumes that beyond 8 km, “details of large objects such as the drilling unit are too small to be distinguished, large objects tend to become silhouettes, and objects tend to become part of the background and appear to the observer to be less obtrusive.” Further stated is, “At no point does the visual resource impact area extend into Federal park or conservation units, State parks, or areas meriting special attention.”

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I wonder whether this analysis takes into consideration the altitude of the local viewing areas. Most of the land near the sale area is elevated, and so are the places from which

people will be viewing the area, including roads, turnouts, ski trails, hiking trails, residences, and National and State parks. On the lower Kenai Peninsula many of the areas where people go for aesthetic experience are elevated because of the extended viewing distance these areas afford. Perhaps the “visual resource impact” distance is also increased by an elevated viewing area. I wonder whether it would be useful to include in the EIS an illustration of what the structures may look like in the Inlet, as seen from familiar local viewing areas.

A treatment of visual resource impact by the light produced by drilling platforms in an area often very dark during the winter may also be useful.

I believe that offshore oil and gas development in lower Cook Inlet is incompatible with the economic, social, aesthetic, and cultural values of the region, its residents, and its visitors. I am concerned about possible biological effects to the Inlet. I also think we should put more effort toward developing other sources of energy.

I prefer Alternative II—No Lease Sale.

Sincerely,

Arthur Kettle

MMS Response to Comment Document 062

Response 062-001.

At the time we prepared the draft EIS, we contacted biologists at the NMFS to obtain existing data on the use of areas by humpbacks that could be affected by the proposed OCS oil and gas lease sales. We sent (but did not receive a reply) a draft of our affected environment section on humpback whales to a NMFS humpback whale expert for review. We incorporated all available information into the draft EIS. The NMFS addressed the issue of the relative amount of humpback whales in their comments on the draft EIS. We have modified our sections that pertain to humpback whales to incorporate this information. We also recently have completed formal consultation with the NMFS under Section 7 of the ESA regarding the potential for activities associated with the proposed oil and gas lease sales to adversely affect and to jeopardize the existence of species and to destroy or adversely modify critical habitat that are listed under the Act. The Biological Opinion of the NMFS, along with other Section 7 consultation documents, is found in Appendix C. For nomination of this topic for potential study, please see Response 009-040.

Response 062-002.

The EIS has been amended to clarify the impacts to shellfish resources and fisheries. If clam beds were oiled as a result of an oil spill, they may not be available for harvesting for more than a decade. This is based on sampling of bivalves in Prince William Sound a decade following the *Exxon Valdez* oil spill, whereby hydrocarbons were still measurable in both bivalves and surrounding substrates. The period for which they are made unavailable for harvest would depend on the amount of oiling the bed experiences as well as the persistence of hydrocarbons in clam tissues and in the sediments surrounding the clam bed. State agencies would have regulatory authority for determining when clam beds would be made available or unavailable for people to harvest.

The MMS believes that the EIS adequately addresses potential effects on the razor clam fishery in Section IV.B.1.o on sport fishing. In that section, we conclude: "In any area contacted by oil, populations of the intertidal organisms could be depressed measurably for about a year, and small amounts of oil likely would persist in the shoreline sediments for more than a decade, a significant impact." This means that in those areas potentially affected by oil persisting in shoreline sediments, the gathering of clams would be restricted for as long as the oil remains in the clam beds in those shoreline sediments.

Response 062-003.

Please see Response 009-014.

SeaFlight SportFishing

Document 063

Charters

TOP OF THE LINE BOTTOM OF THE OCEAN FISHING

P O Box 2347 - Homer - Alaska 99603

Phone 1-907-235-7572 - Fax 1-907-235-4962 - e-mail <seaflite@xyz.net>

February 8, 2003

Mr. John Goll, Regional Director
MMS Alaska OCS Region

Governor Frank Murkowski
State of Alaska

Secretary Gale A. Norton
Department of the Interior

Gentlemen:

Offshore oil and gas development in lower Cook Inlet is inconsistent with the economic, social, aesthetic and cultural values of the region, its residents and it's visitors. A one in five chance of a large oil spill is too great a risk to Cook Inlet's fishing, tourism, and subsistence economies. Cancel Lease Sale 191 and 199.

I am concerned about loss of business due to adverse publicity from those who have seen the results of spills and of the drilling in the Gulf of Mexico. I fear for the loss of our access to the waters around exploration, drilling, the rigs and transporters involved in the oil industry due to Homeland Security measures. I fear for the negative effects spills and drilling methods in this area of extreme tides and weather and the chance of ruining our sensitive habitats and biological resources.

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Sincerely,

Leah W. Jenkin, Owner via electronic signature
Sea Flight Sport Fishing Charters

MMS Response to Comment Document 063

Response 063-001.

Please see Response 009-027.

Response 063-002.

Please see Response 030-006.

D064

Elise Wolf
Whitney Lowe
21115 Scottsdale Dr.
Bend, OR 97701

RECEIVED

FEB 11 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Ave., Rm 308
Anchorage, AK 99508-4363

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

To Whom It May Concern:

February 11, 2003

We are asking that you extend the public comment period on MMS Sale Leases 191 and 199.

We have owned property in Kachemak Bay for nearly 40 years and are wondering why we were not notified about a lease sale that would directly affect us.

People living outside the state of Alaska also have a right to make comments, not just the local communities. This is especially true as this region adjoins the Kenai Peninsula, the largest tourist region of Alaska. Starting your comment period during the Christmas season is highly suspect.

We would like to express our adamant opposition to the proposed Lease Sales 191 and 199.

We know the history of oil development in Alaska. State of Alaska and Alaska oil industry environmental standards are the lowest nationwide. Many of the safeguards promised to be enforced or put in place after the Exxon Valdez have not been.

The Cook Inlet and the Lower Cook Inlet have multi-million dollar fisheries, tourism economies, as well as critically important ecological attributes. Further oil and gas development in this region conflicts with the other uses of the area and the aesthetic, ecological, and cultural aspects of the Kenai Peninsula.

We agree with these amendments to any leasing that is allowed:

- 1) No development in critical habitat areas, including the mouths of the Kamishak Bay, Kachemak Bay, Barren Islands and Kennedy and Stevenson Entrances. These "no rigs zones" should be permanent exclusions from future leasing activities.
- 2) Tug escorts must be required for tankers
- 3) Ongoing studies of the ecological impact of oil development must be undertaken. MMS must ensure that no harm will come to the biological resources of Cook Inlet, and the people who consume them. Fish tissue sampling for toxics, sediment analysis

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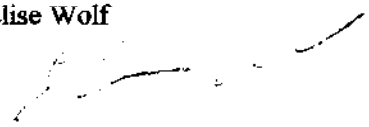
for toxics, and review of effects of oil and gas on endangered Steller Sea Lions and depleted Beluga whales should be implemented.

- 4) If the lease sale proceeds, and production exceeds MMS's current estimates, then MMS should halt all oil and gas activities within the lease sale area and prepare a supplemental EIS that will give the public and decisionmakers a more accurate analysis of the environmental and socioeconomic consequences of offshore oil and gas development in lower Cook Inlet.

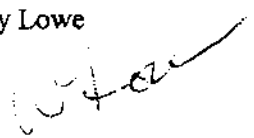
.004

Thank you for your consideration,

Elise Wolf



Whitney Lowe



MMS Response to Comment Document 064

Response 064-001.

Please see Response 026-003.

Response 064-002.

Please see Response 007-045.

Response 064-003.

Please see Response 009-040.

Response 064-004.

Please see Response 009-038.

00024

1 good work you've done, but I think the oil lease should
2 go by the wayside at this time. So thank you very much
3 and a lot of love to all the brothers and sisters that
4 have come to give their testimony, and to give perfect,
5 beautiful information relating to this ongoing process,
6 so thank you very much." And that is Brother Isaiah.

7 (Applause)

8 MR. HRACHIAR: That one is going to be
9 hard to follow. First of all, I'd like to thank you all
10 for coming down. My name is Mitchell Hrachiar. I have a
11 degree in geology and geography. And I was reviewing the
12 geophysical hazards today and preparing for this talk.
13 Three conceive of earthquakes and Alaska is very high, as
14 you know, I was looking over the data, magnitude 9.2 in
15 1964, 8.0 on the Aleutian Chain in '86; there's going to
16 be a chance of a major earthquake in the next 30 years.
17 Magnitude of 7.-8., on the richter scale every 13 years,
18 so hopefully, if this goes through that technology is
19 there to adequately address these stresses.

20 I recently read a book from some
21 eyewitness' account of the '64 earthquake and it's still
22 hard for me to imagine that treetops were close to the
23 ground. So hopefully the Impact Statement adequately
24 addresses the stresses that would be caused by an
25 earthquake.

Document 067

001

MMS Response to Comment Document 067

Response 067-001.

The Cook Inlet region is both seismically and volcanically active; however, the tectonics are quite different than the area mentioned in the comment—"a triple junction." Although as the commenter correctly states that the Cook Inlet trough is part of a subduction zone, it is not near the trench where the plates meet. The Aleutian Trench is seaward of Kodiak Island. Most subduction-type earthquakes in Cook Inlet are very deep as opposed to earthquakes in a triple juncture or trench setting, which would be shallow and more destructive.

The seafloor in Cook Inlet is stable and has good engineering properties for structural foundations (there are no soils that could undergo liquefaction). Also, the seafloor is not steep or over-steepened, which is a necessary factor for slope failure and unleashing of subsurface landslides.

Tsunamis from earthquakes could damage shore facilities and boat harbors but would not affect offshore structures, because the wave height in water depths associated with the OCS would not be significant.

00027

1 Thank you for having me tonight. Thank
2 you for coming.

3 (Applause)

4 MS. ORR: The next three speakers will be
5 Dave Lyon, Louise Seguela and Sandy Johns.

6 MR. TYLER: Well, I'm Richard or Toby
7 Tyler and I've been here quite a number of years and I'm
8 just going to read this through because things could get
9 overlong otherwise.

10 Insofar as I can see it, there are three
11 basic things wrong with the latest Cook Inlet planning
12 area. First of all there's one major flaw which should
13 be corrected before anything else takes place. According
14 to my information this is the only offshore area in the
15 whole nation where it is legal to inject drilling oils
16 back into the earth. This is one of the richest fishing
17 regions in the world and -- I keep losing my place -- in
18 the nation and the most subject to serious damage from
19 spillage or leakage. Therefore, prohibition of this is
20 the first thing that should be done before any further
21 planning is done along these lines.

22 Then secondly, the area being opened up
23 for leasing all at one time is far, far too large. There
24 is basically no infrastructure in place anywhere within
25 this enormous area to begin with so that it is very

Document 068

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00028

1 unlikely that there will be any interest in the lower
2 portion at this time. Why not open the upper section
3 first, and see what can be developed in this smaller but
4 more accessible area first. This could be an area
5 roughly from Anchor Point diagonally down almost to the
6 Augustine Island area perhaps. Any gas or oil
7 development is going to have to come ashore somewhere
8 north of Anchor Point anyway. Nothing else can be very
9 practical.

10 Finally, the two alternative areas off
11 the mouth of Kachemak Bay and the Native holdings off
12 Seldovia and on down to the Barren Islands should be
13 pulled from any offering as far too risky. Indeed, the
14 area off south of -- off the mouth of Kachemak Bay should
15 continue on up to near Anchor Point. None of this area
16 should be leased as it is far too valuable as habitat and
17 for fishing.

18 My advice is to go back to the drawing
19 board, folks. That little oil may be out -- what little
20 oil may be out in this vast region is in no great frantic
21 need to be developed at this time. If anything, it grows
22 more valuable left in place for the future when our means
23 for extracting it become more proficient and possibly
24 less polluting.

25 Thank you.

D-068

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MMS Response to Comment Document 068

Response 068-001.

Please see Response 055-001.

Response 068-002

Please see Response 044-001.

00029

1 (Applause)

2 MR. LYON: My name's Dave Lyon. I see by
3 my statement, reading what I said in '95 that I'd been
4 here five years, so I guess I've been here 12 years now.

5 What I have to tell you is I've thought a
6 lot about this and actually -- no, I thought a lot about
7 it a while ago and my opinion hasn't changed. But I do
8 have something you should think about why this is not
9 just a bad idea for our area, but this is a bad idea for
10 commercial fishing in the state of Alaska. We are losing
11 our market share to farm salmon and it's one of the
12 biggest things affecting our salmon industry. We're
13 beginning to gain a little more respect and we're getting
14 some share back through a lot of hard work by a lot of
15 agencies, some State agencies, some fishermen doing it
16 themselves. Alaska salmon branded as such, is now
17 recognized as a green seafood. It's sustainable, it's
18 well managed and it's clean.

19 We can count on the fact that if there is
20 an oil spill here that affects our fishery and this says
21 that, could result in a large spill -- could result in a
22 loss to commercial fisheries of 22 to 37 percent per year
23 for two years and it's possible that a fishery could be
24 closed for a whole season. That's not just us. You know
25 how accurate the outside media is when they portray

Document 069

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00030

1 Alaska. I'm sure that -- you should seen some holiday
2 movies that just left you'd see our head spinning.
3 They're going to say, hey, Alaska salmon is oiled and
4 that's what's going to happen. People aren't going to
5 look for more information. It's hard enough to convince
6 them that Alaska salmon is healthy and explain that,
7 yeah, well, maybe a stock is falling some place but this
8 state's so huge that we have stocks that are flourishing
9 and it goes back and forth. If we spill oil on our
10 salmon they're going to think it's all our salmon. And
11 we'll lose.

12 I talked to a friend of mine tonight, he
13 said after Exxon Valdez, we lost our entire pink salmon
14 market to Japan. We never got it back. Now, I don't
15 know that personally but he used to be a commercial
16 fisherman, now he's a charter fisherman. It's just not a
17 good idea. The effects are too broad. It's not just us.

18 You know, five years ago I said that the
19 only economic benefit this will bring to me or mine or my
20 friends is the dubious benefit of getting paid a whole
21 lot of money to go clean up the beaches, and when you say
22 you're hoping this oil will be kept in this area, that
23 kind of scares me because I know just where we're going
24 to find it, eventually it will be real close and we'll be
25 out there cleaning it up. And I'm perfectly willing to

D-069

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MMS Response to Comment Document 069**Response 069-001.**

Additional information regarding the tainting of fish tissues by spilled oil (real or perceived), which could result in a significant impact to commercial fisheries, has been added to the appropriate sections of the EIS. Although concern about the effects of tainting of fish tissues could last for several years as a result of an oil spill in Cook Inlet, it is not expected to cause a long-term effect to commercial fisheries (i.e., over the lifetime of the Proposed Action), unless the spill is a very large spill that draws national and international attention. Oil spills in Cook Inlet appear not to have affected consumer confidence in salmon fisheries in Cook Inlet.

00045

1 public member of the Environmental Monitoring Committee
2 of the Cook Inlet Regional Citizens Advisory Council,
3 CIRCAC, which was established under the Oil Pollution Act
4 of 1990 to monitor and assess the impacts of oil industry
5 activity in Cook Inlet. I've also traveled extensively
6 on my own boat in all of the areas of the proposed
7 leases.

8 You propose to develop oil and gas in the
9 Cook Inlet by bringing in huge drilling building massive
10 offshore platforms and piping oil through many miles of
11 ocean bottom pipelines to onshore facilities near
12 important salmon streams. Based on decades of
13 experience, we know that there are more oil spills in the
14 upper Cook Inlet than anywhere else in the United States.
15 For the last three years I've received an unending string
16 of e-mail oil spill notifications from CIRCAC. These
17 spills occur regularly in the waters of the Upper Inlet
18 and on the land areas associated with oil operations and
19 pipelines. The worst spills have caused serious problems
20 in salmon streams yet industry has done little to
21 ameliorate the problems or take responsibility for the
22 aging and abandoned under sea and land based pipelines.
23 We can expect even more of the same if offshore
24 facilities are developed in the Lower Inlet, especially
25 in light of the extreme tides, seas up to 32 feet and

Document 070

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00046

1 freezing spray and wind conditions characteristic of the
2 Lower Inlet that make oil operations in the Upper Inlet
3 seem like child's play. The impacts on fish, wildlife
4 and marine sources of food will be severe and your
5 proposed plan provides no mechanism that will guarantee
6 that even graver oil spill problems will not occur if oil
7 is developed in the Lower Inlet. The ugly offshore
8 facilities will substantially degrade the pristine
9 natural environment that annually draws throngs of
10 tourists to the Lower Kenai Peninsula. This will
11 severely damage the local economy. Even worse, we can
12 count on massive pollution from the unrestricted dumping
13 of the by-products and wastewater from oil drilling
14 operations already ongoing in an essentially unrestricted
15 manner in the upper Cook Inlet.

16 The few small scale scientific studies
17 to-date in the upper Cook Inlet have failed to indicate
18 that the permitted oil industry discharges have produced
19 serious contamination of the organisms in the food chain.
20 However, they do not provide any manner of scientific
21 proof that there are no effects or that oil and gas
22 development in the Lower Inlet will yield a similar lack
23 of demonstrable impacts. On the contrary, we can expect
24 much greater impacts and effects on the food chain in the
25 Lower Inlet. The geographic areas and organisms sampled

D-070

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1 have been extremely limited and mainly confined to the
2 Upper Inlet and the currents and substraits in the Upper
3 Inlet are dramatically different from the Lower Inlet.
4 Furthermore, the populations and variety of organisms in
5 the Upper Inlet are impoverished when compared to the
6 profusion of species found in the areas of the proposed
7 lease sale in the Lower Inlet. It's an unusual
8 combination of geology, topography, ocean currents and
9 nutrients provides a magnificent nursery for a vast array
10 of marine plants and animals almost without parallel.
11 These organisms are part of the vital food chain that
12 makes Kachemak Bay and the lower Cook Inlet one of the
13 most biologically productive and unique marine
14 environments in the Northern Hemisphere.

15 The lower Cook Inlet provides sustenance
16 and support for the traditional lifestyles of the Native
17 communities that have occupied and subsisted in this area
18 for many millennia. EPA research has already shown that
19 unacceptable concentrations of heavy metals and organic
20 toxins from industrial activities threaten the health and
21 lifestyle of those who depend on the local marine
22 resources.

23 If the proposed oil and gas activities
24 are prevented in areas much closer to these resources, it
25 is inevitable that serious contamination and reduced

D-070

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MMS Response to Comment Document 070

Response 070-001.

The MMS staff has investigated the point regarding oil spills in the upper Cook Inlet with staff from CIRCAC and ADF&G. We were informed that (1) oil spills occurred onshore and in State waters of upper Cook Inlet, (2) the most common source was aging pipelines and shore facilities, and (3) spills did not result in significant impacts to salmon or their habitats. Additionally, the MMS has no regulatory authority over oil and gas operations in State waters or on State lands; MMS regulatory jurisdiction is in Federal waters only. However, any oil and gas operations resulting from the proposed sales would need to comply with other Federal (for example, EPA and U.S. Coast Guard) and State regulatory bodies that do oversee these areas. The MMS has oversight programs that include strict assessment, permitting, and inspection programs of offshore facilities in Federal waters that will minimize the potential for oil spills.

Response 070-002.

Please see Response 009-014.

Response 070-003.

Discharges from the offshore oil and gas extraction industry are strongly regulated in Cook Inlet, as discussed in Section IV.B.1.a(3)(a). Illegal discharges in the Gulf of Alaska region have drawn attention in recent years, but these have not been from the offshore oil and gas extraction industry but from the cargo and passenger transport and fishing industries. The dischargers have been vigorously and criminally prosecuted (*Golob's Oil Pollution Bulletin*, 1997, 1998; *Oil Spill Intelligence Report* 2002a, 2002b).

Response 070-004.

This issue was addressed in Section IV.B.1.a.

Response 070-005.

Based on the monitoring studies described in Sections III.A.4 and IV.B.1.a, particularly Boehm (1998, 2001a); Arthur D. Little and EVS Environmental Consultants (1998); and Trefry (2000); we know that regional trace metal and hydrocarbon loading and resulting regional contamination in Cook Inlet have not increased since before the oil industry or even settlement of Anchorage. Thus, unless there is a significant local pollutant source in the Native communities, the working assumption should be that tissue concentrations of metals and hydrocarbons found in the EPA represent background, predevelopment levels. For POP's, the situation is different. These contaminants are not regionally produced, but come from global atmospheric fallout. The commenter's concern regarding these latter contaminants is addressed in Section IV.B.1.p(5).

00050

1 Thank you very much.

2 (Applause)

3 MR. BANKS: Hi. My name is Dale Banks.
4 Thanks for coming down to hear us. Sitting here I think
5 I realized why we're here again to speak on another lease
6 sale and it's possibly because our Federal governmental
7 agencies are adopting a policy put forward by President
8 Bush in his 2000 campaign for President. He said and I
9 quote, the past is over. Sad, but true.

10 (Applause)

11 First I'd like to comment on some
12 economic impacts that I saw in this little book that I
13 was reading last night. It states that the Borough would
14 receive economic impacts of 2.7 million per year and the
15 State would receive about 2 million. If you calculate
16 that out by population here on the Borough that's \$4.53 a
17 month per person per year. I'd pay it, okay. I just
18 wanted to let you know that.

19 (Applause)

20 And I looked in there for profits to oil
21 companies, oil corporations but I couldn't find that. It
22 seemed to be conspicuously absent. Is that in there or
23 did I miss it? You don't have to answer, I guess. But I
24 couldn't find it.

25 And I looked at your spill rate

Document 071

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00051

1 calculations and they seem to be pretty straightforward
2 except that I caught a math error, or at least I think I
3 did. They were based on amounts of spills per billion
4 gallons produced, is that right, Jim, and then I
5 converted that to a percentage, if there was 140 million
6 barrels and I came up with .19 and you had .18. Anyways,
7 a small error there that you might want to check. So I
8 thought I'd point that out.

9 I have a lot of other things but maybe I
10 ought to skip some. Oh, I thought that the premise of
11 only one single discovery was not realistic, you had said
12 earlier that it was, I don't think it is. I think that
13 if there is one discovery then there will probably be
14 more companies that are interested and that, in turn,
15 would increase the likelihood of a spill.

16 Lastly, I want you to indulge me in a
17 little experiment in risk and probability analysis as it
18 applies to the public.

19 The first question I had and I'd like
20 people to participate if they're interested, is to
21 consider an example, consider this pen, let's say
22 everyone uses this pen, it's a good pen, everyone buys
23 them all the time, locally here at a local vendor they're
24 on sale right now for five cents each but there's a one
25 in five chance that the pen might spill, would you go

D-071

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MMS Response to Comment Document 071

Response 071-001.

Please see Response 020-001.

Response 071-002.

The EIS has been checked carefully for any typographical errors. The estimated mean number of spills is calculated by multiplying the resource volume times a spill rate. The spill rate is expressed as the number of spills per billion barrels (not gallons as stated in the comment). For example, if there are 140 million barrels of oil, that is 0.14 billion barrels. If you multiply 0.14 billion barrels times the pipeline spill rate (1.38 spills per billion barrels produced), the mean spill number is 0.19320. The OSRA model assumes oil spills of 1,000 barrels and greater are distributed as a Poisson process. The probability of one or more spills greater than or equal to 1,000 barrels is 0.18. Table A.1-10 lists the chance of one or more spills and not the mean spill number.

00053

1 serious risk in oil development and oil spills are a
2 serious thing and one in five is way too high. I support
3 Alternative 4 -- I think it's 4 -- 2 -- 2 -- strike that
4 -- 2.

5 Thanks.

6 (Applause)

7 MR. EVANS: My name is Tom Evans from
8 Nanwalek. Which is located at the entrance of Cook
9 Inlet.

10 I know MMS has been trying to make the
11 effort to get ahold of my council and people. They've
12 been trying to do this during the times that we hold as
13 being sacred. Our holidays are as important as you see
14 yours. So let it be known that next December 25th and
15 January 1st we'll return those calls.

16 (Applause)

17 The EIS document to us is written in a
18 fashion which is unfair to my people. We are not smart
19 enough to clearly understand what is being said. This
20 language, to us, is intimidating and how do we really
21 know if you are being honest and fair with us.

22 In reference to your conclusion on
23 subsistence harvest patterns, tainting concerns in
24 communities nearest the spill could pivotal practices of
25 traditional Native cultural practices only now recovering

Document 072

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00054

1 from the impacts and aftermath of the EVOS oil spill in
2 1989. Harvesting, sharing and process of subsistence
3 resources could continue but could be hampered to the
4 degree these resources were contaminated. In the case of
5 contamination harvest would cease until such time as the
6 local subsistence hunters perceived resources as safe.

7 That, to us, is unacceptable because
8 today our resources have not recovered. (Pause) Excuse
9 me. And we continue to take risks without knowing the
10 final outcomes. How would you like it if your stores
11 were to be completely destroyed and not to have access to
12 food you need?

13 The subsistence harvest data by Fish and
14 Game as stated in the EIS is not accurate because it is
15 too conservative. The villages know that the amounts are
16 about three times higher than what is stated. I would
17 also like to state that it was requested during the
18 scoping process that this data not be used because of its
19 inaccuracy of the information.

20 I'm not really here to help change your
21 behaviors. I guess we'll leave that to everybody else.
22 What I want to do is to share with you some of our
23 beliefs.

24 When a decision is being made how it will
25 effect or affect our next seven generations. Basically

D-072

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00055

1 when we decide something we look to the future and we
2 also look to the past of all those people before us. I
3 would invite you to use this in your decision-making
4 meetings, it might help to shape a better world. We have
5 recently been working on reclaiming what has been lost or
6 taken away, meaning our culture and language. Like I
7 have stated before, all this scares the hell out of us.
8 It hinders or can destroy our efforts of reclaiming what
9 is rightfully ours.

10 Nanwalek Tribe is reluctant to hold a
11 meaningful government-to-government meeting due to lack
12 of trust with agencies such as MMS. How much of what we
13 would like to see be done really carries any weight.
14 Like it has been said before, how much of these good
15 words are going to help my people? How much of these
16 good words are really going to feed my people? All I
17 ever hear is good words. Good words cannot -- good words
18 cannot bring back my dead people.

19 Thank you.

20 (Applause)

21 MS. HIGHLAND: My name is Roberta
22 Highland. And I just got reminded here, and I don't know
23 why I needed to be but the area we're talking about
24 between volcanos, earthquakes, tides and incredible
25 weather, it's just -- I'd like that to be written down to

D-072

003

MMS Response to Comment Document 072

Response 072-001.

The MMS is aware of the difficulty of understanding documents written in a language that is not primary to Native speakers. The EIS writers put their sections in language that is easily understood; however, it should be understood that this document is intended to reach all segments of the potentially impacted population and must be written to meet diverse needs. The EIS is peer reviewed for content, which means that all statements are checked for validity to ensure that we are presenting a truthful picture in what we are writing.

Response 072-002.

Please see Response 018-012.

Response 072-003.

The MMS understands the sense of reluctance of the Nanwalek Tribe to hold meaningful Government-to-Government meetings due to their lack of trust. The MMS does consider the input of all tribes as being meaningful and important. Alternatives III and IV in the EIS are a good example of how MMS incorporates input from tribes. The deferrals are a direct result of tribal input. You should be cautious, however, about not taking inclusion of the deferrals in the EIS as being the final decision as to their exclusion from the program area. The Secretary of the Interior will make a decision based on the needs of the Nation as a whole in relation to regional and tribal issues and concerns.

Good words are not what we intend to use but the truth, based on science, and incorporating traditional knowledge that we have received from Alaskan Native sources. The EIS is not a persuasive document but an honest evaluation of the Proposal based on fact. The document is written to present all issues and concerns that are either written by the authors or brought up during the comment periods to be weighed by the Secretary of the Interior during her deliberations as to if and/or how this program will go forward.

00060

1 also like to know what is the status of the Alaska Wild
2 and Traditional Food Safety Program as is stated in
3 Section IV, Page 163 of your EIS, I'll probably have a
4 chat about that when -- the economy of lower Cook Inlet
5 have become more tourists dependent, refuges and parks
6 are a vital commercial -- and commercial fishing is at a
7 critical point. The fish and crab stocks cannot sustain
8 another hit of toxic substance.

9 The economic benefit seems to me is small
10 from this sale. The projected amount of recoverable oil,
11 which mentioned was 140 million barrels seems very
12 insignificant. I feel that the best alternative is just
13 to pull this off the sale list and let it be.

14 Thank you.

15 (Applause)

16 MS. LEHNER: Hello. My name is Devony
17 Lehner. I'd like to welcome you here. I don't know if
18 you're going to get to spend any time sort of checking
19 out the area, but I hope you do. And I know as each of
20 us comes up here we're struggling to figure out what we
21 can say that matters and I really appreciate the variety
22 and depth of caring that's going on here. A lot of
23 people are addressing environmental issues and I'm sort
24 of deferring to them on those concerns so I'm going to
25 focus a little bit more on some local economic issues.

Document 074

001

MMS Response to Comment Document 074**Response 074-001.**

As stated in Section IV.B.1.p(5)(a) - Detailed History of Human Health Research in the Cook Inlet Region, the Alaska Wild and Traditional Food Safety Program is relatively new and research is ongoing. For the most up-to-date information on the program, the commenter can visit the program's web site at www.gov.state.ak.us/oceans/contaminants.html.

00068

1 independent thinking community that sees beyond the myths
2 that our government and that the industry tells us about
3 oil and gas. And I'm just like to touch on a couple of
4 those myths right now.

5 Myth No. 1, is that oil and gas will
6 provide us with jobs. The Draft Environmental Impact
7 Statement for Lease Sale 191 and 199 says there will be
8 no increase in Kenai Peninsula Borough employment, which
9 means no new jobs. The jobs that will be created from
10 this development will go to people who are already
11 employed in the industry that live in the Kenai Borough
12 or Anchorage or the North Slope, and will not go to local
13 residents simply because many of us are not trained in
14 this type of technical labor and also because there are
15 people that already employed in this that are more
16 competitive that would get these jobs. So in terms of
17 local community, we would not get these jobs. Also the
18 jobs that might be open would possibly be filled from
19 folks down in the Gulf of Mexico which has very
20 historically been the case in Alaska, that any jobs that
21 come open are filled by people from Houston and people
22 from Oklahoma and the fact is, is that oil and gas is
23 labor poor and capital intensive. So we're not going to
24 see a lot of employment from this.

25 Myth No. 2, is that the State and the

Document 075

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00070

1 energy demands.

2 So that leads us to Myth No. 4, that this
3 oil and gas will be for local consumption and help meet
4 our local energy needs, but we've already heard that more
5 than half of the energy developed from this lease sale
6 will go to industry. It will go to Agrium, it will go to
7 the L&G Plant, it will not go to residents. If it does
8 come to residents it won't be until 2022 when this is
9 available and I've heard that 80 percent of our energy
10 consumption on the Kenai Peninsula, residential
11 electricity comes from oil and gas, and I feel this is
12 unfair that the way we structured our energy system in
13 the state has made us dependent on oil and gas when we
14 have a renewable high powered energy source right out our
15 back door in the form of Bradley Lake Dam which produces
16 plenty of electricity and we're even exporting that
17 electricity as far north as Fairbanks and it could be
18 providing our local energy needs but instead we're
19 reliant on non-renewable energy sources which I think
20 should change. And also, I think the whole natural gas
21 argument is just diluting the issue by trying to make
22 people think that it will benefit the local people when
23 the fact is that industry would come first for oil and
24 only develop natural gas as a by-product, so all the oil
25 risks are still there.

D-075

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MMS Response to Comment Document 075

Response 075-001.

As analyzed in Section IV.B.1.j on the economy, we assume no immigration of direct OCS workers who take up residence in the State. We anticipate that new direct OCS jobs will be created; however, except for during exploration, the jobs will be taken by workers residing on the Kenai Peninsula and currently working in the oil and gas industry, which is undergoing decline. Conversely, as described in Section IV.B.2.c(1) for the No Lease Sale Alternative, jobs would be lost.

Response 075-002.

For a discussion of potential markets for oil and gas, please see the text in Appendix B part C - Exploration and Development Scenarios. Please see also Response 009-034 regarding markets for oil and gas.

00080

1 there's enough time for other folks, I'd just like to
2 read one of the statements in the written testimony just
3 to wrap things up with. The Cook Inlet oil and gas
4 industry and their partners in crime, the government
5 regulators who are supposed to be protecting us, our
6 children, our environment and associated fish and
7 wildlife from harmful impacts seem to view Cook Inlet as
8 a massive toxic waste dump site. MMS suggests that a
9 leverage point for promoting proposed Lease Sales 191 and
10 199, that there is no problems with existing oil and gas
11 industry operations, and I beg to differ.

12 I believe that the information presented
13 in my testimony, and my written testimony and much other
14 available information together with the endangered status
15 of sea lions, the threatened status of beluga whales,
16 serious declines of harbor seals and the current minimal
17 or depleted populations of local herring, crab, shrimp,
18 sea ducks, et cetera, presents a rock solid case that
19 absolutely no more oil and gas lease sales or production
20 should be allowed. I propose, instead, a massive five
21 year state of the Inlet project to be funded by MMS to be
22 conducted by a coalition of local tribes, the Cook Inlet
23 Keeper and mutually selected scientists to better
24 understand, analyze and document detailed existing oil
25 and gas, pollution and other potential impacts. The

Document 076

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1 projects would include three full years of further
2 contaminant testing as well as a large volume water,
3 cage, muscle, plastic strip, sediment and tissue
4 sampling.

D-076

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5 And I guess just to wrap it up, I also
6 would highly recommend that the agency, your agency which
7 I've seen pretty much avoid this issue completely,
8 mentioned it at several tribal meetings but that I would
9 like to see at least two a round -- a round of two each
10 in every community of public meetings to discuss
11 mitigation options. If you're going to force this upon
12 these people, which I absolutely oppose, but from what
13 I've seen it doesn't really seem like you people are
14 listening, but clearly if you're going to go down this
15 road you better be talking about mitigation and I'd also
16 encourage - I'm glad to see younger people here but I
17 think that the path that some of you guys are going, that
18 some of the folks are going to have to get their law
19 degrees and take you guys to task.

002

20 Thanks.

21 (Applause)

22 MS. ORR: Kathy Toms, Joe Whiteberry,
23 sorry if I'm messing this up, Craig Phillips and Miranda
24 Weiss.

25 MS. TOMS: My name is Kathy Toms. I'm

MMS Response to Comment Document 076**Response 076-001.**

Please see Response 009-040.

Response 076-002.

The MMS provides opportunities for the public to make comments and suggestions, as required by law. The content of a person's testimony or written comment may address their issues, concerns, or recommendations, including mitigation options. In Section VII of the EIS, the MMS replies to all substantive comments, statements, issues, concerns, or recommendations for mitigation options that are submitted during the comment period.

00075

1 in Shelikof Straits is closed to any fishing of Pacific
2 Cod, mackerel and polluck, because of the importance of
3 those species for the endangered stellar sea lions, so
4 there's no fishing there. And the fishing industry has
5 taken a lot of measures to help the recovery of the
6 stellar sea lion by closed areas, which include round-
7 rookeries and haul-outs and that whole area of northern
8 Shelikof, which is part of the lease sale. So you know,
9 from a commercial fishermen's perspective, the amount of
10 benefits that we've made by having the clean water and
11 good habitat and opportunity to make a living, and make
12 sacrifices to help species that need to recover for
13 whatever reasons and then have this lease sale take
14 place, is a little bit hard --hard to take. With the
15 potential adverse effects that you spell out in the
16 Environmental Impact Statement of production. And I
17 haven't read the document thoroughly, but I will
18 highlight Table B-5. It says the summary of petroleum
19 production adverse impacts the essential fish habitat,
20 and it really hits on all of them. I mean there are so
21 many that in regards to oil development in lower Cook
22 Inlet that is adverse, that will be detrimental to my way
23 of life and the potential for our fisheries to recover,
24 it's just -- it seems like, you know, it's going to put
25 the nail in the coffin for any chance of any type of

Document 077

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MMS Response to Comment Document 077

Response 077-001.

The various probabilities of a large oil spill can be a bit overwhelming, particularly in light of the potential adverse effects identified for the many living resources inhabiting Cook Inlet and adjacent waters. However, please consider that the potentially adverse effects described are simply possibilities and may not ever manifest themselves due to many variables necessary for organisms to be contacted by spilled oil. Additionally, the MMS is using a significance threshold set for fisheries-resource populations and essential fish habitat; therefore, impacts to limited numbers of individuals, cohorts, or subpopulations or localized impacts to essential fish habitat are unlikely to constitute a significant impact at the population level. Spills exceeding those analyzed may constitute a significant impact to fisheries populations or essential fish habitat, however, the likelihood of such a spill occurring is very small.

The MMS and other Federal and State agencies take oil spills very seriously. The MMS works together with other agencies and industry to take precautions to minimize the potential for oil spills from offshore oil and gas facilities.

Please see Responses 033-001 and 070-001 for additional information regarding the coordination and cooperation among oil-spill planning and response groups.

00087

1 the community.

2 I would suggest that it would be much
3 more reasonable to offer up much smaller sections of
4 lease sales to limit the development to a reasonable,
5 long-term gross strategy. You're from the Federal
6 government. I mean our Federal government has been here
7 now for 200 years. It's reasonable to expect we'll be
8 here for another 200 years. When you're offering up such
9 huge lease sales at this time, you know, what's going to
10 be left for the people that are going to be here 200
11 years from now.

12 A number of people have expressed their
13 concerns about the environmental impacts and I agree that
14 there are environmental concerns stated in your own
15 impact study. You're asking us to accept the probability
16 of a 20 percent spill greater than 1,000 barrels, and yet
17 it states in your document that 1,000 barrels is
18 considered normal operating procedures. A 1,000-barrel
19 spill is considered part of the normal operating
20 procedures for drilling for oil and it just seems
21 unreasonable to me that they can regularly spill 1,000
22 barrels of oil as part of their operating procedure for
23 drilling for oil. So another quiet but insistent voice,
24 please withdraw this oil sale. Thanks.

25 (Applause)

Document 078

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MMS Response to Comment Document 078**Response 078-001.**

The commenter misinterprets what the document states. The MMS considers small operations spills to be normal. The discussion of small spills states that MMS expects small spills to occur, with the majority of the small spills, by spill number, to be less than 1 barrel. The MMS does not routinely expect spills greater than or equal to 1,000 barrels to occur.

00091

1 long after we are. I urge you to choose Alternative 2
2 and cancel Lease Sales 191 and 199.

3 Thank you.

4 (Applause)

5 MR. MATKIN: Good evening. My name is
6 Craig Matkin. I'm a marine mammal biologist and I had
7 the unfortunate opportunity to work on the Exxon Valdez
8 oil spill, several different studies. In looking at your
9 environmental impact statement, there's a lot left out
10 and there's a lot of not digging into areas that could be
11 explored a little more thoroughly.

12 Just a few for instances. I'm not going
13 to sit up here for long, but you'll get a written
14 statement later. You talk a lot about pin whale and
15 humpback whale distribution in the north Pacific, but you
16 don't get into the specifics of the feeding areas that
17 are right here within the lease sales and just sound the
18 lease sales. Now you will say that's because there's not
19 enough published material there and you're right. There
20 hasn't been enough published research. But if you guys
21 would dig a little deeper, talk to the people who are
22 doing bird work, they have a lot of information that they
23 can give you and there's substantial numbers of both pin
24 whales and humpback whales that use that lower Cook Inlet
25 area, but it really isn't made clear at all in the impact

Document 079

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00092

1 statement this occurs. Let's dig a little deeper.

2 You also write out the effects of
3 inhalation and citation(ph) in marine mammals. You
4 mention the extreme toxicity of the oil vapors, but you
5 sort of write out the fact that this appeared to be a
6 major cause of mortality in killer whales in Prince
7 William Sound. I get this feeling all the way through
8 this that it's basically trying to look on the rosy side.
9 Yeah, it's only one in five, but I think one in five is
10 probably too many. I think all of you need to do a trip
11 down here to the Barren Islands area when these animals
12 are feeding and get a good idea for yourselves of what
13 exactly we're talking about.

14 Here's another example of how things are
15 sort of glossed over. The humpback whale situation in
16 Prince William Sound fall in this, well, you're right, we
17 probably didn't lose any humpback whales. What you fail
18 to mention is it was a time when there are no feeding
19 humpback whales to speak of within the western Prince
20 William Sound. I just kind of think that you have a
21 misleading idea that there's not a danger to humpback
22 whales. Well, there isn't one there in the winter, but
23 there certainly is in the summer time. It's really put a
24 slant on things. It looks better than what may be, but I
25 think you need to be very, very careful to make a worse

D-079

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00093

1 case scenario because for some mammals in Prince William
2 Sound, that's exactly what we had and we want to see that
3 in your impact statement.

4 At any rate, I don't think a one in five
5 chance makes it any more attractive than the one in two
6 chance or whatever you put out last time. I think that
7 we have to look at what the worst case scenario is
8 because for many species that's exactly what the scenario
9 was in Prince William Sound. Actually, a lot of things
10 have happened we didn't expect that were worse than a
11 worst case scenario, so I'd appreciate it if you'd go
12 into some of those items in a little more detail. I'll
13 send you some written comments.

14 Thank you.

15 (Applause)

16 MS. ORR: Sharon Whytal.

17 UNIDENTIFIED SPEAKER: She's gone.

18 MS. ORR: Michael LeMay, Mako Haggerty
19 and Dave Seaman.

20 MR. LeMAY: I don't see Sharon, so I
21 guess I'm next. My name is Michael LeMay and I live in
22 Fritz Creek. I'm the owner/operator of the Good Karma
23 Inn. I have invested a good deal of money here and
24 consider myself very fortunate to participate in the
25 ecotourism movement here in our community.

D-079

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MMS Response to Comment Document 079**Response 079-001.**

Please see Response 048-003. We consider all information that is available to us regarding the specifics of feeding areas for both fin and humpback whales within the proposed sale areas and in other areas that could be affected by the Proposed Action.

Response 079-002.

Please see Responses 048-001, 048-002, 048-003, and 048-005. We will take your recommendation for a summer site visit to the Barren Islands under consideration.

Response 079-003.

Please see Responses 048-001, 048-002, 048-004, and especially 048-003.

00098

1 untouched, so I don't have a problem with that and all
2 politics is local and this is my back yard, so that whole
3 thing is just hollow as far as I'm concerned.

4 I haven't heard -- all night tonight I
5 haven't heard any good arguments in favor of drilling out
6 there. The only one I've heard and it was a weak
7 argument is about the jobs, but I've got to tell you I
8 have a job and what's the matter with my job. Why would
9 you displace me for another job. I don't understand
10 that. My job would definitely be impacted by this lease
11 sale, so you'd basically be putting a bunch of people
12 like me out of work and then in favor of worse jobs for
13 fewer people. I don't understand the jobs thing. And
14 that's the only argument I've heard in favor of this.
15 Anyway, I am opposed to the oil lease and sale 191, 199.

16 MR. SEAMAN: Hi, I'm Dave Seaman. First,
17 thanks for the pizza. I'm against the leasing of the
18 tracks for oil sale or exploration. I've fished in the
19 Barren Island area, I've cleaned up oil down that way
20 from the Exxon Valdez spill and I own a piece of property
21 down on the tip of the peninsula at Chrome Bay, which is
22 right at the mouth of Port Chatham. We actually got to
23 clean up our own beaches after the last spill. I was
24 lucky enough to see some of those whales down there that
25 Craig was talking about south of the Barren Islands.

Document 080

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MMS Response to Comment Document 080

Response 080-001.

The MMS acknowledges that some jobs could be lost temporarily in the tourism industry as the result of a potential oil spill. However, we do not have adequate data on tourist employment to make a quantitative estimate. We do analyze the potential effects to sport fishing for salmon and halibut in terms of dollars lost but not in terms of jobs lost; see Section IV.B.1.o. Sport fishing is, of course, an important component of tourism. Our estimate is that salmon and halibut sport fishing potentially would be interrupted for 1 year if a spill occurred. We anticipate that the jobs in the oil and gas industry generated by Sale 191 would supplement jobs in other basic industries, such as tourism, on the Kenai Peninsula.

00109

1 Thank you.

2 (Applause)

3 MS. WARD: Hi. My name is Emily Ward.

4 First of all, I'd like to also thank whoever was
5 responsible for the pizza. That was really well-timed.

6 I have lived in the Homer area for eight years and I was
7 here when Lease Sale 149 threatened our waters. I was
8 here when hundreds of community members told you we
9 didn't want oil in lower Cook Inlet. What makes you
10 think anything has changed?

11 You're trying to make this oil spill
12 scenario sound better in this draft EIS. In Lease Sale
13 149, your base case had 27 percent chance of a large
14 spill, which I guess is 4,600 barrels or something, but
15 you also included a high-case scenario with a 72 percent
16 chance of a large spill. Where is your high-case
17 scenario in this EIS? You're only estimating the lower
18 case of production this time around, so you predict there
19 will be a 19 percent chance of a large spill. Where do
20 you come up with these numbers? Nineteen percent.
21 That's basically a one in five chance of a spill of 4,600
22 barrels of oil. That still sounds horrible to me. Is
23 that risk worth the 140 million barrels of oil you think
24 might be down there?

25 We have economies that are dependant on a

Document 081

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MMS Response to Comment Document 081

Response 081-001.

Please see Response 007-003 regarding derivation of estimate production in scenario and “high case.”

00116

1 Then, of course, a spill, if there's a
2 spill, I mean it's pretty much shot. But if there's a
3 small spill and you say, oh, we spilled 100 gallons and
4 it dispersed, it's going to disperse into the water, it's
5 going to disburse into the food chain of the oysters and
6 it's going to go into this 14 gallons an hour that the
7 oysters are filtering. What can I say? It's important
8 to me that there not be anything going into the water.

9 When I talk to buyers, I send them
10 scientific analyses of the bacterial counts in the water,
11 of the counts of different toxins in the water. It's
12 very competitive based on the water quality and this is
13 an industry that really has a chance to go a long way and
14 make jobs in Homer.

15 Because of the nature of what we're
16 doing, because it's a cooperative farming effort, which
17 is spread all the way from Bear Cove up there to Jakalof
18 Bay, further up by Seldovia, if a farm in Jakalof Bay is
19 affected, then the entire co-op is affected and it hurts
20 our ability to market if we have one oyster which is
21 going out and not tasting as good as the rest.

22 You said at the beginning that there
23 would be a chance for questions and answers. I don't
24 really have any questions. I've already seen that if
25 there's a problem, if the oil companies cause a problem,

Document 082

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MMS Response to Comment Document 082**Response 082-001.**

Oil spills are accidental events, regardless of size. The MMS and the offshore oil and gas industry have gone to great lengths to minimize the potential for oil spills. Additionally, considerable preparation and planning has been made in the event of an oil spill. While oil may be spilled accidentally as a result of the Proposed Action, it should be understood that nonpoint pollution sources are the greatest source of introducing oil and other pollutants into aquatic systems.

00118

1 spend most of my time during the summer months when the
2 business is operating, right in the center of that map.

3 One of the big things that people do when
4 they go out and I just pitch anchor out there and sit all
5 day waiting for a fish to bite is these people just sigh
6 and say it doesn't matter if we caught a fish, it's just
7 so beautiful that I've made their entire vacation, if not
8 the vacation of their lifetime. You could look 50 miles
9 in any direction and not see a man-made thing besides an
10 occasional airplane or boat. It's just beautiful out
11 there, so I wanted to say the aesthetics of the whole
12 area on your map there are a big part of my business and
13 the tourism business of Homer, which Homer is very
14 dependant upon.

15 For anybody who is going to make a
16 decision, I would really like them to go out into the
17 middle of that map and look around and then go up to
18 Kenai and Nikiski and look around and you will see the
19 oil monsters. I've seen them. I've been up there in the
20 inlet and it's not a pretty sight. To me it's not. It's
21 like the giant power grid going through the middle of a
22 beautiful valley. It just hurts me to see things like
23 that. I know they're necessary to have them there and I
24 think you've done a good job of controlling the situation
25 with them, but I know it would definitely hurt my

Document 083

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00119

1 business to have oil platforms in the middle of your map
2 there where I'm trying to conduct my business. I know
3 that I couldn't catch enough fish or take enough pictures
4 to disrupt the oil well in Kenai, but I know that an oil
5 well here could greatly disrupt my business. So thank you
6 for your time.

7 (Applause)

8 HEARING OFFICER GOLL: Jeanne Parker,
9 Lindsay Winkler, then Lilly Lane.

10 MS. PARKER: Hi. My name is Jeanne
11 Parker and I teach children kindergarten through third
12 grade, so I'm more used to talking to kids than adults.
13 I feel like I speak for kids a lot and lately I am very
14 concerned for our future for kids, deeply concerned, not
15 just in Homer. It's kind of ironic to spend time
16 teaching kids honesty, to teach them to clean up their
17 messes, to teach them to listen to people and to treat
18 other people well, and then have industry and government
19 not follow these same rules, these same moral guidelines
20 I really believe it.

21 I've also raised a family here. I have
22 two kids off in college who really appreciated Homer
23 while they were here and now they really, really
24 appreciate Homer when they come home. They take
25 pictures, they just say it's the greatest place on earth.

D-083

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MMS Response to Comment Document 083

Response 083-001.

Please see Response 009-014.

00137

1 the Barren Islands and other wildlife depend. Perhaps a
2 simple biological example, yet it is a very complex
3 system deserving utmost respect when considering
4 potential effects of the proposed actions. Public use
5 for the purpose of wildlife viewing is increasing due to
6 this incredible richness.

7 Chisik Island, Tuxedni Bay, we've heard
8 it mentioned earlier. Tuxedni National Wildlife Refuge
9 established in 1909 by then President Theodore Roosevelt,
10 recognized in the early part of this country that these
11 were already important wildlife conservation areas. It
12 is also a congressionally-designated wilderness and one
13 of a handful of sites that is mandated to maintain class
14 I air quality per the Clean Air Act. A designation meant
15 to ensure a high quality air standards lending to
16 wilderness character. Therefore, Chisik Island, I
17 believe, should be provided with an adequate buffer that
18 maintains the standards prescribed in the Clean Air Act
19 and preempted the need for remediation or restoration due
20 to degraded air quality.

21 John, not knowing what alternative will
22 be recommended and/or finally selected, if it is not
23 Alternative 2, I feel strongly that the record of
24 decision for the oil and gas Lease Sale 191 and 199 be
25 appended to include the Barren Island deferral and

Document 084

001

MMS Response to Comment 084

Response 084-001.

Please see Responses 002-001, 002-002, 002-003, and 009-012.

00165

1 to. This was on a summer day with no wind, glass-smooth
2 waters and moderate tides.

3 So, if it was the equipment and the
4 infrastructure that I worked with this summer that
5 informs your belief that development and response to
6 potential spills can be conducted safely in the bay, then
7 I'd like to offer this experience as a little anecdote to
8 show that maybe some of the provisions that have been
9 made to protect Cook Inlet and Kachemak Bay from the
10 effects of the spill are not sufficient. If the industry
11 that wants to come in here to Cook Inlet and Kachemak Bay
12 can do no better than to provide some of the equipment
13 that they provided us, which was fun stuff to work with,
14 but if that's the best they can do, then I think they
15 better go back to the drawing board.

16 I wanted to say that, additionally, you
17 also said one of the mandates of the Minerals Management
18 Service is to investigate and potentially develop
19 alternative energy sources. Some of the qualities of
20 Kachemak Bay and Cook Inlet that make it particularly
21 unsuited for oil and gas development, that is it's
22 weather, wind, wave action, tidal range, make it ideally
23 suited to exploring some of these alternative energy
24 sources. We do have fantastic tides, currents, wind. If
25 Minerals Management would like to come back in its

Document 085

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MMS Response to Comment 085

Response 085-001.

As activities begin in an area, it is incumbent upon the operator to have sufficient and appropriate equipment along with properly trained personnel available to respond in the event of a spill. The MMS will ensure that each operator meets these requirements.

00006

1 Cook Inlet Keeper will submit more extensive comments in
2 writing on the Draft-EIS before the comment deadline.

3 My comments fall into four categories.

4 1. Draft-EIS analytical deficiencies.

5 2. Needed stipulations and withdrawal
6 areas.

7 3. Major process concerns.

8 4. Miscellaneous comments about

9 pipelines, mercury contamination and air quality
10 monitoring needs.

11 Analytical deficiencies. First, unlike
12 it's predecessor EIS for Oil and Gas Lease Sale 149, the
13 Draft-EIS does not analyze the impacts should greater
14 quantities of oil and gas be discovered than the expected
15 140 million barrels and the 190 billion cubic feet of
16 natural gas, or should the exploration and development
17 scenario exceed the conservative single platform scenario
18 predicted by MMS. This is a substantial deficiency of
19 the Draft-EIS that likely only can be remedied by
20 developing a supplemental EIS before proceeding with any
21 drilling beyond a single offshore platform.

22 Section 4(b)(2) on the no action
23 alternative does not contain any analysis of the
24 possibility of utilizing renewable energy alternatives
25 for Southcentral Alaska, such as tidal and wind power.

Document 086

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1 And I note that we're among the places in the country
2 that has the greatest potential for both of those sources
3 of renewable energy.

4 Section 4(b)(2) dismisses these
5 reasonable and cleaner alternatives to oil and natural
6 gas stating that, "costs and reliabilities of these
7 alternative sources make them less viable than oil and
8 gas resources." MMS bases this conclusion on a 43 page
9 report written in 1996, however, which contains only one
10 page on wind power, one paragraph on tidal power and no
11 region-specific analysis. Moreover, the Draft-EIS makes
12 no mention and performs no analysis on the reduced risk
13 from terrorism through increasing our reliance on
14 decentralized smaller scale renewable power generation
15 rather than utilizing centralized fossil fuel extraction,
16 transport and storage infrastructure.

17 Needed stipulations and withdrawal areas.
18 According to Section 2(b)(3)(b)(2), which addresses oil
19 and gas production, "drilling fluid wastes will be
20 reinjected. Muds and cuttings will be processed and
21 injected into wells or barged to onshore disposal sites."
22 If true, this would be the most environmentally friendly
23 way to manage drilling fluids and waste which contain
24 toxic constituents such as heavy metals, hydrocarbons and
25 various toxic drilling additives. Unfortunately, there

D-086

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00008

1 are no U.S. Environmental Protection Agency requirements
2 that ensure such management. So without a stipulation of
3 its own placed on lessees, predicting such management of
4 production waste is fanciful on MMS's part. MMS has
5 broad authorities and responsibilities under the Outer
6 Continental Shelf Lands Act to oversee and manage oil and
7 gas activities on the Outer Continental Shelf and
8 deferring to another agency in an area where MMS already
9 has authority to act simply adds uncertainty to the
10 permitting process.

D-086

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11 Industry repeatedly has called for
12 increased predictability and permit streamlining in oil
13 and gas exploration and development so it makes little
14 sense to promote contentious permitting proceedings with
15 EPA when the issue can be addressed through an MMS lease
16 stipulation.

17 As for exploration fluids and waste as
18 opposed to production fluids and waste, MMS acknowledges
19 that EPA allows disposal of these materials into the
20 marine environment. MMS also needs to stipulations that
21 lessees must reinject exploration fluids and waste or
22 barge them to onshore disposal sites. Discharges of
23 toxic drilling fluids and waste are an ongoing concern to
24 subsistence users of Cook Inlet's resources as well as to
25 commercial and sportfishers.

005

00009

1 While MMS is considering withdrawing from
2 its leasing proposal, certain areas with little oil and
3 gas development potential near the southern portion of
4 the Kenai Peninsula, Cook Inlet Keeper advocates
5 designating several additional environmentally sensitive
6 areas as no-rig zones, including Kennedy and Stevenson
7 entrances, Tuxedni Bay, Kamishak Bay, which includes the
8 mouth of the McNeil River and commercial scallop beds and
9 the coast of Katmai and Lake Clark National Parks.
10 Keeper supports the withdrawal of the areas contained in
11 Alternatives 3 and 4 and urges MMS to initiate a credible
12 process to identify additional environmentally sensitive
13 areas, especially public lands which require similar
14 protection.

15 Process concerns. Cook Inlet Keeper is
16 greatly concerned that MMS and the Federal government, in
17 general, are unlikely to be responsive to local community
18 desires with respect to that lease sale. During a
19 morning radio talk show on January 15, 2003, yesterday, a
20 questioner asked MMS's John Goll, what level of
21 opposition would it take for the agency to withdraw the
22 lease sales. Mr. Goll replied it would require receipt
23 by MMS of scientific and/or economic information that is
24 contrary to that contained in MMS Draft-EIS analysis, not
25 the opposition of nearby communities such as Homer, Port

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1 Graham and Nanwalek. While contrary information and
2 identification of Draft-EIS deficiencies is certainly
3 important, so too is widespread community opposition.
4 MMS needs to take such opposition into account prior to
5 announcing its decision on these sales.

6 Furthermore, MMS appears to have
7 abrogated its responsibilities under Executive Order
8 13084, which calls on Federal agencies to engage in
9 meaningful and timely government to government
10 consultation with Federally-recognized Native tribes,
11 potentially affected by Agency actions. Despite the fact
12 that Draft-EIS concedes that subsistence resources and
13 uses throughout Cook Inlet may be affected by oil and gas
14 activities in lower Cook Inlet, it has failed to consult
15 with various tribal governments including those of the
16 Ninilchik, Kenaitze, Eklutna and Chickaloon tribes. As a
17 result a variety of subsistence users have been
18 affectively precluded from meaningful and timely input
19 into the lease sale process.

20 And finally some comments about
21 pipelines, mercury and air quality. The Draft-EIS also
22 is insufficient, in that, it fails to analyze the impacts
23 of the onshore oil pipeline that would need to be built
24 to transport lower Cook Inlet oil to the Nikiski
25 refinery. As discussed in Cook Inlet Keeper's recent

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1 pipeline report, Lurking Below Oil and Gas Pipeline
2 Problems in the Cook Inlet Water Shed, which is cited in
3 the Draft-EIS, there are numerous gaps and deficiencies
4 in Federal and State regulatory oversight of pipelines
5 which inevitably results in unnecessarily high spill
6 rates. The problems need to be acknowledged in the EIS
7 and the likely spill rate for the onshore pipeline
8 determined as well as spill consequences. As a separate
9 action MMS also should recommend changes to Federal and
10 State requirements to address the gaps and deficiencies
11 in their respective land based pipeline regulations.
12 Such an action would give MMS more credibility with the
13 public rather than merely saying that those regulatory
14 problems are not under its jurisdiction.

15 The EIS also needs to include an
16 extensive discussion on the connection between mercury
17 offshore drilling and nearby biota. This issue was
18 recognized by MMS last spring when it formed an
19 independent advisory group to review data on mercury
20 levels in water and sediments and their relationship to
21 oil and gas activities in the Gulf of Mexico. The final
22 EIS needs to discuss the implications of this groups work
23 for Alaska.

24 Additionally, Keeper urges MMS to
25 research whether mercury from offshore oil and gas

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1 activities in Alaska is or is likely to impact nearby
2 biota.

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3 In the Draft-EIS MMS includes limited
4 information on air quality partly because there has been
5 very little air quality monitoring in Alaska in general.
6 Keeper believes there is a need for more extensive air
7 quality monitoring in the parts of Cook Inlet affected by
8 industrial activities and in Anchorage. We note that in
9 analysis performed for Cook Inlet's Redoubt shoals field
10 using 1993 to '94 data, the only data available, ozone
11 levels were at nearly one-half the national ambient air
12 quality standard when measured near Beluga on the west
13 side of Cook Inlet. Given the remoteness of this
14 location from industrial and transportation sources of
15 air pollution and the age of the data, there clearly is a
16 need for additional air quality monitoring information,
17 particularly of ozone levels before MMS can certify that
18 these lease sales will not significantly impact air
19 quality.

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20 Moreover, given that Tuxedni National
21 Wildlife Refuge is designated as a National Wilderness
22 area which gives it a PSD Class I classification under
23 the Clean Air Act, and that's the most restrictive
24 classification with tighter ambient and visibility
25 standards than in other places, it is particular

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1 important that MMS or another governmental entity
2 undertake air quality monitoring in the area around
3 Tuxedni Bay.

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4 In conclusion, Keeper has concerns about
5 the lack of analysis in the Draft-EIS of the impacts of a
6 more extensive oil and gas find, the lack of a regional
7 analysis of tidal and wind power generation opportunities
8 as part of the no-action alternative, the lack of lease
9 stipulations covering zero discharge for exploration and
10 production and MMS's including areas in the lease sale
11 that can impact several highly environmentally sensitive
12 locations. Until MMS addresses these and other issues
13 raised in these comments, no leasing should occur in
14 lower Cook Inlet.

15 Thank you for the opportunity to comment
16 on these important issues. Keeper hopes that, as our
17 nation prepares for a potential war partly related to our
18 use of Mideast oil, MMS will take a principal stand to
19 promote long-term clean energy supplies for Alaska and
20 the rest of the United States.

21 HEARING OFFICER WALL: Thanks. Next we
22 have Pamela A. Miller.

23 MS. MILLER: Yeah, there's no one who
24 came in before me?

25 MR. LIMA: No one who's signed up to

MMS Response to Comment Document 086**Response 086-001.**

Please see Response 009-038.

Response 086-002.

The OCS production assumed by the EIS is one component of the energy stream that satisfies the anticipated future aggregate demand for energy in Southcentral Alaska. This demand is created by power plants, industrial users, home heating, and other activities. Wind power, tidal power, or other forms of alternative energy also may be future components of the energy stream. Each energy source has effects that must be analyzed and that should be considered before development can occur. Many of the issues raised by comments to this EIS also apply to siting of alternative energy facilities, such as industrialization of the coastline and potential conflicts with commercial fishing. Wind power may be especially suited for rural communities not connected to the electric power generation and distribution grid and could supplement the current methods of power generation in these communities, which includes the use of diesel-powered generators. An area of potential for location of wind power exists from Kamishak Bay across Cook Inlet to the Barren Islands. The tidal range of Cook Inlet leads some to suggest that power could be generated from tidal turbines. Varied approaches exist to this technology, each with its own adverse effects as well as benefits. In neither case are we aware of a proposed project that would offset the need for additional hydrocarbon fuels in the timeframe covered by the EIS.

Response 086-003.

Please see Response 007-011.

Response 086-004.

Please see Response 008-003.

Response 086-005.

Please see Response 008-003.

Response 086-006.

Please see Response 026-003.

Response 086-007.

Please see Response 006-013.

Section I.D outlines the level of interaction MMS had with various Tribes regarding this EIS and the Proposed Action. The statement that MMS failed to consult with the Niniilchik Tribe is erroneous. The MMS has conducted Government-to-Government consultation with the Niniilchik Traditional Council, summarized in Section I.D, and they have submitted written comments, presented in Section VII, that acknowledge our consultations as being meaningful in their decisionmaking process. Furthermore, we received written communication from the Kenaitze Tribe after the close of the comment period regarding statements in the EIS which we accepted in partial fulfillment of our consultation obligations.

Response 086-008.

Please see Response 007-049.

Response 086-009.

This concern is addressed in Response 007-052.

Response 086-010.

Please see Response 009-040.

Response 086-011.

Please see Response 007-054.

Response 086-012.

Please see Responses 003-004 and 007-055.

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1 go all the way down to the floor. I won't destroy your
2 wall. But we're talking about oil, sticky, gummy,
3 hydrocarbon, benzine, toxic oil. There's not a diagram
4 in this document that looks like this. There could be.
5 They produce them. They used to produce them in the
6 documents. But that would look messy. And what we're
7 talking about is a messy business, but the public should
8 know that.

9 Finally, I'll talk about the
10 alternatives. There's basically one alternative and no
11 action in this EIS. There's a couple little areas you're
12 willing to carve out, maybe we won't lease around the
13 Barren Islands, a little, you know, 10 mile area there.
14 But in the last lease sale there was a northern deferral
15 alternative. The area that was actually leased was quite
16 a bit smaller on the order of magnitude of 10 times less
17 the area, something like that, maybe even more. Those
18 kinds of alternatives weren't considered. The last time
19 around, the Minerals Management Service looked at some
20 species of fish and tried to figure out, well, what might
21 reduce the impacts, why this matters, what could that
22 diagram of where the oil's going to go, every single
23 alternative, all three or four, as they've defined them,
24 would have the same impact. You can't be doing a good
25 analysis if every alternative would have the same impact,

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1 the same risk of an oil spill.

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2 So go back to the drawing board, come up
3 with something that's actually meaningful in terms of
4 helping the public evaluate what the alternatives are.

5 I am concerned about our nation's energy
6 supply. I think the Minerals Management could look at
7 the alternative of wind power as a meaningful alternative
8 in this EIS. I think you should go back to the drawing
9 board and provide the public with a much more realistic
10 sense of what's really at stake and how all this
11 industrialized activity might affect lower Cook Inlet.

12 Thank you.

13 HEARING OFFICER WALL: Thanks.

14 MR. LIMA: Thanks.

15 HEARING OFFICER WALL: The next one's
16 Paul Joselyn.

17 MR. JOSELYN: Yes, good afternoon. My
18 name is Paul Joselyn. And I'm a biologist with the
19 Alaska Wildlife Alliance, an organization primarily
20 involved with the protection of Alaska's wildlife for the
21 benefit and appreciation of its citizens.

22 In 1995, the Minerals Management Service
23 proposed to lease 1.98 million acres in lower Cook Inlet.
24 There was overwhelming opposition at that time from local
25 residents concerned about the impacts of offshore oil and

MMS Response to Comment Document 087**Response 087-001.**

The northern deferral, analyzed as Alternative III in Sale 149, was examined as a potential means of reducing commercial-fishing conflicts, as were the majority of the alternatives examined in that lease sale. Stipulation I - the Protection of Fisheries replaced many of these deferrals as the method for addressing fishing-gear conflicts. Unlike Sale 149, no requests were received for deferrals from commercial-fishing organizations during the scoping process for Sale 191. Table II.B-2 indicates that there are differences between Alternative I - the Proposed Action and Alternative III - the Lower Kenai deferral and Alternative IV - the Barren Islands deferral, for some resources. Given the widespread distribution of many resources in the lower Cook Inlet area and the activities envisioned by the scenario, large differences between the alternatives may not exist.

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1 an estimate of in the order of perhaps one chance in five
2 of something like this happening. If it did, the Draft-
3 EIS estimates somewhere like 22 percent to 37 percent
4 loss to commercial fisheries and about a 20 percent loss
5 in sportfishing. The fishing activity itself could
6 conceivably be shut down for an entire year. The local
7 subsistence practices of harvesting, sharing and
8 processing would also be seriously affected, just like it
9 was the last time and, which, after more than a decade
10 the oil company responsible is still battling in the
11 courts, as I've already indicated to restrict the amount
12 that they get.

13 I represent the Alaska Wildlife Alliance.
14 And we're very concerned about the wildlife species that
15 would be affected. The Cook Inlet beluga, the harbor
16 seals, the stellar sea lions, the sea otters, the
17 stellars eider, old squaw and sirscuter*, all have had
18 their problems in Cook Inlet by way of declining numbers
19 without now adding yet another factor. What has become
20 the top brown bear viewing area in the world, which just
21 a few days ago we learned was now up to roughly five
22 million a year in what it does for the economy of this
23 state could potentially also be affected. I saw this
24 because bear viewing is entirely centered around the
25 health of the salmon migrations that the bears depend

Document 088

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1 upon which then the people come to see.

2 Are there problems already? A recent EPA
3 stuffy of Cook Inlet Native subsistence resources found a
4 broad array of oil type contaminants in fish and
5 shellfish. You can imagine the levels that would be
6 likely to occur if these leases were to go ahead.

7 Cook Inlet boats some of the most extreme
8 tides in the world. It's a difficult environment out
9 there and then when you that you're surrounded by this
10 land, is it worth risking what we now have in a way of an
11 estimate of a one week worth's supply of oil for the U.S.
12 in terms of its production? Or should we be more
13 cautious about this, push that further out. Look to the
14 things that have already been mentioned, alternative
15 forms of energy, reduce our impact on the Greenhouse
16 Effect, look to reducing the ability of the automobile to
17 be successful in the sense of you want it to be able to
18 go a lot more miles per gallon than it presently does.
19 We seem to be moving in the opposite direction.

20 We strongly recommend at this time go
21 ahead with the consideration for lease sales.

22 Thank you.

23 MR. LIMA: May I ask a question, sir?

24 MR. JOSELYN: Yes.

25 MR. LIMA: You mentioned McNeil, the

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MMS Response to Comment Document 088

Response 088-001.

Please see Response 009-028.

Response 088-002.

Please see Response 007-021.

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1 Environmental Impact Statement includes the research of
2 Jeff Short and others at the NOAA laboratory at Auke Bay,
3 which shows very serious sublethal effects, chronic
4 effects of oil at levels 10 times lower than previous
5 scientific studies have shown. This is a very serious
6 consequence that has to be considered in the
7 Environmental Impact Statement.

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8 And I would just say that it's really a
9 shame that we're here today to talk about further fossil
10 fuel development for Cook Inlet and I agree with others
11 who have said previously, there are clean energy
12 alternatives and those can be developed in Cook Inlet.
13 We don't need to rely on further offshore oil and gas
14 leasing and development that poses such a great risk to
15 the sensitive environments to the people who live and
16 work around Cook Inlet.

17 And I would also say that the
18 Environmental Impact Statement, again, we raised this
19 issue with Lease Sale 149, the very serious issue of
20 climate change. And we know now that the effects of
21 climate change are quite severe and are particularly
22 serious in northern environments are quite severe and are
23 particularly serious in northern environments and the
24 biggest contributor to that is continued reliance on
25 fossil fuels and the burning of fossil fuels. There's

MMS Response to Comment 089

Response 089-001.

We concur that this is important information and have used and cited multiple publications of Dr. Short on this subject. We note that the MMS Alaska OCS Region sponsored some of this research: Duesterloh, Short, and Barron (2002).

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1 MR. LIMA: Good evening. Minerals
2 Management Service. Jim Lima speaking.

3 MR. DUNNE: Hi. Are you still taking
4 comments?

5 MR. LIMA: Yes, sir. Could I get you to
6 state your name for the record, please. This is being
7 recorded.

8 MR. DUNNE: Sure. My name is William
9 Dunne, D-U-N-N-E.

10 MR. LIMA: Okay. Thank you.

11 MR. DUNNE: I was unable to comment when
12 you had the public hearing in Homer, but I have numerous
13 concerns about the impacts of a lease sale on the
14 environment. I'm concerned about the scallop beds over
15 by Augustine Island and was wondering if you had worked
16 with Department of Fish and Game, which has mapped out
17 the scallop beds, which they have an annual fishery over
18 there that supports a number of people, boat owners and
19 deckhands. I've got concerns about potential --
20 actually, that wouldn't necessarily be spills, but just
21 the infrastructure might interfere with the scallop beds.

22

23 I also have concerns about the impacts of
24 a potential spill. I understand there's -- the EIS says
25 there's a one in five chance of a major oil spill and

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1 I've got concerns about even smaller oil spills. Just
2 the way the currents are, the gyres off the mouth of
3 Kachemak Bay, it seems like any spills or any dumping of
4 drilling waste into the inlet could get trapped in those
5 gyres and have adverse impact on larvae that are carried
6 in those gyres. There's been studies done off and on
7 over the past 30 years showing the importance of those
8 gyres for holding and transporting larvae, shellfish and
9 other larvae. I think even if there weren't a spill,
10 just the impact of discharged wastewaters and drilling
11 muds would have adverse impacts upon larval forms of life
12 there.

13 So I'd really strongly recommend that
14 there be zero discharge. I understand that the other
15 platforms in Cook Inlet are allowed to discharge drilling
16 muds and other produced waters and wastes and I really
17 strongly recommend that any drilling that be permitted in
18 this lease sale have a requirement for zero discharge.

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19 Also, I've got pretty strong concerns
20 about the impacts to the charter fishing industry and the
21 other commercial fishing industries. There's a growing
22 fishing industry for Pacific cod with pots that occurs in
23 the Federal waters out there and it seems like there's
24 potential for conflicts just from the infrastructure and
25 any rigs that might be put out there would interfere with

MMS Response to Comment Document 090

Response 090-001.

The MMS staff has been in communication with ADF&G staff concerning scallop beds near Augustine Island, as well as other fisheries resources in lower Cook Inlet. There are two scallop beds commercially fished off Augustine Island; the MMS is working with ADF&G to delineate and plot these areas on a map for use by the MMS and industry. Stipulation No. 1 - Protection of Fisheries requires a lessee to review planned exploration and development activities with directly affected fishing organizations, subsistence communities, and port authorities to avoid unreasonable fishing-gear conflicts. The EP or DPP shall include a summary of fishing activities in the area of proposed operation, an assessment of effects on fishing from the proposed activity, and measures taken by the lessee to prevent unreasonable conflicts. Local communities, including fishing interests, will have the opportunity to review and comment on proposed EP's and DPP's as part of the MMS regulatory review process pursuant to 30 CFR 250.203 and 204. The comments will be considered during the MMS's decision to approve, disapprove, or require modification of the plan. Additionally, some activities may require an EFH Consultation with NOAA Fisheries, which may provide Conservation Recommendations that modify the proposed plans.

Stipulation No. 2 - Protection of Biological Resources requires that if any area of biological significance should be discovered during the conduct of any operations on the lease, the lessee shall immediately report such findings to the MMS and make every reasonable effort to preserve and protect the biological resource from damage until the MMS has given the lessee direction with respect to its protection. Based on any surveys that the MMS may require of the lessee or on other information available to the MMS on special biological resources, the MMS has a suite of requirements that it may require of the lessee. These requirements are listed in Section II.F.1.b. Should any new scallop beds be identified and brought to the attention of the MMS, these resources would qualify for protection under either of these two stipulations.

Response 090-002.

The MMS also is concerned with the potential impacts of oil spills, regardless of size. As noted by the commenter, certain oceanographic features, such as gyres and convergence zones, may concentrate oil slicks with a variety of planktonic organisms. Many vertebrate species, including fishes, seabirds, and marine mammals feed on planktonic animals in these features and, hence, they also may be exposed to oil slicks entrapped within such features. However, oil spills and their slicks smaller than 1,000 barrels, while more probable in occurrence than a large spill of greater than 1,000 barrels, will not have a significant impact on fisheries populations in Cook Inlet lasting for generations. Please consider that subpopulations of forage fish and managed fish species inhabiting Cook Inlet are part of a larger population that is generally wide ranging, abundant in waters beyond Cook Inlet, and exhibit life cycles that extend across multiple years. These factors result in the widespread distribution of the population; although some individuals of the population may inhabit a portion of Cook Inlet during part or all of a year, the remainder of the population inhabits different habitats or areas beyond Cook Inlet. Consequently, should local subpopulations of plankton, forage fishes, or managed fishes be impacted by small spills, it likely would not significantly impact the regional population.

Please see Responses 001-013 and 001-030; they clarify the potential impacts of operational discharges to fisheries-resource life stages, as may be permitted by the EPA.

Response 090-003.

Potential conflicts between operations on the OCS and the commercial cod pot fishery would be addressed within the framework established by Stipulation No. 1 - Protection of Fisheries.

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1 the oil and gas industry is relatively new and will
2 continue providing we have no loss of fishing area or
3 fishing time as a result of Lease Sales 191 and 199.

4 As you may know the commercial fishing
5 industry in Cook Inlet directly affects the income of
6 over a thousand families. We need to point out that
7 there are important social, family and heritage values
8 involved in commercial fishing. We should like and
9 expect the Minerals Management Service and the successful
10 lessees to create a joint management council to hear and
11 consider our concerns as the exploration and production
12 phases of these projects go forward. These joint
13 management councils are to provide representatives of the
14 commercial fishing industry a forum to participate in the
15 decisions concerning exploration and production practices
16 and procedures as these relate to commercial fishing.
17 Our goal is to ensure that there is no lost fishing time
18 or areas.

19 UCIDA needs to draw to everyone's
20 attention that we want to constructively participate
21 while at the same time to ensure no net loss of habitat
22 or environmental degradation. Unfortunately we, in the
23 commercial fishing industry have had to deal with to
24 rather serious and troublesome events concerning major
25 impacts on our industry, i.e., Glacier Bay and the Exxon

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MMS Response to Comment Document 091

Response 091-001.

Please see Response 027-002.

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1 feasible.

2 In terms of your Environmental Impact
3 Statement in this regards, it has a positive
4 environmental impact on the lower Peninsula in two areas.
5 The first has already been discussed quite a bit here is,
6 in terms of economic development. Where you've got more
7 money you've got the ability to take care of the
8 environment. You've got the ability, you've got the
9 funds necessary to take care of CIRCAC, of which the city
10 of Homer is also a member, Jack Cushing, the Mayor, has,
11 over the years appointed folks to that. You've got the
12 capability of seeing that organizations like CISPRI out
13 here are funded and that they have the resources
14 necessary.

15 But the other thing, and this is for
16 those that live up here and may not be completely aware,
17 over the last decade down in Homer things have gotten a
18 lot better in terms of the coal that's taken off of the
19 beaches and burned. For those that used to go down to
20 Homer, that's where Kachemak Bay gets its name, Smokey
21 Bay from the coal that was always burning, right there
22 inside the city limits of Homer, it would stink every
23 winter. We still have property in downtown city limits
24 and across from some folks that insist on burning coal
25 every winter just because they can go down to Bishop's

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1 Beach and gather it or it is, obviously, illegal, but it
2 still has occurred, where folks are taking dynamite out
3 to the beaches and blasting under Baycrest Hill, which is
4 well known for erosion problems and Cook Inlet Keeper
5 brought it up when they expanded the road from two lanes
6 to four lane on Baycrest Hill. You know, that's one of
7 the largest coal seams that's very accessible to folks
8 right there. Folks are just going and digging it out,
9 same thing along Kachemak Drive. Again, right there on
10 Kachemak Bay. You know, folks are going after cheaper
11 alternative energy and right now the only thing that's
12 available down there is coal. Folks are just taking the
13 seams right out and you've got an erosion problem. And
14 so once natural gas is available in the area, that will
15 eliminate that problem.

16 So in terms of your Environmental Impact
17 Statement, that really needs to be part of it.

18 That's all I've got.

19 MS. ORR: Jim Butler and then Roy Wells.

20 MR. BUTLER: Good morning. For the
21 record my name's Jim Butler. I'm about a 27-plus year
22 resident of the Kenai area. I'd like to say that I
23 concur with the majority of the testimony that I've heard
24 this morning, in particular, the importance of the
25 industry in our community. By the term, community, I

MMS Response to Comment Document 092**Response 092-001.**

The air quality effects of coal burning in Homer is reflected in the ambient air quality conditions used as an input in the analysis of the air quality effects that could result from the Proposed Action.

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1 that if there is exploration and then continued
2 production in the lower part of the Inlet, that the
3 industry will take the steps that are necessary to ensure
4 that spills are minimized and then the ones that are
5 there will be ample equipment and personnel down there to
6 respond. There is a good basis already in the lower
7 Inlet. We have contracts for over 120 vessels of all
8 types to assist us in responding to spills and the
9 majority of them come from Homer and Seldovia. So the
10 training that we do with them already provides a sound
11 basis for spill response in the lower Inlet. The assets
12 are here. We may have to shuffle them around the Inlet a
13 little bit to make sure that they're capable. But I
14 would like to make sure that everybody is aware that the
15 assets in the Inlet are here. We have a huge support
16 from the oil industry and that, as an organization that
17 has over a million dollars just a year in salaries, that
18 stays here in the Inlet. And that the people who work
19 for us, they're very concerned that the schools remain,
20 that the transportation systems remain as good as they
21 are and that the public services, as far as fire
22 departments and police departments and those sort of
23 things are all maintained. And with the industry
24 providing the good chunk of tax base that provides all of
25 that, as you've heard numerous times, we want to see that

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1 continue.

2 One point that the folks who complain
3 consistently about the oil spills fail to take into
4 consideration is that the people who work the platforms,
5 that provide for the refinery and all the other support
6 industry here, they live here, they're not faceless
7 people from the Lower 48 and they hate to face their
8 neighbors and say that we screwed up and caused an oil
9 spill. That's an embarrassment to them. And they do
10 everything they can to make sure that that doesn't
11 happen.

12 So again, we're in complete support of
13 the lease sales and urge that you go forward. And in the
14 development of spill contingency planning, we will be in
15 that as much as necessary.

16 I'd like to point out that there's been a
17 lot of press lately on the geographic response strategies
18 that have been developed in Cook Inlet, both central and
19 southern Cook Inlet and also along the outer Kenai
20 Peninsula, that's something that needed to be done but
21 that's something that's been very heavily supported by
22 the oil industry. You don't see a lot of their faces at
23 the table when the plans are being developed, but we are
24 the representatives there and we will continue to be a
25 part of that. Those site specific strategies for

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MMS Response to Comment Document 093**Response 093-001.**

Please see Response 008-002 for a discussion of oil-spill response in Cook Inlet.

Response 093-002.

Please see Sections II.F.2.c and II.F.2.e of the EIS for the ITL clauses related to Oil-Spill-Response Plans and Preparedness.

Response 093-003.

The availability of geographic response strategies for Cook Inlet has been added to ITL No.3 - Sensitive Areas to be Considered in Oil-Spill-Response Plans.

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1 the two alternates that have been proposed. The
2 identification of all the critical habitat is important
3 to those areas and to be sensitive to those areas by
4 pulling out those acreages to push potential development
5 further away and to mitigate any potential inference with
6 those critical habitats.

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7 The way that the Minerals Management
8 Service has addressed the issues regarding minimizing
9 conflicts with commercial fishing, sportfishing and
10 subsistence activities, very component to the tri-
11 borough's resolution. We believe that those have been
12 more than adequately addressed through the stipulations,
13 not information to leaseholders but the stipulations that
14 are contained within the plan that pretty much demand
15 that every effort be made to avoid any forms of conflict
16 with the commercial fishing industries, sportfishing
17 industries and the subsistence industries.

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18 The issue of revenue sharing, we readily
19 recognize the Minerals Management Service does not have
20 the authority granted to it by Congress to decide how to
21 divvy up money amongst various entities, that's codified
22 in Federal statute and we recognize that we're probably
23 going to have to go back and address that with Congress,
24 however, I want to take a step back and just look once
25 again one more time, it's been referenced before in this

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1 room but I want to look at it one more time for the
2 record as to the potential benefits of this lease sale to
3 the Borough and why we feel that it's going to be making
4 progress for the Borough as opposed to having impacts
5 that are unfair to our Borough economy.

6 Oil and gas is a key component to our
7 economy. \$7.7 million in property taxes will be
8 collected from State 4356 oil and gas properties for the
9 Borough this year. \$4.4 million will be collected from
10 value added industries that rely on the raw feed stocks
11 that are produced from those industries. So
12 approximately \$13 million in property taxes. Put that in
13 perspective, \$43 million are going to be collected in
14 property taxes in total from the Kenai Peninsula Borough
15 this year. It's a huge component of our property tax
16 picture. We can't even begin to calculate the property
17 taxes that will be collected from the employees who work
18 for those value added industries and the exploration and
19 development industries but we would guess that it would
20 be at least in the seven figures. Sales tax revenues
21 generated by the economic activities generated by those
22 industries, once again another component of our economic
23 picture, how we pay for our schools, our roads, our
24 emergency services, our waste management services and the
25 other government services that are important to the

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MMS Response to Comment Document 094**Response 094-001.**

Please see Response 005-027.

Response 094-002.

See Section I.C.1.a(7) for information on the Tri-Borough Agreement.

Response 094-003.

In Section IV.B.1.j, we analyze the potential effects of the lease sale on the economy in general, analyzing major components of significant revenues to government, employment, and personal income. We analyze the property tax revenues to the Kenai Peninsula Borough resulting from construction of pipelines associated with Sale 191 in particular. We acknowledge that workers also would pay property taxes and sales taxes but have not made quantitative estimates of them. We do not have models that would yield reasonably accurate estimates for these two dimensions of the economy. However, the dimensions that we do estimate probably are reasonable indicators of the latter two.

00005

1 again, we've got marked here with asterisks was Honeybee
2 Nordenson. Then, again, if you could state your name.

3 MS. NORDENSON: My name is Honeybee
4 Nordenson and I'm a resident of Seldovia and I grew up in
5 Kodiak, so I've lived around the coastal communities all
6 my life. I don't know if this lease is going to go or
7 not, but if it does, I would like to see as part of that
8 lease agreement that then you would help support local
9 community response groups because, as we saw with the '89
10 spill, it took several days to really get something going
11 and who has ownership but the local people. So we all
12 want to protect our waters and our coast and the water,
13 of course, has a lot of our resources. And we see the
14 damage of '89 and we certainly don't want a repeat of
15 that. If you support the local response groups as the
16 time of the signing of the lease, then when we do start
17 exploring and start drilling and if, by chance, and hope
18 to God there is never a time, but there is any bit of
19 spill anywhere, then we would be prepared to be right
20 there, so I would like to see that as a stipulation if it
21 goes. I'm still undecided, myself, as to whether I agree
22 with it or not. My family has always been a fishing
23 family, so everything in the water means everything to
24 us. That's important.

25 HEARING OFFICER GOLL: Thank you. Next,

001

MMS Response to Comment Document 095

Response 095-001.

Please see Response 008-002.

00006

1 John -- and I can't read the handwriting.

2 MR. KVARFORD: Kvarford.

3 HEARING OFFICER GOLL: Thank you.

4 MR. KVARFORD: Common spelling. K-V-A-R-

5 F-O-R-D. I'm John Kvarford. I'm the president of

6 S.O.S., Seldovia Oil Spill, and that's who Honeybee was

7 just talking about. She's on our board of directors. I

8 worked on the oil spill, the Glacier Bay spill, two years

9 before the Exxon spill and then worked on the Exxon

10 spill. Both of those spills, it took a long time to get

11 started. It was several days before they even got to

12 work on it. It took time to get boat contracts, get

13 people certified in Hazwopper training, all the things

14 necessary. So about a year after the Exxon spill Tim

15 Robertson is responsible for starting the S.O.S.

16 organization and I was the first boat that signed up

17 because I thought it was a good idea.

18 What our plan was to be was like a

19 volunteer fire department, ready for an oil spill

20 cleanup. We've kept it going all this time and just

21 recently we lost our funding. We were funded pretty well

22 by Alyeska Pipeline for quite a while, so we are looking

23 for funding. If they go here in the lower Cook Inlet,

24 we'd definitely want it to be mandated that they would

25 help us and any other communities that wanted to start up

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1 the same thing. Originally we thought that we would be
2 the pilot and maybe all these other little villages up
3 and down the inlet would do the same thing and we could
4 all help each other.

5 They tell me that if this goes, the
6 people that will be in charge of oil protection down
7 there will be CISPRI. CISPRI's budget, they do the best
8 they can with what they have, but their budget has never
9 been nearly as generous as it is over in Prince William
10 Sound where they have escort vessels and millions of
11 dollars worth of preparation over there. So, there
12 again, if they open this lease in the lower Inlet, we'd
13 like to see more money go to CISPRI. And we work pretty
14 well with CISPRI, too. And we would like to see escort
15 vessels and more protection throughout the whole lower
16 Inlet.

17 The thing that we were discussing, the
18 drilling muds and other chemicals that they do dump.
19 Twenty years ago Kachemak Bay was just a fabulous
20 paradise for all types of shellfish. You could just pick
21 what you wanted for supper. There was all kinds of
22 shrimp. There was three varieties of commercial shrimp,
23 three varieties of commercial crab. Now we don't have a
24 commercial season for anything in Kachemak Bay. And
25 hardly -- for subsistence on crab, they gave us about one

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MMS Response to Comment Document 096**Response 096-001.**

Please see Response 008-002.

Response 096-002.

Cook Inlet Spill Prevention & Response, Inc. is a nonprofit corporation formed in 1990 to provide oil-spill-prevention and -response capabilities in Cook Inlet for its member companies, which include offshore oil and gas operators. This organization has been designated as a Class "E" Oil Spill Removal Organization by the U.S. Coast Guard, which is the highest level of designation based on spill-containment and removal equipment requirements for offshore/ocean response. Public comments provided by CISPRI General Manager Mr. Doug Lentsch at the Kenai public hearing (transcript pages 62-66) indicates funding will be sufficient for the organization to meet its obligations.

Response 096-003.

Please see Response 007-045.

00008

1 week on tanner crab last year.

2 And I've always suspected that maybe
3 things are coming down from the upper Inlet, from the
4 drilling platforms. We've also heard stories in the past
5 that up there where they're processing they dump an awful
6 lot of chemicals that haven't been certified as being
7 hazardous, so then they're legal to dump even though they
8 haven't been certified to be safe either.
9 So we'd like to see some changes in that. We'd like to
10 be better protected. I think that's all I have.

11 HEARING OFFICER GOLL: Thank you. Walt
12 Sonen.

13 MR. SONEN: My name is Walt Sonen. I'm a
14 resident of Seldovia and I guess I would start out by
15 saying I'm a proponent of Proposition No. 2, which is the
16 non-sale of this area. The reasons for that are the many
17 doubts that I have about this lease sale and its effects.
18 According to what I understand of the environmental
19 impact statement, that there is a 19 percent risk of a
20 major spill. That's a one in five risk over the life of
21 the lease sale. The lease sale was based on the estimate
22 that there would be one platform in the area.

23 I guess what we're talking about today is
24 the lease sale proposed for the year 2004, but also in
25 here you mention the lease sale for the year 2006. The

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1 lease sale for the year 2006 was also projected to have
2 another platform. It's unclear to me whether this would
3 then increase the risk of a spill another 19 percent or
4 not, but if we have a 40 percent, 38 percent chance of a
5 spill over the life of these two platforms, supposing
6 that's the only two platforms, I would suggest to you
7 that -- or all of us in this room that we might look at
8 that area and assess the value of that area just like it
9 is today in millions or billions of dollars and if one
10 were going to run an insurance company for profit, one
11 would maybe suggest that 50 percent of that value that we
12 would lose to an oil spill might be a viable premium for
13 insurance. I mean if we're looking very clear-eyed into
14 the future, expecting a spill, a major chance of a spill
15 in this area, or a chance of a major spill, I think that
16 the way this is being approached is unacceptable, that
17 there's other values for this area.

18 I'm speaking after Red Kvarford and I
19 agree with him on the suspicions for the local fishermen.
20 I fished crab here in the late '70s and early '80s and
21 there's no more crab. There are many reasons for that,
22 but one of the suspicions that's always been amongst the
23 fishermen was that it was the toxic waste that's been
24 dumped in the drilling muds in the upper Inlet. It's my
25 understanding that the standards required for this area

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1 would be the same as the upper Inlet. The Cook Inlet
2 area is the only area in the United States where toxic
3 waste can be dumped directly into the water column. This
4 has been going on since the mid '60s. The overall effect
5 of that in the lower Inlet with all the turbulence and
6 water movement that we have is really unknown. There
7 were no studies done in 1965 to see what the inlet
8 actually looked like then before this type of dumping was
9 put into place. Only sporadically since then, to my
10 knowledge, has there been any sort of analysis of the
11 soils on the bottom of the inlet.

002

12 Should this sale take place, I think a
13 thorough study of what exists now should be taken and
14 then compared to what occurs later. I would be opposed
15 to the sale unless there was a total ban of dumping of
16 drilling muds and hazardous waste off the platforms.

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17 Another thing that I might point out just
18 for the record because we live here and we fish here is
19 that this area is one of the most treacherous areas for
20 weather that can possibly be imagined. The currents at
21 the mouth of Cook Inlet are like none other in the world
22 perhaps and we have a lot of wind associated with that
23 and the wind comes from different directions. There are
24 areas in the lower Cook Inlet off the Barren Islands that
25 the waves meet and they just go straight up in the air.

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1 It's terrible weather and I'm sure that the oil companies
2 would probably be aware of that, but it's something that
3 maybe needs to be taken into account perhaps.

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4 We have a large body of water here. It's
5 one of a few areas in the whole United States where there
6 is as much oil traffic as there is with unescorted
7 tankers. I don't think that your impact statement or the
8 mandates to the sale require any different requirements
9 than the existing requirements and I think it's time that
10 we put some of these things into place and assess the
11 real cost of drilling and oil exploration in Cook Inlet.

006

12 I'm also a member of the local Seldovia
13 oil spill response team and I would -- should this sale
14 go through, I would like to see a rider placed on the
15 lease sale, half the time of the lease to assess a
16 certain amount of money to go into local oil spill
17 response. Thank you.

007

18 HEARING OFFICER GOLL: I think as of
19 right now that's who we had signed up to testify unless
20 anybody else would like to now. Yes.

21 MR. KVARFORD: Could I jump back in?

22 HEARING OFFICER GOLL: For the record?
23 Do you want to be informal or on the record?

24 MR. KVARFORD: Either way. It doesn't
25 matter. Down through here, Walt pointed it out, this is

MMS Response to Comment Document 097

Response 097-001.

The EIS does not assume a second rig would be placed after Sale 191. As noted in the scenario outline in Section II.B and Appendix B, the MMS assumes that exploratory drilling will follow each lease sale from a single exploratory drilling rig that sequentially moves from leased tract to leased track. Delineation drilling takes place from this rig, from which a single field will be discovered. A single production platform would be constructed and sited to develop the field.

Response 097-002.

Crab populations were commercially harvested in Cook Inlet in the past; however, populations crashed and the commercial harvesting of crabs in Cook Inlet was suspended. The leading factors attributed to the decline of crab populations in Cook Inlet are (a) severe fishing pressure (overharvesting of crabs) and (b) community reorganization resulting from an ocean climate regime shift (Anderson and Piatt, 1999). The MMS has no scientific information suggesting that crab populations were significantly affected by oil and gas exploration and production activities in Cook Inlet, although the MMS will consider credible scientific information regarding this issue, if presented to the Environmental Assessment Section.

This concern regarding contaminants is addressed in Responses 001-008, 010-030, and 010-042. We do know what the contaminant levels were before 1965, through the use of dated sediment cores (Boehm, 2001a). The scientific community has a much better understanding of oil and gas contaminants in Cook Inlet than other potential causal factors such as known physical oceanographic regime shifts, fishing pressure, and competitive interactions between commercial crab, shrimp, and fish species. For example, although crab numbers dropped, salmon numbers increased sufficiently to reopen closed Susitna Valley streams to salmon fishing. The shifts in fish, crab, and shrimp numbers occurred in a much broader area than just in Cook Inlet, further precluding Cook Inlet contaminants as a cause.

The MMS, University of Alaska Fairbanks, and CIRCAC are cooperating on multiple physical oceanographic studies that better detail our understanding of water movement and turbulence in Cook Inlet.

Response 097-003.

Please see Response 009-040.

Response 097-004.

Please see Response 008-003.

Response 097-005.

The weather, wind, and waves are discussed in Sections III.A.2 and II.A.3.

Response 097-006.

Please see Response 007-045.

Response 097-007.

Please see Response 008-002.

00014

1 of money.

2 I think this is a philosophical point of
3 view, but I believe in sacred places and there have been
4 some areas designated in Alaska as sacred places forever
5 and all times. We would not drill there. And now we are
6 considering this once again. I just want to know how
7 many times we have to say no. We've said no once, twice,
8 three times now. Every time an economic burden comes, we
9 have to suddenly open up our sacred places. That's
10 philosophical, I know, but I just wanted to state that.

11 Part of our human spirit is that we are
12 able to keep sacred places and as soon as we're not, I
13 mean who can we trust. We make each other a trust. We
14 make a promise to the people of the United States when we
15 set up these kinds of things. This doesn't totally apply
16 to this, but it seems to me that the Kachemak Bay is an
17 awfully beautiful place to waste. Thank you.

18 MR. SHAVELSON: My name is Bob Shavelson.
19 I'm the executive director of Cook Inlet Keeper, but for
20 tonight's testimony I will testify as an individual
21 resident of the Kachemak Bay watershed. I guess I'd like
22 to start out first and say the notion of supporting a
23 local community-based strike team such as the S.O.S. team
24 is imperative if the Minerals Management Service is going
25 to go forward with these leases. I think one of the most

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1 farm-raised fish on the market and we're doing this at a
2 time when we're dumping toxics into the very habitat
3 these fish need. I've likened it in the past to a crop
4 duster flying over an organic farm and marketing is all
5 about perception and branding is too and it's going to be
6 very difficult to elevate and create niche markets for
7 Cook Inlet/Kenai wild salmon if, in fact, we have an
8 industry that continues to insist on dumping.

9 Getting to that, the presumption in the
10 environmental impact statement is that there will not be
11 during development and production waste discharges,
12 drilling muds and cuttings or produced water. And I
13 would urge in the strongest possible terms for MMS to
14 recommend to the Secretary of the Interior that the
15 prohibition on that dumping be included as a stipulation
16 in the lease and not simply defer to the sister agency,
17 the Environmental Protection Agency, because time and
18 time again the Environmental Protection Agency has bowed
19 to the pressure of the oil industry and has allowed these
20 discharges to continue. So there's no guarantee --
21 despite the fact that it is a presumption in the EIS
22 analysis, there's no guarantee that we won't see
23 continued dumping on the outer continental shelf.

24 I guess I'd like to take a step back
25 because a lot of times we get so focused on the minutia

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MMS Response to Comment Document 099

Response 099-001.

Please see Response 008-002.

Response 099-002.

Please see Response 008-003.

Subject: FW: Lease Sale 191 and 199

Follow Up Flag: Follow up

Flag Status: Flagged

-----Original Message-----

From: Dale Banks [mailto:loopy@homernet.net]

Sent: Sunday, February 09, 2003 6:33 PM

To: AKEIS

Cc: AKWebmaster

Subject: Lease Sale 191 and 199

Mr. Lima,

Please accept these as my written comments on Lease Sale 191.

I would like to point out what I believe to be an error in your calculation of the likelihood of a large spill. Based on OCS rates, you show the pipeline spill rate to be 1.38 spills/billion barrels. Converting this to spills/140 million bbls, one multiplies 1.38x.140 which equals 0.19. In the draft EIS, you claim that this converts to 0.18. Combining this with your platform rate of 0.02, assuming that these are independent events as stated in the EIS, the total probability of spill, P(S) is the union of probabilities of platform spills P(P1) and Pipeline spills P(Pi). Therefore, $P(S) = P(P1)+P(Pi)-[P(P1)*P(Pi)]$, or $0.19+0.02-0.0038 = 0.2062$, or 0.21. This would seem to be a probability of a large spill of 21%, not 19% as stated in the draft EIS.

The proposed scenario of one single development skews the spill probability analysis further, by underestimating the total amount of oil likely to be recovered from the proposed sales. If an oil company develops a platform and is successful at finding the estimated 1.4 million barrels of oil, then it is likely that further exploration would occur, increasing the amount of oil recovered, and likewise increasing the risk of a large spill occurring. Using the rate above of $P(S)=0.21$, then if there were 2 developments of 0.14Bbbl, then $P(S)=0.21+0.21-(0.21*0.21) = 0.38$, or 38%. Similarly, if there were 3 developments of 0.14Bbbl, the probability of a large spill would be $P(S)=P(S1)+P(S2)+P(S3)-P(S1)*P(S2)-P(S1)*P(S3)-P(S2)*P(S3)+P(S1)*P(S2)*P(S3)$
 $= 0.63 - 0.0441-.0441-.0441 + .009261 = 0.507$, or 51%. Continued development would lead to further increases in the likelihood of a large spill, and I believe that the draft EIS purposefully downplays the likelihood of further development beyond one platform, in order to downplay the likelihood of a large spill. The EIS should include probabilities of a large spill for more than one development, and should recognize that one successful development will likely lead to others.

I feel that one or more large oil spills in lower Cook Inlet would be devastating to the local economy and ecology, and that the risks of this proposed lease sale far outweigh the possible benefits.

One benefit put forth in the draft EIS is revenue to the Borough of \$2.7 million per year. This amounts to \$4.53/month for each person in the Borough. When put in these terms, the benefits do not seem very great. There is no mention in the EIS that I could find of expected industry profits as a result of this lease sale. This information should be

included as part of the economic analysis.

Alternative energies such as wind and wave power are viable options in Alaska. These alternatives, should they be supported by the MMS and other federal agencies, would provide more jobs, more stability to our energy needs, and more domestic control our energy supply. These alternatives would also be more compatible with the economies in existence on the lower Kenai Peninsula such as fishing and tourism.

I found that as I was trying to compile these comments, I could not access and of the links to sections of the EIS listed in the table of contents page at <http://www.mms.gov/alaska/cproject/Cook%20Inlet/DEIS/Table%20of%20Contents.pdf>, the links were giving a 'page cannot be found' message. This was especially frustrating. The website should be maintained more carefully, especially as the deadline for comments approaches.

I support Alternative 2, No lease sale.

Dale Banks
PO Box 2888
Homer, Alaska 99603
loopy@homernet.net

MMS Response to Comment Document 100**Response 100-001.**

Please see Response 071-002.

Response 100-002.

The EIS estimates that 140 million barrels of oil will be explored, discovered, and produced over two sales. The chance of one or more spills greater than or equal to 1,000 barrels over two sales is 19%. Future leasing beyond the two sales in this 5-year program (2002-2007) will evaluate the chance of one or more spills occurring, should development occur from these two sales. The cumulative case evaluates spills from future OCS resources in Cook Inlet. In addition, an offshore development in Cook Inlet would be further analyzed in an Environmental Assessment or an EIS once a development and production plan were submitted. The commenter is using the mean number of spills as the probability of a spill.

From: Lima, James
Sent: Thursday, April 17, 2003 8:00 AM
To: Nuttall, Kristopher
Subject: FW: MMS Offshore oil & gas leasing in lower Cook
Follow Up Flag: Follow up
Flag Status: Flagged

-----Original Message-----

From: Jack Rathert [mailto:rathert@alaska.net]
Sent: Sunday, January 26, 2003 1:00 AM
To: AKEIS
Subject: MMS Offshore oil & gas leasing in lower Cook Inlet

Gentlemen,

My name is John D. Rathert Sr. I am a retired oil field engineer having worked in the oil industry in Alaska for 31 years all over the state but mostly in Prudhoe Bay. 29 years with Schlumberger Well Service Company and 2 years with BP Alaska as a consultant.

I live on the bluff (50' away) facing west overlooking Cook Inlet just 2 miles south of Ninilchik, Alaska. I chose this location to build my retirement home primarily for the pristine, uncluttered and spectacular view. My view consists of 38 miles of open water, snow covered mountains, 5 volcanoes, an occasional ship and a few fishing boats during the summer. The excellent fishing is a bonus as is the serene quality of life. This serenity is being attacked on two fronts. One is your desire to drill in front of my home. The other is the Ninilchik Native Association "bamboozling" the Kenai Peninsula Borough into vacating an easement at the end of our promised, platted and recorded dead end road to provide access for their development of a sub division which will increase the access for 11 lots to approximately 50 lots. This will cause a severe increase of traffic on a narrow dusty road. What is happening to my pristine retirement home? Drill rigs in front and road races behind my home. That was not as I planned.

A worry of drilling in front of our house was not a consideration as the lease sales in the past have been a flop as well as opposed by the people living here before we came to this location. I personally worked on some of the exploratory wells in that area. Now here you come again wanting to lease and drill in the Cook Inlet. How many times does NO have to be spoken before it is understood that we do not want any more drilling in the lower Cook Inlet? I know it looks like the NIMBY factor is alive and well, which it probably is, but how does a person protect his personal environment any other way?

There are some buffer areas, one to protect the Barren Islands and the other at the entrance to Katchemak Bay to appease the very vocal people of Homer, "again".

D-101

I will have to admit that some of them are environmental whackos that believe that the world can run on windmills, solar panels and "other fuels" but some feel as I do.

Can another buffer be included say 10 miles out from the eastern shoreline from Ninilchik south to the buffer near Katchemak Bay.? That would minimize the visual pollution and most interference with sport fishing boats from the populated east side and still allow access to the area for drilling. The western side is unpopulated as you well know.

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I am not afraid of the oil field activity causing some environmental disaster. My long time oil field experience tells me that is not a serious threat. I am more afraid of the increase in shipping activity doing damage as well as causing conflict with the sport fishing and commercial boats. That was the case years ago when the seismic surveys were done with ships pulling the long, 4 mile, strings of microphones. They were extremely uncaring of the fishing activity and created bad PR that still exists.

002

I am against the lease sale area as it is now proposed.

Thanks for your time, attention and the opportunity to comment.

John D. Rathert Sr.
907-333-4930

VII-422

MMS Response to Comment Document 101

Response 101-001.

Section IV.B.1.n discusses the potential effects of OCS operations on the visual resources of the area. Consideration of a 10-mile buffer to minimize visual resource impacts would be excessive, because it exceeds the 8-kilometer (5-mile) visual resource impact area considered in the draft EIS and premature, because the impact depends on the location-specific characteristics of the platform, which will be considered in subsequent NEPA analysis. Stipulation 1 - Protection of Fisheries described in Section II.F.1.a of the EIS, requires lessees to address potential conflicts with commercial, sport, and subsistence fisheries.

Response 101-002.

Stipulation 1 - Protection of Fisheries, described in Section II.F.1.a of the EIS, requires lessees to address potential conflicts with commercial, sport, and subsistence fisheries, including those that could arise from seismic surveys. This stipulation evolved from concerns regarding space-use conflicts arising out of previous activity in the Cook Inlet.

-----Original Message-----

From: Marie McCarty [mailto:mlm@xyz.net]
Sent: Sunday, February 09, 2003 9:15 PM
To: Gale_Norton@los.doi.gov; frankmurkowski@gov.state.ak.us; AKEIS
Subject: Comments on proposed Lease Sale 191 and 199

Re: Cook Inlet Multiple Sale Environmental Impact Statement for Lease Sales 191 and 199

Dear Secretary Norton, Governor Murkowski and Mr. Goll;

I am writing to oppose proposed Lease Sales 191 and 199 scheduled respectively for 2004 and 2006. I strongly favor Alternative II (No Action Alternative) requiring the cancellation of both Lease Sale 191 and Lease Sale 199. My comments are based upon the language of the EIS analysis that reports there are "potentially significant effects from an unlikely large oil spill to essential fish habitat, endangered and threatened species, commercial fisheries, sport fisheries, recreation and tourism, archaeological sites, and national parks", and from the EIS assessment that the likelihood of a large oil spill or natural gas release would be 19%. This is too high a risk level for such a pristine and ecologically significant area.

I am a resident of Homer, Alaska and have lived here since July 1996 with my husband, and two children, who are currently ten and seven-years old. We intend to remain in Homer. My family and I attended the February 23, 2003 hearing in Homer, although we did not testify. We attended the previous hearing on Lease Sale 149 in Homer.

1. Endangered/Threatened Species

Under the EIS analysis, it was reported that a large oil spill or natural gas release had a 19% likelihood of occurring within or adjacent to the waters inhabited by twelve endangered, threatened, or candidate species (Blue whales, Fin whales, Humpback whales, Northern Right whale (Eastern North Pacific Stock), Sei whale, Sperm whale, Stellar sea lion (Eastern and Western U.S. stock), Beluga whale (Cook Inlet stock), Short-tailed albatross, Steller's Eider (Alaska breeding population), Northern Sea Otter (Southwest Alaskan stock)). Additionally, there is critical habitat for Steller's sea lions within the proposed Lease Sale area. The EIS concludes that the "significance of potential cumulative effects on many of the threatened and endangered species that occur within or near the proposed Cook Inlet Lease Sale 191 area are uncertain." (EIS V.C.5.f.)

Although the EIS reports that it is unlikely that the oil/natural gas would come into contact with these species due their seasonal mobility, it is impossible to predict when and where a spill will occur and which endangered/threatened species would be harmed. Based upon the presence of these species, the sale presents an unacceptable risk to a number of species protected by federal law. There are extensive federal resources being spent to research, and preserve the habitat of these Alaskan animals. It is incomprehensible that Minerals Management Service would put these protected animals at risk of a major oil spill while other so much federal money and time is spent trying to preserve the animals and their habitat. Additionally, the EIS reports that there is insufficient information to make a determination about the cumulative effects the Lease

Sales could have upon many of the threatened and endangered species. It is irresponsible to put these species at a 19% risk without this key life history and other related information. It is clear from the EIS that there is insufficient data to determine the cumulative effects upon several of the endangered/threatened species. Without this information it is irresponsible to allow the leasing of 2.5 million acres of environmentally sensitive waters.

001

The ecosystem of the Kenai Peninsula is complex. A spill would also likely effect the salmon and other fish brown bears feed upon. In 1998 Kenai Peninsula brown bears were designated by the State of Alaska Department of Fish and Game as a "Species of Special Concern." Again, these animals have been deemed worthy of preservation. Additionally, many people in the Lease Sale area base their livelihoods upon the presence of healthy fish stocks.

002

2. National and State Protected land

A large portion of the shore surrounding the Lease Sale is protected in five National Wildlife Refuges, Lake Clark National Park and Preserve, Aniakchak National Monument and Preserve; all Islands classified as wilderness under the authority of Katmai National Park and Preserve, McNeil River State Game Sanctuary; State Game Refuges, Critical Habitat Areas, including Kachemak Bay, and the Captain Cook State Recreation area, as well as areas requiring special sensitivity historically and culturally, including Yukon Island, Port Graham/English Bay, and the Nushagak and Mulchatna Rivers areas. The 19% possibility of a spill within the waters surrounding protected lands is unacceptable.

3. Visual Disturbance

I am also concerned about the visual disturbance that would be caused by the leasing of these waters. The Kenai Peninsula economy, in part, is fueled by tourism and fishing. People come to Alaska to experience its wilderness and enormity. Kachemak Bay is the largest site in the National Estuarine Research Reserve System and a Western Hemisphere Shorebird Reserve. To have oil rigs looming at the mouth of Kachemak Bay and along the Kenai Peninsula's southern coast will cause the diminution of these designations.

003

4. Potential for Catastrophic Events

I am quite concerned about the huge tidal influxes, the severe sea conditions that include very rough and icy waters in much of the proposed Lease Sale area, and the potential for catastrophic events such as seismic and volcanic occurrences. The EIS does not adequately address the potential harmful effects of these constant environmental factors in the area proposed for the Lease Sales.

004

5. Should the Lease Sale proceed

Should MMS choose to proceed with the Lease Sales, MMS should permanently defer development in key sensitive habitats, including near Kamishak Bay, Kachemak Bay, Barren Islands and Kennedy and Stevenson Entrances.

005

It is imperative that MMS commit to tug escorts for loaded tankers in the proposed leasing areas, and require state of the art pipeline design and construction. MMS should conduct cumulative impact studies to ascertain the extent of the biological harm caused by oil and gas pollution in Cook Inlet.

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In general, I support the development of energy policy founded upon renewable energy sources, rather than the development of non-renewable resources in ecologically sensitive areas.

Thank you for reviewing these comments and I hope that Alternative II is selected.

Sincerely,

Marie McCarty

P.O. Box 15295

Fritz Creek, AK 99603

MMS Response to Comment Document 103

Response 103-001.

Cumulative effects on many of the threatened and endangered species are uncertain for a variety of reasons. Most of the threatened and endangered species of consideration here inhabit marine environments for most, or all, of their lives. Many occur in habitats in which they are difficult and extremely expensive to study. A few of them (Steller sea lions, sea otters, and Steller's eiders) are declining for reasons that are either unknown or at least not entirely clear. Many of them—the great whales, for example—can range over large areas, and adverse effects from any given source often are difficult to determine. For example, for the great whales, the determination of the impacts of environmental contaminants on basic parameters such as survival or reproduction likely would be extremely difficult and expensive to assess with a sample size and study length that would make the study meaningful, unless the effects of such contaminants were severe. With respect to the impacts of fisheries interactions, many of the species could interact with fisheries of differing types and in different regions. The cost of obtaining reliable data about typical interaction rates and, more importantly, determining the biological significance of any of these interactions for many of these species would be extremely high or, as summarized in Sections V.C.5.f(1) and V.C.5.f(2), may be impossible because individuals may die out at sea or drift to remote regions and never be detected. Almost none of the information that one would like to have on anthropogenic effects can be obtained using short-term studies or without considerable, often exorbitant, levels of funding. We refer the commenter to our analyses of cumulative effects in Section V.C.5.f. We point out that while we may be offering for lease a very large area, available information does not suggest that these proposed sales and possible exploration activities would be followed by a high level of development and production activity (please see the relevant scenario assumptions in Appendix B). Lastly, we note that we have recently concluded consultation with both the NMFS and the FWS under Section 7 of the ESA. We refer the commenter to Appendix C for the Final Biological Opinion from the NMFS regarding potential effects, including cumulative effects, of the proposed action for ESA-listed species under their jurisdiction and the corresponding memoranda from the FWS.

Response 103-002.

The EIS assumes a platform spill of 1,500 barrels or a pipeline spill of 4,600 barrels. A spill of this size range is very unlikely to affect or contaminate enough salmon stock stream habitat to significantly reduce salmon numbers to the point that brown bear food availability is affected. Potential contamination of coastal clam beds, where bears feed seasonally, could have effects on some brown bears; see Section IV.B.1.i(3)(f2)b) - Effects on Brown Bears.

Response 103-003.

Please see Response 009-014.

Response 103-004.

Section III.A of the EIS describes the physical characteristics of the region, including the processes that have shaped and continue to shape the region, including faulting, volcanism, tsunamis, and high-velocity tidal currents. This section also summarizes the oceanographic and meteorological conditions in the area, including high winds and sea-ice formation. The MMS considers this information adequate for the analysis presented in Section IV.B. Any and all structures placed on the OCS must be engineered to withstand a maximum climatic or physical event, such as a 100-year storm or a massive earthquake. This standard does not imply the structures will be “quake proof” or that damage would not occur; however, over time, construction technology will minimize potential damage to facilities. The effects of a volcanic eruption possibly could result in a temporary suspension of operations and increase maintenance, such as the replacement of filters and anticorrosion coatings. Because of the depth of the water in most of the OCS portion of Cook Inlet, tsunamis would have little effect on drilling rigs and platforms. Tsunami hazards for

onshore facilities, such as the pipelines anticipated to carry OCS production to existing onshore facilities, can be greatly reduced by design and location.

Response 103-005.

Please see Response 026-003.

Response 103-006.

Please see Response 007-045.

Response 103-007.

Please see Response 018-005.

Response 103-008.

Please see Response 009-040.

COMMENTS TO Cook Inlet Planning Area Oil & Gas Lease Sales 191 & 199
Draft Environmental Impact Statement OCS EIS/EA MMS 2002-065

From: Rick Foster, Homer, Alaska

Ladies and Gentlemen: I was at the Public Hearing in Homer. I chose not to speak. Instead, I allowed my friends, neighbors, and other community members speak from their hearts to try to convince the panel to take Homer's story back to Washington. I am opposed to Oil and Gas Lease Sales 191 and 199 and therefore, support Option #2--No Sale.

I am trained as both an environmental scientist and social scientist and hold a Doctorate in Resource Ecology. Resource Ecology studies human altered/manipulated systems. One of my interests lies in investigating the interface between natural and social systems, i.e., the human element in decision making and management. Unlike my neighbors who testified, I am new to Homer, having lived here only 3 years—and a relative newcomer to Alaska, residing here only 14 years. I moved to Alaska the year of the Exxon Valdez oil spill (EVOS). But I recall the promises made by the government and the industry when the Port of Valdez was identified as the terminus of the proposed pipeline. Promises that did not come into existence until after the catastrophe. However, some of those 1970's promised protections do not exist in the Cook Inlet and are not even planned.

Even though I was not in Homer at the time of the EVOS, I am not a newcomer to oil and the industry. I was a child of oil in California. My grandfather was a petroleum engineer in the Southern California oil fields in the 1910-1949. I grew up in Los Angeles and Santa Barbara. Surfing, swimming, and sailing in the Santa Barbara channel meant dealing with oil on the beaches. While living in Santa Barbara, all my neighbors and I had a can of white gas on our door steps to clean the "tar" off of our feet and surfboards. This so-called tar came from the natural seeps within the seismically active and very fragile Venture Avenue Anticline that traverses under the Santa Barbara Channel.

I stated, oil was a part of our life, but an incident occurred in 1969 that primed me to carefully evaluate and assess off-shore drilling proposals—and promises. I was not always suspect of the industry and oil drilling technology. To some extent, tar/oil was always a way of life on the beaches of Santa Barbara. As a little boy I can recall stories my father told me of his father, an oil engineer, who surveyed these waters from the time the earliest offshore drilling took place from

a pier at the turn of the twentieth century. Apparently the locals were concerned about the instability of the area and warned the oil companies that drilling would result in a disaster. Based on my father's recollection, this was a clear case, according to the locals, of not "if" but "when" a disaster would occur.

In case you do not recall the incident, let me refresh your memory. At 10:45 am on Tuesday morning, January 28, 1969, about five miles off the coast from the aptly named small coastal community of Summerland, all hell broke loose. Like most catastrophes, there was not one point of failure but many acting in concert. The problems began on an offshore drilling rig operated by Union Oil called platform Alpha, where pipe was being extracted from a 3,500 foot deep well. The pressure difference created by the extraction of the pipe was not sufficiently compensated for by the pumping of drilling mud back down the well, which caused a disastrous pressure increase. As the pressure built up and started to strain the casing on the upper part of the well, an emergency attempt was made to cap it, but this action only succeeded in further increasing the pressure inside the well. The consequence was that under extreme pressure a burst of natural gas blew out all of the drilling mud, split the casing and caused cracks to form in the seafloor surrounding the well. A simple solution to the problem was now impossible; due to the immense pressure involved and the large volume of oil and natural gas being released a "blowout" occurred and the 1969 Santa Barbara oil spill was under way.

In retrospect, the simplified cause of the blowout was an industrial accident. Yet how the accident precipitated the events that followed was far from simple. Union Oil (now Unocal) had been granted a *waiver* by the United States Geological Survey that allowed them to use a shorter casing on the pipe than Federal Standards prescribed, a casing is a reinforcing element of the well that is supposed to prevent blowouts. Even though the well itself was capped, the fragmentation of the wellhead produced a disaster. Oil and natural gas broiled to the ocean surface in the vicinity of the oil platform for eleven days while increasingly desperate attempts were made to contain and stop the spill. The techniques, equipment and resources necessary to combat an oil spill of this magnitude did not exist at the time. On the eleventh day, chemical mud was successfully used to seal the cracks in the seafloor, but only after approximately three million gallons of oil escaped. The wind, ocean currents, tides and waves dispersed the spilled oil into the pristine and biologically diverse waters of the Santa Barbara channel and coated the shoreline.

Eight hundred square miles of ocean were impacted, and 35 miles of coastline were coated with oil up to six inches thick. The oil muted the sound of the waves on the beach and the odor of petroleum was inescapable. The ecological impact was catastrophic. Rescuers counted 3,600 dead ocean feeding seabirds and a large number of poisoned seals and dolphins were removed from the shoreline. The spilled oil killed innumerable fish and intertidal invertebrates, devastated kelp forests and displaced many populations of endangered birds.

Into the fray came Alaska's past (and future governor) Walter J. Hickle, the brand new United States Secretary of the Interior and, as overseer of the USGS, nominally responsible for the waiver obtained by Union Oil for the shorter casing implicated in the disaster. Hickle's acceptance of responsibility was the start of a long chain of Federal concessions admitting that it was at fault to some degree. First, Secretary of the Interior Hickle, and later President Nixon, personally viewed the damage. This experience undoubtedly influenced their opinions regarding the concerns being expressed by the people of Santa Barbara who were affected by the spill and the newly emerging environmentally conscious political movement. In a White House report a full 17 years later, it was stated that: "The federal government had largely ignored the need to protect commercial, recreational, aesthetic, and ecological values of the area." (White House Council on Environmental Quality, 1996). With the damage caused by the oil spill the threshold had been crossed, and never again would environmental costs be seen in the same light.

The point of all this is that you, the Minerals Management Service and the Department of Interior will be held liable if even a small spill occurs or other threat to the ecosystem or economy occurs. The people of Alaska and the Lower Cook Inlet (i.e., the communities of Homer, Port Graham, Nanwalek, and Seldovia) have spoken loud and clear. They explained about the extremes tides fierce storms and the likelihood of seismic and volcanic disasters. They voiced their concerns regarding the delicate economic and ecologic systems. Like the Southern California old timers, you have heard the warnings. The Federal Government can not and must not ignore the need to protect the **commercial, recreational, aesthetic, and ecological** values of the Lower Cook Inlet. The Draft EIS does not adequately address these four values. Please explain and clearly how your proposal will protect these four values. In other words, how will you quantitatively measure thresholds for these four values and then monitor them. Then, and only then can your EIS adequately identify how you will effectively protect these values.

Because of the evidence of the Santa Barbara Oil Spill and EVOS, combined with the inadequacy of the Draft Environmental Impact Statement for Oil & Gas Lease Sales 191 & 199, and the extremely delicate conditions that exist in the proposed lease region, it is clear that off-shore oil and gas drilling can not be developed in a manner that can adequately protect sensitive ecosystems and economic systems that exist in the Lower Cook Inlet of Alaska.

Current politics have again placed a strain on the protected status of Lower Cook Inlet's wildlife refuges, Critical Habitat Areas, a National Estuarine Research Reserve, and even three National Parks! Without a restriction to discharges, required tug support for tankers, and compulsory financial backing for trained response facilities in place for the entire Cook Inlet, future oil and gas leasing should not even be considered. The Minerals Management Service should be obligated should be mandated to modify the sale area to, at a maximum, the areas identified by the Native communities of Nanwalek and Port Graham. However, this action must not be seen as a compromise. As Federal Employees, and stewards of our lands and coasts, you have a special responsibility to remember the devastation caused and the costly lessons of the Santa Barbara oil spill of 1969, thirty years later, the Exxon Oil Spill of 1989. In regards to Oil & Gas Lease Sales 191 & 199 Draft Environmental Impact Statement, you have the responsibility to respond to my request to adequately address my stated concerns. I expect you will do so to my neighbors and my satisfaction.

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Rick Foster, Ph.D.
PO Box 3328
Homer, AK 99603

MMS Response to Comment Document 104

Response 104-001

This also responds to Comment 115-001.

As documented in Appendix F, the various values of the area were identified during the scoping process for the EIS. The EIS, which is intended to be analytic and not encyclopedic, adequately examines the effects to different values and resources from routine operations and oil spills. The EIS discusses potential effects to general commercial values of the area in Section IV.B.1.j - Economy. Potential effects to particular important commercial activity (commercial fishing, sport fishing, tourism) are analyzed in detail in Sections IV.B.1.k, IV.B.1.o, and IV.B.1.n, respectively. Potential effects to recreational value are analyzed in Section IV.B.1.n. Potential effects to visual resources are analyzed in Section IV.B.1.n. Potential effects to community well being for villages, towns, and cities in the area are analyzed in IV.B.1.m. Finally, the potential effects to ecological values of the area, subsumed as water quality, air quality, lower trophic-level organisms, essential fish habitat, endangered and threatened species, marine and coastal birds, nonendangered marine mammals, and terrestrial mammals, are examined in Sections IV.B.1.a through IV.B.1.k, respectively. Each of these sections discusses the applicability of the Stipulations and ITLs and their effectiveness in mitigating potential effects.

Response 104-002.

Please see Response 007-045.

Response 104-003.

The alternatives selected for analysis in the draft EIS resulted from an analysis of issues and alternatives considered in past lease sales, including those described in the Sale 149 final EIS, analysis of the geologic potential of the area (Appendix B), the other resources in the area, and information and issues received as part of the scoping process, described in Section I.C. From this information, we identified two areas for consideration as deferrals, Alternative III - the Lower Kenai Peninsula Deferral and Alternative IV - The Barren Islands Deferral.

Additional requests to defer areas from the lease sale were received in the comments on the draft EIS, including one that the deferrals encompass the area originally requested by Native Alaskan communities during scoping. Essentially, the area requested encompasses the areas identified in Alternatives III and IV but extends to Anchor Point and further west into the inlet.

Section I.C.2 discusses this possible modified alternative and explains why it was considered but not included for further study.

-----Original Message-----

From: Olga von Ziegesar-Matkin [mailto:olga@xyz.net]

Sent: Friday, February 07, 2003 1:56 PM

To: AKEIS

Subject: lease sales 191 and 199

2-6-2003

Dear John Goll,

I have been studying humpback whales in the North Pacific Ocean since 1980. I am the specialist in Prince William Sound, Alaska. Humpback whales are on the endangered species list. I am concerned about the proposed Oil and Gas lease sales 191 and 199 in Lower Cook Inlet. The area of oil exploration includes a huge feeding ground for a large number of humpback whales of the North Pacific population. They nourish themselves on the rich upwellings caused by sea mounts and islands and the extreme tidal currents that move the waters of this area. Finback whales also feed in the same waters. This is another large baleen whale that is also on the endangered species list. Both species filter feed with large hairlike strainers (baleen) and filter out small fish and krill. They feed heavily during summer months and replenish a diminished fat layer after a long migration from warmer equatorial waters. Since these mammals don't eat much, if at all, during winter months, they depend on the food-rich and clean waters of Alaska to survive. Any kind of oil spill would be devastating to these filterfeeding large mammals.

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The numbers of whales feeding in the proposed lease sale area have not been well counted or documented. The proposed deferral areas around the Barren Islands and the end of the Kenai Peninsula should most definitely be taken out of the sale. These areas are heavily used by thousands of species of marine mammals, birds, fish etc. But this is not enough, the whales feed also in the rest of the lease sale area. Especially between Kachemak Bay and Kamishak Bay. Any pilot or halibut charter boat operator would be able to confirm whale sightings consistently out in these open waters. The upwellings of nutrients that attract whales are unstudied and undocumented.

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In the draft environmental Impact statement (DEIS), volume 2 section A 14, it states that any endangered species that may be affected by an action, the National Marine Fisheries Service (NMFS) must be consulted. I spoke yesterday to Sally Mizroch, the head of humpback whales in the Seattle Marine Mammal Laboratory of NMFS. She was one of the principal investigators of the only study of humpback whales that has been done in Lower Cook Inlet. This study was incidental to a larger study of killer whales in 1992 and 1993. She has not been consulted, even though her data is sighted in a distribution map for humpback whales in the DEIS (map 11 in volume 2).

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I strongly suggest that a real study of the patterns of use and number of whales feeding in these waters be undertaken before any drilling is allowed. We found that very few species had been studied or counted before the Exxon Valdez oil spill occurred. Let's not make the same mistake twice.

006

Sincerely, Olga von Ziegesar
(director)

Eye of the Whale Research
P.O. Box 15191
Fritz Creek,
Alaska 99603

cc Frank Murkowski

D-105

cc Secretary Gale Norton
cc Sally Mizroch(NMFS)
cc Cook Inlet Keeper

VII-434

4/17/2003

MMS Response to Comment Document 105

Response 105-001.

Background information, analysis, and discussion of potential effects of oil spills on marine mammals, including species of baleen whales, that are listed as either threatened, endangered, or as candidates under the ESA are given in Sections IV.B.1.f(2), IV.B.1.f(4), IV.B.3.a(1), IV.B.4.a(1), V.C.5.f(3), and especially in IV.F.3.f (and subsections therein). Please see also Responses 048-001, 048-002, and 048-003. In the EIS, we discuss the uncertainty regarding the potential effects of exposure to fresh crude on large cetaceans following large marine oil spills. We point out that while certain components of fresh crude oil are known to be quite hazardous to some species of mammals, many of the types of adverse effects that have been documented for other species could not, or are unlikely to be, detected in exposed cetaceans, due to the difficulties in studying them. Thus, while exposure to fresh oil from a large spill could adversely affect or possibly even kill large cetaceans, there is uncertainty and lack of agreement within the scientific community regarding the level of vulnerability of large cetaceans to spilled oil. Information available to the MMS does not support the broad generalization that “Any kind of an oil spill would be devastating to these filterfeeding large mammals.”

Response 105-002.

Please see Section III.B.4.b(3)(e) for the information on distribution and abundance that we do have.

Response 105-003.

Comment noted.

Response 105-004.

While we appreciate this comment, we are unable to use the information to either qualitatively or quantitatively classify typical use of the area referred to by either humpback whales or fin whales, because the report is not of a personal sighting but rather a comment about the kinds of sightings that other kinds of individuals in some avocations may have had. It was not entirely clear what species of whale was being referred to in the second paragraph. Assuming that the comments are referring to humpback and/or fin whales, we have no information available to us that these two species are feeding in all parts of the sale area. We are aware of no information, for example, that these species typically feed north of a line drawn from Anchor Point to the west. We did not receive any written comments or comments during public testimony from either pilots or charter-boat operators who reported consistent use of the area of lower Cook Inlet between Kachemak and Kamishak bays by humpback or fin whales. Please see Section III.B.4.b(3) and Map 11 for the information on distribution and abundance that we do have on humpback whales and Section III.B.4.b(5) and Map 12 for information on fin whales. Also, please see the NMFS’s Final Biological Opinion on the proposed action, which we have included in Appendix C.

Response 105-005.

The commenter has misinterpreted the meaning of the word “consulted” as it appears in the section on threatened and endangered species. As discussed in the Introduction (Section III.B.4.a) to this section, and repeated at the beginning of Section IV.B.1.f, under Section 7(a)(2) of the ESA

Each federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered species and threatened species or result in the destruction of adverse modification of habitat....determined...to be critical....

On November 12, 2002, after previous informal consultation, and preparation of our biological evaluation of potential effects of the proposed action on candidate, threatened, and endangered species, the MMS

initiated formal consultation under Section 7(a)(2) of the ESA with the NMFS and with the FWS on the proposed OCS oil and gas lease sales in Cook Inlet. This consultation is between the agencies and not between individuals. During the various stages of Section 7 consultation, the NMFS involves those staff members within its own agencies that it chooses. We recently have concluded this consultation. The NMFS has written their Biological Opinion under Section 7 of the ESA of the potential for activities associated with the proposed OCS oil and gas lease sales in Cook Inlet to have adverse effects on, to jeopardize the continued existence of, or to adversely modify or to destroy critical habitat of, species listed as threatened and endangered under the ESA, including humpback whales. We include this final biological opinion in Appendix C. We have incorporated all data available to us from the National Marine Mammal Lab (NMML) in our summaries and analyses.

In the preparation of this EIS, which contains our biological evaluation of potential effects of the proposed action on ESA-relevant species and, in at least three instances following the receipt of comments, we have been in contact with numerous cetacean biologists and other scientists for information on marine mammals that could occur within and/or near the proposed lease-sale area. These individuals included, but were not limited to: S. Moore, S. Mizroch, D. Zweifelhofer, J. Waite, B. Smith, B. Mahoney, D. Rugh, R. Hobbs, G. Silber, K. Stafford, C. Field, and C. Field from organizations such as the NMML, NMFS's Office of Protected Resources offices in Alaska and Maryland, the Kodiak National Wildlife Refuge, the Kachemak Bay National Estuarine Research Reserve, and other relevant offices. In all cases, we received a very high level of cooperation from the aforementioned individuals, from the NMML, and from NMFS Office of Protected Resources. In addition to providing MMS with the Platforms for Opportunity Database, many of these individuals provided us with unpublished data, reports, unpublished and published manuscripts, or other information. Regarding humpbacks and fin whales, specifically, we received excellent cooperation from S. Mizroch, D. Zweifelhofer, and J. Waite. These individuals made available unpublished information, manuscripts, and data related to the use of the proposed lease-sale area and/or adjacent areas by these species. We also received comments from the NMFS on the draft EIS (please see Response 001-031). We have modified the wording of our conclusions about potential impact to humpback whales in the region of the Barren Islands to indicate that larger groups of humpbacks could be impacted, if a large spill occurred in the Barren Islands during the summer months when humpbacks are feeding there.

Response 105-006.

Please see Response 009-040.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

Document 106

December 18, 2002

John Goll
Regional Director,
Alaska OCS Region
Minerals Management Service
949 East 36th Avenue, Room 308
Anchorage, Alaska 99508-4302

RECEIVED
DEC 27 2002

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Dear Mr. Goll:

The National Marine Fisheries Service (NMFS) has received your November 20, 2002 request for a programmatic Essential Fish Habitat (EFH) consultation on activities associated with leasing and exploration from proposed Lease Sales 191 and 199, as well as exploration associated with all other existing leases in the Cook Inlet Planning Area. The request states that in accordance with the procedures outlined in the March 12, 2002 EFH finding between our agencies, MMS intends to use the Draft Environmental Impact Statement (DEIS) for Oil and Gas Lease Sales 191 and 199 for the Cook Inlet Planning Area of the Alaska Outer Continental Shelf (OCS) to fulfill the consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. MMS has also requested that this document serve as the EFH Assessment for the proposed programmatic consultation.

We intend to submit comments on the DEIS under separate cover. Our staff will also coordinate with MMS regarding our concerns under the Marine Mammal Protection Act and the Endangered Species Act.

Programmatic consultations is a mechanism for implementing the EFH consultation requirements efficiently and effectively by including in one consultation many individual actions that may adversely affect EFH. Section 600.920(j) of the EFH regulations describes programmatic consultation as appropriate if sufficient information is available at a programmatic level to develop EFH conservation recommendations that will address all reasonably foreseeable adverse impacts to EFH. A programmatic consultation results in a letter from NMFS to the Federal agency containing programmatic EFH conservation recommendations, as well as identification of any adverse impacts that could not be addressed by the programmatic EFH



VII-437

conservation recommendations. Any adverse effect that cannot be addressed through programmatic EFH conservation recommendations will have to be addressed through individual consultation (preferably by using existing procedures) or a General Concurrence¹.

The NMFS document containing the EFH conservation recommendations should briefly summarize the EFH Assessment, and may contain the entire EFH Assessment as an attachment. This document may contain other attachments such as a General Concurrence or a finding, if they were developed as a result of the programmatic consultation. The document containing NMFS EFH conservation recommendations for a programmatic consultation should contain: a description of the program; a description of the EFH affected by program activities; a description of the adverse effects on EFH; programmatic EFH conservation recommendations; how the EFH conservation recommendations will address adverse effects; any additional consultation required of the agency, e.g. individual consultation for certain projects; and a concluding section or statement that clarifies that the programmatic consultation satisfies the Magnuson-Stevens Act consultation requirement. The action agency must respond to the EFH conservation recommendations within 30 days as required under the Magnuson-Stevens Act.

The description of the program, affected EFH, and adverse effects on EFH should be addressed by the action agency's programmatic EFH Assessment. The EFH assessment in the DEIS contains the information required under 50 CFR 600.920 (e)(3); however, the sections containing this information have not been identified as the EFH Assessment as required under 50 CFR 600.920 (f)(ii) and are scattered throughout the DEIS. This makes it difficult for NMFS staff to complete the documentation for the programmatic consultation. NMFS requests an opportunity to discuss options for consolidating this information into one document, as well as the possibility of developing a General Concurrence for some of the activities that will occur as a result of the lease sales. Additionally,

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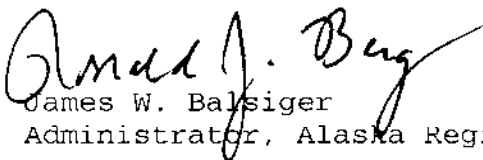
¹ General Concurrences should be used for categories of Federal actions that are similar in nature and similar in their impact on EFH, and that will not cause greater than minimal impacts on EFH, either individually or cumulatively.

consulting on certain activities individually, rather than programmatically, may be more appropriate, due to the areal extent and the vast environmental and geographic differences covered by these lease sales.

Also, pursuant to 50 CFR 600.920 (a)(1), EFH consultation is not required for actions that were completed prior to the approval of EFH designations by the Secretary, e.g., issued permits. Consultation is required for renewals, reviews, or substantial revisions of actions if the renewal, review or revision may adversely affect EFH. NMFS, therefore, would not consult on any existing lease sale in the Cook Inlet Planning area. NMFS may, however, need to consult on any upcoming actions that MMS determines would have an adverse effect on EFH.

NMFS looks forward to discussing this further with MMS and coming to mutual agreement on the appropriate method to fulfill the EFH consultation requirements of the Magnuson-Stevens Act. Please contact Ms. Jeanne L. Hanson of my staff at (907) 271-3029 to arrange a meeting.

Sincerely,

For 
James W. Balsiger
Administrator, Alaska Region

cc: Corps, USFWS, USEPA, ADEC, ADFG, ADGC - Anchorage
Cook Inlet Marine Mammal Council

MMS Response to Comment Document 106

Response 106-001.


An overview of the EIS information that serves as the analysis for the effects on EFH has been added to the section entitled Other Uses of the Document in the introductory material, The Cook Inlet Multiple-Sale EIS - What it Includes and How it is Structured. The added information specifies where the required information for EFH is located in the EIS.

Dear John Goll:

Offshore oil and gas development in lower Cook Inlet is inconsistent with the economic, social, aesthetic and cultural values of the region, its residents, and its visitors. A 1 in 5 chance of a large oil spill is too great a risk to Cook Inlet's fishing, tourism, and subsistence economies. Cancel Lease Sale 191 and 199.

Comments:

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It appears that some areas to be leased lie directly atop the scallop beds north and east of Augustine Island. This is the most valuable product harvested in the inlet with ex-vessel prices of 7-8 dollars per pound. Also, the Pacific cod fixed gear fishery occurs in the areas to be leased. This is a growing fishery with increasing values. 

MMS Response to Comment Document 107

Response 107-001.

Please see Response 090-001. Additional material that pertains to the commenter's concerns has been added to Section IV regarding potential impacts to fisheries resources, EFH, and commercial fishing.

Dear John Goll:

NO SALE 191/199!

Offshore oil and gas development in lower Cook Inlet is inconsistent with the economic, social, aesthetic and cultural values of the region, its residents, and its visitors. A 1 in 5 chance of a large oil spill is too great a risk to Cook Inlet's fishing, tourism, and subsistence economies. Cancel Lease Sale 191 and 199.

Comments:

001 The EIS published 2002 bases projections on a single platform. If Lower Cook Inlet is developed, there will be more than one platform. Why does the EIS Not acknowledge the risk factor involved with more development? If the chance of spill from a single platform is 19%, then the risk from more than one is too high.

MMS Response to Comment Document 108

Response 108-001.

The basis of the estimate for Sales 191 and 199 is presented in Appendix B. As noted in the scenario outline in Section II.B and Appendix B, the MMS assumes that exploratory and delineation drilling from a single exploration rig leads to the discovery of a single field containing 140 million barrels of oil and 190 billion cubic feet of natural gas. A single production platform would be constructed and sited to develop the field—a technically feasible and economically reasonable option for development of a field of this size. In fact, development of a field of this size with more than one platform probably would not be economically feasible.

Dear John Goll:

NO SALE 191/199!

Offshore oil and gas development in lower Cook Inlet is inconsistent with the economic, social, aesthetic and cultural values of the region, its residents, and its visitors. A 1 in 5 chance of a large oil spill is too great a risk to Cook Inlet's fishing, tourism, and subsistence economies. Cancel Lease Sale 191 and 199.

Comments: As a participant in a Summer 2002 Cook Inlet Spill Response (CISPRE) drill held in Kachemak Bay, I can testify that spill cleanup equipment and technology are not sufficient to handle a major spill in even the best weather. With wind and any appreciable sea state included, THE EQUIPMENT AND TECHNOLOGY IN PLACE TO RESPOND TO AN OIL SPILL IN COOK INLET ARE NOWHERE NEAR SUFFICIENT TO THE TASK.

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MMS Response to Comment Document 109

Response 109-001.

Cook Inlet Spill Prevention & Response, Inc. (CISPRI) is a nonprofit corporation formed in 1990 to provide oil-spill-prevention and -response capabilities in Cook Inlet for its member companies, which include offshore oil and gas operators. CISPRI has been designated as a Class "E" Oil Spill Removal Organization by the U.S. Coast Guard, which is the highest level of designation based on spill-containment and removal equipment requirements for offshore/ocean response. As part of its capability, CISPRI has contracts with more than 120 vessels of all types to assist in responding to spills. Many of these vessels are based in Homer and Seldovia. These community-based vessels are part of CISPRI's "vessels of opportunity" program. Each vessel is contracted to be ready for spill response and to practice regularly. CISPRI conducts training exercises that include these community-based responders.

JAN 23 2003

Comment Sheet--Cook Inlet Multi-Sale Public Hearing

REGIONAL DIRECTOR, ALASKA OIL
Minerals Management Service
ANCHORAGE, ALASKA

Dear MMS,

First of all, I would like to thank you for taking the time to come down to Seldovia, Homer, and Kenai to listen to ~~the~~ their inhabitants about their views on opening Lower Cook Inlet for petroleum leasing. I have lived in Homer for 3 1/2 years and have worked on the North Slope as a mud engineer for 2 1/2 years. I am opposed to oil and gas exploration in the Lower Cook Inlet. I used to feel disdain towards individuals who took the viewpoint of "Not in My Backyard." I do not feel badly about making that statement on a subject I feel strongly about. Everytime I have a difficult decision to make, I perform a benefits/risks analysis. I would like to share my own analysis of this subjects

Benefits

Risks

- natural gas for heating Peninsula homes (assuming economically deliverable quantities are found, Several test wells will surely be delivered before production is evaluated)
- natural gas for electricity production - If we're that concerned over that we could seriously put efforts into alternative sources.

- SPILL - I do not know where the 20% chance of a spill comes from. Is that per year, 5 yrs, x yrs? Anyway, any liability here in ^{lower} Cook Inlet is too great.
- Economic Impacts - The communities of lower Cook Inlet have been

thriving for many years on industries based on fishing + tourism. Why put those industries at risk for another source of heat for us.

The fisherman of Cook Inlet have been trying to adopt a label of "Wild" Cook Inlet salmon as a way to add value to their product. Are we going to put a picture of a drilling rig on the label also?

As far as the argument for more jobs for residents in this area goes, just look at the North Slope for an example of how this is not true. The oil industry has plenty of laid off workers in other parts of the US to fill enough crews to drill wells. Drilling contractors will not want to hire "green" workers because of the safety liabilities and learning curves associated with the learning the strenuous trade. Please listen carefully to what the residents of Lower Cook Inlet have to say about this issues. I swear I would consider moving if I had to look out and see a rig out in the inlet from the end of the Spit. While we're here, I encourage you to require zero discharge in the existing fields in Upper Cook Inlet.

001

002

003

Thank you, Andrew Weller, Baroid Drilling Fluids

907-299-2191

MMS Response to Comment Document 110

Response 110-001.

The 19% chance of one or more spills greater than or equal to 1,000 barrels is over the 15-year production life of the project. The text was rewritten to clarify this point.

Response 110-002.

The EIS analyzes the potential effects on commercial fishing, sport fishing, tourism, and the economy in Sections IV.B.1.k, IV.B.1.o, IV.B.1.n, and IV.B.1.j, respectively. The Secretary of the Interior ultimately will decide on the balance of risks to fishing and tourism and opportunities created by holding Sales 191 and 199.

We understand that fishermen of Cook Inlet have been trying to adopt a label of “wild” Cook Inlet salmon as a way to add value to their product. We do not attempt to estimate the effectiveness of this effort. The commenter should note that the scenario described in Appendix B (Table B-1) indicates only one drilling rig or platform in any year for 27 years. This is compared to numerous drilling rigs and platforms that have existed in upper Cook Inlet for more than 30 years. Commercial and sport fishing have continued through that period without apparent effect from those structures.

Response 110-003.

We anticipate that, except for the exploration phase, most of the direct OCS jobs will be taken by workers currently working in the oil and gas industry in Alaska and residing in the Kenai Peninsula Borough. This is due primarily to the declines anticipated in the mature portions of the oil and gas industry in Cook Inlet and the North Slope. We believe an adequate number of experienced oil and gas workers at a variety of skill levels will be available for activities associated with Sale 191.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1011 E. Tudor Rd.

Anchorage, Alaska 99503-6199

FEB 11 2003

IN REPLY REFER TO:

AFES/FHC/AFWFO

Memorandum

To: Regional Director - Minerals Management Service

From: Regional Director - Region 7 *Dr. B. Allen*

Subject: Draft Environmental Impact Statement, Cook Inlet Planning Area, Oil and Gas Lease Sales 191 and 199, Outer Continental Shelf Environmental Impact Statement/Environmental Assessment Minerals Management Service 2002-2007

We have reviewed the Draft Environmental Impact Statement for the Oil and Gas Lease Sales 191 and 199 within the Cook Inlet Planning Area. Our review primarily focused on information regarding our trust resources: 1) threatened and endangered species; 2) migratory birds; 3) sea otters; and 4) the Alaska Maritime National Wildlife Refuge. These comments are provided in two parts. Below, we summarize our overall issues and concerns and the attachment contains comments specific to the text within the DEIS.

Based on our review of the document, we recommend adoption of Alternatives III and IV, which would include deferral of both the Barren Islands, Lower Kenai Peninsula, and additional consideration of the area proximate to Chisik Island, in the northwest vicinity of the proposed lease sale.

001

Alaska Maritime National Wildlife Refuge

The Barren and Chisik islands are administered by the U.S. Fish and Wildlife Service as part of the Alaska Maritime NWR. The Barren Island group provides important habitat for marine wildlife, including many species of seabirds and the endangered Steller sea lion. The islands provide secure habitats for breeding, nesting, feeding, and raising young. The nearshore and surrounding pelagic waters of the Barren Islands and Lower Kenai Peninsula are rich in nutrients and support productive biological communities. Forage fish use these waters and form the basis of a complex faunal assemblage on which seabirds of the Barren Islands, and other wildlife, depend.

Chisik (Tuxedni Bay) Island is a Congressionally designated Wilderness and one of a handful of sites that is mandated to maintain Class I air quality (Clean Air Act, 42 U.S. Code 7401 et seq.), a designation meant to ensure high quality air standards lending to Wilderness character. Therefore, Chisik Island should be provided with an adequate buffer of no industrial activities, in

002

order to maintain the standards prescribed in the Clean Air Act and preemptively avoid the need for remediation or restoration due to degraded air quality.

002

We recommend that the Record of Decision for the Oil and Gas Lease Sales 191 and 199 include the Barren Islands Deferral and Lower Kenai Peninsula Deferral. Due to the great resource values in this area, we request further consideration be given to the area proximate to Chisik Island in the northwest vicinity of the proposed lease sale. The high resource values in the Barren Islands and Kenai Peninsula areas are documented in the DEIS Executive Summary: "1) the deferral would reduce potential impacts to endangered and threatened species including beluga whales, Steller sea lions, sea otters, humpback whales, and other whales; and 2) the deferral would reduce visual resource effects. Also, additional considerations around Chisik Island would assist in maintaining Class I air quality, in accordance with the Clean Air Act, on a Congressionally designated Wilderness."

Endangered and Threatened Species

We caution against use of the phrase "adverse, but not significant effects" and "significant adverse effects" with regards to threatened or endangered species. The threshold for adverse effects on a listed species is harm to a single individual. Under the Endangered Species Act, a proposed project can fall under the following categories with regards to effect upon a species: 1) no effect; 2) may affect; 3) may affect but is not likely to adversely affect; 4) likely to adversely affect; or 5) likely to jeopardize. "Adverse, but not significant effects" is not defined under the terms of the Endangered Species Act.

003

Steller's Eider

We consider the lack of comprehensive winter distribution information for Steller's eiders to be the largest data gap for listed species within the proposed lease sale area. To adequately address ESA-related concerns, we highly recommend the acquisition of this information.

004

In discussions of the effects of spill scenarios on listed and proposed species, the document tends to minimize the potential harm that could come to Steller's eiders. Up to 2,400 Steller's eiders have been observed directly adjacent to the lease sale area (just off the mouth of Deep Creek). By using 4.2 percent rather than our previous estimate of 3 percent as the percentage of these birds that are of the listed entity (FWS 2003), then about 113 listed eiders can be assumed to be in harms way. We recommend clarification of these potential impacts be incorporated in spill impact discussions.

005

Sea Otters

While the level of information included in this section represents a considerable amount of effort, this detracts from the intended focus on evaluating the effects of the alternatives. In contrast, the

006

level of information presented for Steller sea lions is sufficiently detailed and also concise, which is most useful for the reviewers.

006

Migratory Birds

We found this section to be somewhat lacking in species and population information. An expanded discussion and break out of migratory bird species or species groups is highly recommended. Lower Cook Inlet supports some of the highest at-sea densities of marine birds in Alaska, with densities of over 100 birds per square km in the Barren Islands area and 300 birds per square km in the Shuyak region. Extensive work on population and species use of the OCS area has been published and is available through the Exxon Valdez Oil Spill Trustee Council and the Alaska Maritime National Wildlife Refuge, including Piatt's OCS studies in Lower Cook Inlet. Also, no reference was made to the shorebird work that was published by USGS in an MMS contract report, OCS Study MMS 99-0012 entitled *Seasonal Shorebird Use of Intertidal Habitats of Cook Inlet, Alaska*. This report contains valuable information for determining oil development impacts on spring migrants such as western sandpipers and dunlin, wintering areas for rock sandpipers, and most importantly, the food sources on which these birds depend. Specific references and citations are included in the attachment.

007

From the perspective of marine birds, which occur in high densities within and proximate to these areas in summer and winter, Alternatives III (Lower Kenai Peninsula Deferral) and IV (Barren Islands Deferral) both provide some degree of increased protection from potential oil spill effects. Given that together these deferrals only limit the development Index of Opportunity by 2 percent, we recommend adoption of an alternative that would defer both of these areas from development lease sales.

008

We appreciate the opportunity to provide comments on the Cook Inlet Planning Area DEIS. If you have questions or need clarification regarding our comments, please contact our project biologist, Catherine Berg, Anchorage Fish and Wildlife Field Office, at (907) 271-1630.

Attachments

ATTACHMENT
Cook Inlet Planning Area: Oil & Gas Lease Sales 191 & 199
DEIS Specific Comments

Excutive Summary, Page 5: The document notes intrinsic values affect national and state parks, but makes no mention of the other adjacent lands that could be affected (e.g., Kodiak, Alaska Peninsula/Becharof, and Alaska Maritime National Wildlife Refuges, State Critical Habitat Areas, etc.) These should be added to the discussion.

009

Page ES-4, Paragraph 4: We recommend against use of the phrases “adverse, but not significant effects” and “significant adverse effects” with regards to threatened or endangered species. The threshold for adverse effects on a listed species is harm to a single individual. Under the Endangered Species Act, a proposed project can fall under the following categories with regards to effect upon a species: 1) no effect; 2) may affect; 3) may affect but is not likely to adversely affect; 4) likely to adversely affect; or 5) likely to jeopardize. “Adverse, but not significant effects” is not defined under the terms of the Endangered Species Act.

010

Reference to “some Steller’s eiders” does not accurately reflect the potential harm that could come to Steller’s eiders relative to the southwest Alaska stock of sea otters (ES-4 paragraph 4). Up to 2,400 Steller’s eiders have been observed directly adjacent to the lease sale area (just off the mouth of Deep Creek). Assuming that 4.2 percent of these birds are of the listed entity (FWS 2003), then about 113 listed eiders can be assumed to be in harms way. In contrast, very few sea otters of the proposed listed entity have been observed within the action area (on the order of one).

011

Page ES-5: Marine and coastal bird mortality could range as high as tens of thousands, yet the document suggests that recovery could occur in two generations. We recommend that the authors document how they derived a recovery time of two generations, and we recommend that this discussion specify that recovery rate is species-specific (see comment below from Page IV-98).

012

Page II-9, Section II.D: Alternative III-Lower Kenai Peninsula deferral should highlight the relative importance of this area to marine birds. Within Lower Cook Inlet, winter waterfowl densities were highest along the southwestern coastline of Kachemak Bay, proximate to the Lower Kenai Peninsula Deferral (Aglar, et al. 1994, OCS Study MMS 94-0063). Waterfowl density in this region was 70.5 birds per square km.

013

Page II-9, Section II.E: Alternative IV makes no mention of 650,000 seabirds nesting on the Barren Islands (Sowls, Hatch and Lensink, 1978, cited in this DEIS). Deferral of this area would provide some protection to seabirds staging prior to nesting at these colonies. We recommend referencing:

014

Kettle, A., et al. 2000. Barren Islands seabird studies, 2000. Exxon Valdez Oil Spill Restoration Project Final Report (Restoration Project 00163J). USFWS, Alaska Maritime NWR. Homer, Alaska.

Page III-35. Section III.B.1.b: In the discussion of benthic and intertidal habitats, no consideration is given to the extensive mudflats on western Cook Inlet and their importance to the production of *Macoma* clams, which are a critical food source for migrating and wintering shorebirds and migrating waterfowl. Allen Bennett with National Park Service has conducted extensive work inventorying *Macoma* clams along the Cook Inlet coastline. We recommend additional discussion in this regard be included in this section and under sections regarding impacts to resources from potential oil spills. Reference the following citation:

015

Bennett, A.J. 1996. Physical and biological resource inventory of the Lake Clark National Park-Cook Inlet coastline, 1994-1996. Unpubl. rpt., National Park Service, Kenai, Alaska. 137 pp.

Page III-90. Section III.B.4.b(9): The heading "Southwest Alaska Stock," should be changed to "Southwest Alaska Distinct Population Segment (DPS)." The term "stock" relates to the Marine Mammal Protection Act (MMPA). In an Endangered Species Act (ESA) context, it is more appropriate to use the term DPS.

016

Page III-91: The entire southwest Alaska DPS is currently designated as a candidate species.

017

Page III-92: We note that the Population Stock Structure and Current Stock Designations for Steller sea lions covers three lines of text, while for sea otters, it covers two pages. We see no reason for this difference and suggest that the sea otter section be considerably shortened, as much of the information is not relevant. We recommend the following changes. Delete the entire paragraph that begins with "While conclusions about population and subspecies boundaries....," as it is not relevant. Remove the subsection designation for III.B.4.b(9)(e) and replace the first two sentences of this section with "There is general agreement among sea otter researchers that multiple populations of sea otters exist within Alaska." Jim Bodkin's name is misspelled as "Botkin" in a citation.

018

Page III-93: In 1998, the Alaska Sea Otter Commission (ASOC) had not yet expanded their authority to include Steller sea lions. The Memorandum of Agreement was between the Service and the ASOC. We suggest deleting the entire paragraph that begins with "In the candidate listing designation....," as it is not relevant. Instead, add the following text to the preceding paragraph: "Following the publication of a stock identification paper in a peer-reviewed journal (Gorbics and Bodkin 2001), the U.S. Fish and Wildlife Service revised their stock assessment reports for three stocks of sea otters in Alaska, with the same boundaries as proposed in 1998." Also, we strongly disagree with the statement "There is still not agreement about the exact number of populations and their boundaries." The information cited to support this position is out of date with respect to information used to define the current stock structure. As with all

019

other stock assessment reports prepared under the MMPA, drafts of the three sea otter reports were published in the Federal Register on March 28, 2002, and distributed for broad public review. Respondents, including the Alaska Regional Scientific Review Group, the U.S. Marine Mammal Commission, and the Alaska Sea Otter and Steller Sea Lion Commission, supported the designation of three stocks and the reports were subsequently finalized on August 20, 2002.

019

Page III-94, Paragraph 1: Change the Gorbics and Bodkin citation from 2002 to 2001.

020

Page III-94, Section III.B.4.b(9)(f): Delete the entire paragraph beginning with “Based on the wording....” Instead, add the following sentence to the preceding paragraph “Although not explicitly mentioned in the verbal description, the U.S. Fish and Wildlife Service considers sea otters in western Cook Inlet to be a continuation of the Alaska Peninsula population and are therefore part of the candidate species designation.”

021

Page III-96, Section III.B.4.b(9)(k): Change the subsection heading to “Historic and current population distribution, abundance, and trends” to maintain consistency with the Steller sea lion section. Delete the word “Apparently” at the beginning of the sentence regarding the sea otter population decline in southwest Alaska.

022

Page III-97 Sections III.B.4.b(9)(m) and III.B.4.b(9)(n): Remove these subsection headings and condense these sections, as much of the information is presented in an unclear fashion.

023

Page III-98, Section III.B.4.b(9)(n): Remove the italics from the word “replicated” and delete the word “apparently” from that same sentence. The phrase “but not released until recently,” is inaccurate, and should be deleted.

024

Page III-98, Section III.B.4.b(9)(o): Delete the sentence “As the actual data for this survey are not available, nor is the documentation of estimation procedures, we cannot evaluate these estimates; instead we simply report them.” This comment is also applicable later on this page and also on Page III-99. It is inappropriate to evaluate these estimates here. Instead, they should simply be cited, in this case using FWS final revised stock assessment reports as the reference. We note that population decline information for Steller sea lions is cited without the same caveats. Also on this page, change “In the summer of 2001....” to “In April 2001....”

025

Page III-99, Section III.B.4.b(9)(p): Change “fixed=wing” to “fixed-wing.” The 56 percent decline occurred between 1989 and 2001, not 1994 and 2001.

026

Page III-99, Section III.B.4.b(9)(q): Delete the sentence “The U.S. Fish and Wildlife Service (2002) does not provide recent estimates of abundance in western Cook Inlet.” The information immediately following regarding the U.S. Geological Survey study is included in the final revised southwest Alaska stock assessment report (attached) and should be cited accordingly.

027

Page III-107. Section III.B.4.b(9)(aa)1): Include a citation to support the sentence “Existing evidence indicates that shark predation, which is important in California (Ames and Morejohn 1980) is not an important source of mortality in Alaska.

028

Page III-109. Section III.B.4.b(9)(aa)5): Delete the word “apparent” from the phrase “apparent decline of sea otters....” We note that on Page III-111 the word “apparent” is not used as an adjective to describe the decline.

029

Page III-116. Section III.B.4.c(1)(a), Paragraph 1: Steller’s eiders nest in Arctic (add “and subArctic”) tundra... Large flocks of Steller’s eiders are regularly sighted on aerial surveys within 10 km of the lease area (see Figures III.B-5). Therefore, within this section Paragraph 1, the authors should replace the words, “...less likely....” to “...possibly within....” Same comment for second Paragraph III-120.

030

Paragraph 2: Change “...only about 3% of the Steller’s eiders....” to “...only about 4% of the Steller’s eiders....”

031

Page III-118. Section III.B.4.c(1)(c), Paragraph 2: Change “...the vast majority (97%) of Steller’s eiders current breed....” to “...the vast majority (97%) of Steller’s eiders currently breed....”

032

Page III-119. Section III.B.4.c(1)(f), Paragraph 1: Change “The relative contribution of the different breeding populations to wintering groups in different areas is unknown.” to “The relative contribution of the different breeding populations to wintering groups in different areas is unknown.”

033

Note that satellite telemetry confirms that the Alaskan breeding population molts on the Kuskokwim Shoals and along the Alaska Peninsula. Philip Martin, at the U.S. Fish and Wildlife Service Fairbanks Fish and Wildlife Field Office, will be sending you these reports under separate cover.

034

Page III-120. Section III.B.4.c(1)(g), Paragraph 3: Change “...which is that about 3% of the birds....” to “...which is about 4% of the birds....”

035

Paragraph 6: Add this recently acquired information “On 6 January, 2003, Bill Larned surveyed the nearshore waters of eastern lower Cook Inlet and estimated 1,332 Steller’s eiders off Deep Creek.”

036

Page III-128. Section III.B.4.c(2)(k)3), Paragraph 2: Change “facto” to factor.”

037

Page III-129. Section III.B.4.c(2)(k)5): We recommend against use of the phrases “adverse, but not significant effects” (ES-4 Paragraph 4) and “significant adverse effects” with regards to threatened or endangered species. The threshold for adverse effects on a listed species is harm to a single individual. Under the ESA, a proposed project can fall under the following categories

038

with regards to affect upon a species: 1) no effect; 2) may affect; 3) may affect but is not likely to adversely affect; 4) likely to adversely affect; or 5) likely to jeopardize. "Adverse, but not significant effects" is not defined under the terms of the Endangered Species Act.

038

Page III-136. Section III.B.5: An expanded discussion and break out of migratory bird species or species groups is highly recommended. Lower Cook Inlet supports some of the highest at-sea densities of marine birds in Alaska with densities of over 100 birds per square km in the Barren Islands area and 300 birds per square km in the Shuyak region. We highly recommend the authors reference and cite the following study:

039

Piatt, J.F. (ed.). 2002. Response of seabirds to fluctuations in forage fish density. Final Report to the Exxon Valdez Oil Spill Trustee Council (Restoration Project 00163M) and Minerals Management Service (Alaska OCS Region). Alaska Science Center, U.S. Geological Survey, Anchorage, Alaska. 406 pp.

In particular, the uniqueness and importance of Cook Inlet to shorebirds needs to be highlighted. We highly recommend referencing the work in the following citation:

Gill, R.E., Jr., and T.L. Tibbitts. 1999. Seasonal shorebird use of intertidal habitats of Cook Inlet, Alaska. Final Report. U.S. Department of the Interior, U.S. Geological Survey, Biological Resources Division and OCS Study, MMS 99-0012. 55pp.

This report was contracted by MMS, but does not appear to have been considered in preparing this document, as there was no citation for it in the bibliography. This report contains valuable information for determining oil development impacts on spring migrants such as western sandpipers and dunlin, wintering areas for rock sandpipers, and most importantly, the food sources on which these birds depend.

Page III-142. Section IIIB.6.b: Delete the entire paragraph beginning with "The Biological Resource Division...." and replace it with information from the final revised southcentral Alaska stock assessment report (attached). This information was provided to MMS via e-mail on October 4, 2002, along with survey results for Kamishak Bay. We do not understand how the Kamishak Bay results could be included in the DEIS, but the Cook Inlet/Kenai Fiords results could be categorized as "apparently not yet available."

040

Page IV-63. Section IV.B.1.f: Delete the entire first paragraph that begins with "Additionally, despite the concurrence...." This information is not relevant to the public review process.

041

Page IV-82. Section IV.B.1.f(3)(f): We concur with the conclusion that oil and gas exploration in the proposed Cook Inlet planning area is not likely to have significant impacts on the southwest Alaska DPS sea otters. Of the three recent sea otter surveys, only the Cook

042

Inlet/Kenai Fjords survey conducted by the U.S. Geological Survey, Biological Resources Division, directly overlaps the footprint of the proposed lease sale area. Our GIS analysis suggests that the geographic overlap between the proposed lease sale area and sea otters from the southwest Alaska DPS is minimal. During this survey, the high-density survey stratum covered 3,968 km² of sea otter habitat adjacent to lower western Cook Inlet from Cape Douglas in the south, northward to latitude 59°58'21". While approximately 35 percent of this survey stratum (1,383 km²) lies within the boundaries of the proposed Cook Inlet lease sale area, few sea otters were observed there. For the entire lower western Cook Inlet survey area, observers recorded 172 sightings with a total of 544 otters, but only a single otter was recorded within the proposed lease sale area. The vast majority of sea otter sightings occurred southwest of Augustine Island. The results of this survey suggest that while considerable numbers of sea otters inhabit the Kamishak Bay area in lower western Cook Inlet, their distribution does not overlap significantly with the proposed lease sale area. As this analysis was conducted specifically for the lower Cook Inlet lease sale, it may be cited as FWS personal communication.

042

Page IV-92. Section IV.B.1.f(4)(c)3: We concur with the conclusion that the most likely impacts from development (noise and disturbance) would likely have no population-level impacts on sea otters from the southwest Alaska DPS.

043

Page IV-98. Section IV.B.1.g(1): Given a potential loss of more than 10,000 birds, the authors conclude that recovery could occur within 2 generations (<8yrs). We recommend this discussion explain how this figure is derived. The conclusion requires supportive data and analyses.

044

Page IV-105. Section IV.B.1.h(2): Although not specifically addressed, we believe that oil and gas exploration in the proposed Cook Inlet planning area is not likely to have significant impacts on sea otters from the southcentral Alaska stock. Similar to the analysis presented above for lower western Cook Inlet, there is minimal overlap between sea otters and the proposed lease sale area in lower eastern Cook Inlet. Of the 1,552 km² of high density sea otter habitat in lower eastern Cook Inlet, approximately 13 percent (197 km²) lies within the boundaries of the proposed lease sale area. Although there were 59 sightings with a total of 331 otters recorded within the high density survey stratum in lower eastern Cook Inlet, only 6 sightings of 13 otters were recorded within the proposed lease sale area. These results also suggest that while considerable numbers of sea otters inhabit the Kachemak Bay area in lower eastern Cook Inlet, their distribution does not overlap significantly with the proposed lease sale area. This analysis may also be cited as FWS personal communication.

045

Page IV-108. Section IV.B.1.h(3): One aspect of the proposed development that appears to have been overlooked is the impact to sea otters during the construction of the pipeline to shore. This activity will cut directly across the nearshore environment, and depending on where the pipeline comes to shore, could result in considerable localized disturbance to sea otters from the southcentral Alaska stock.

046

Page IV-189. Section IV.B.3: The DEIS states that 75 percent of the commercial potential is north of the Kachemak Bay area and 1 percent chance of commercial production occurs within the Lower Kenai Peninsula deferral. While the area is clearly not important to potential production, it is important to marine birds. High densities of marine birds occur within and proximate to this area in summer and winter. From the perspective of potential for major impacts on marine birds, we recommend adoption of the Lower Kenai Peninsula Deferral (Alternative III).

047

Page IV-193. Section IV.B.3.b(5): Waterfowl in Cook Inlet increased three-fold during winter, suggesting that the Inlet is an important waterfowl wintering area (Agler, et al. 1994, OCS Study MMS 94-0063). The DEIS cites conditional probability of oil contacting Kachemak Bay and lower Kenai Peninsula in summer, but waterfowl densities are highest in winter. Thus, this section should document conditional probability in winter as well as summer.

048

Page IV-202. Section IV.B.4.b(8): The document states the Barren Islands Deferral would have very little benefit to marine and coastal birds. This is not accurate, 650,000 birds nest on the Barren Islands (Sowls, Hatch and Lensink, 1978, cited in this DEIS) and could be significantly impaired in the event of an oil spill. The Barren Island Deferral would protect the area from potential oil spills in the immediate vicinity of the bird colonies and allow for a greater time interval for oil to weather and engagement of cleanup vessels.

049

Page IV-230. Section IV.F.3.f(2)(b)5): We concur with the general conclusions of this section that a large oil spill originating within the Cook Inlet planning area could kill large numbers of sea otters from the southwest Alaska DPS. From the oil spill risk assessment, it would appear that for the southwest Alaska stock, sea otters in the Kamishak Bay area may be the most vulnerable to an oil spill from within the planning area. Recent surveys indicate that nearly 7,000 sea otters may inhabit Kamishak Bay. Although additional thousands of sea otters have been observed in the Kodiak archipelago and along the Alaska Peninsula west of Cape Douglas, the probability of spilled oil reaching these areas appears to be less likely. As the southwest Alaska stock of sea otters has undergone dramatic population declines in the past 10-15 years, we agree that there is great uncertainty about what the distribution and abundance of sea otters would be at the time of a potential future oil spill.

050

Page IV-236. Section IV.F.g(2): We concur that Kachemak Bay contains the most vulnerable (with respect to oil and gas development in lower Cook Inlet) portion of the range of the southcentral Alaska stock of sea otters. The estimated number of sea otters that might be killed by an oil spill (20-40) may be too low; over 300 otters were observed in the Kachemak Bay area during a recent aerial survey by the U.S. Geological Survey. This number is extremely conservative, in that it does not include otters not detected by observers or otters present in areas not surveyed within Kachemak Bay. While we recognize the high degree of sensitivity surrounding Kachemak Bay and the extensive containment and cleanup efforts that would likely be expended in the event of an oil spill in this area, it may be more accurate to say that "tens to hundreds" of sea otters from the southcentral Alaska stock could be killed, rather than 20-40.

051

This language would also be similar to the discussion of impacts to sea otters from the southwest Alaska stock.

Page V-2. Section V.A.3: In this section, we recommend you identify the U.S. Fish and Wildlife Service as having management responsibility for sea otters.

052

Page V-50. Section V.C.5.f(3)(e)3)a: As this historical information has already been presented on Page III-96, we suggest this section be deleted.

053

Page V-51. Section V.C.5.f(3)(e)3)b: The last sentence in this section is somewhat vague. Specifically, the meaning of the term “rather regularly” is unclear. Additional clarification and a citation is needed.

054

Page V-51. Section V.C.5.f(3)(e)3)c: We recommend the title of this section be changed to “Subsistence Harvest.” Also, while the true level of compliance with the marine mammal Marking, Tagging, and Reporting Program is unknown, MTRP staff address this concern by conducting annual interviews with each village tagger. Taggers are village residents who know most of the local hunters personally, and are able to subjectively evaluate the level of tagging compliance within their village. As it is illegal for commercial tanneries to accept untagged hides, there is considerable incentive for hunters to have their sea otters tagged. Based on this fact and the results of their annual surveys, MTRP staff believe that tagging compliance for sea otters is at least 90 percent.

055

Page V-53. Section V.C.5.f(3)(e)3)e: This suggestion relies heavily on information from the 1980s. More recent information is available from the National Marine Fisheries Service Observer Program. This program collected information on marine mammal and seabird entanglement in Cook Inlet from 1999-2000, and Kodiak in 2002. Preliminary information from these studies suggests that the rates of entanglement for sea otters are low. We recommend referencing the following citation:

Fadely, B.S., and M. Merklein. 2001. Update of preliminary analysis of marine mammal interactions, entanglements, and mortalities observed during the Cook Inlet salmon drift and set gillnet fisheries, 1999-2000. National Marine Mammal Laboratory, Alaska Fisheries Science Center report. 10pp.

056

Table III.B-8: The common name “Oldsquaw” has formally been changed to “Long-tailed Duck.”

057

Table III.B-9: Sources used for this table should be updated. Reference Agler et al. 1994. (OCS Study MMS 94-0063), and also:

058

Piatt, J.F. (ed.). 2002. Response of seabirds to fluctuations in forage fish density. Final Report to the Exxon Valdez Oil Spill Trustee Council (Restoration Project 00163M) and Minerals Management Service (Alaska OCS Region). Alaska Science Center, U.S. Geological Survey, Anchorage, Alaska. 406 pp.

058

This table should also include Barren Islands as a geographical area within Lower Cook Inlet.

Table-III.B-11: Information in this table for the year 1992 is displayed incorrectly. We recommend the table be deleted altogether, as information about sea otter counts in the Aleutian Islands is not relevant to the Cook Inlet DEIS.

059

Table III.B-12: Replace this table with the table from the final revised southwest Alaska stock assessment report (attached), which presents the most recent survey data in a clear, concise format. Inclusion of the earlier surveys in this DEIS is confusing and incorrectly presented, which makes the table unintelligible.

060

Table III.B-13: This information comes solely from the Service’s marine mammal MTRP and should be referenced as such. The MTRP provides information about numbers of animals tagged, which is used as a proxy for total subsistence harvest. Therefore, the words “Taken and/or” should be deleted from the title of this table. As the earliest year of data is 1988, Simon-Jackson (1987) is not an appropriate reference for this table. The information for this table comes from our MTRP database, which is periodically updated as new tagging information is entered into the system. These printouts include a revision date, which should be noted. These comments also apply to Table III.B-14. The source for both tables should be listed as: “U.S. Fish and Wildlife Service, Marine Mammal Marking, Tagging, and Reporting Program data.” We have attached the most recent MTRP sea otter tagging summary for your information.

061

Figures Section: The authors include maps and figures to display the distribution of many species and species groups in the Figures Section of Volume II, however, maps of the seabird colonies are missing. Lower Cook Inlet has many seabird colonies that may be impacted by development of the area. The DEIS should contain a map showing all seabird colonies and their size within Cook Inlet and surrounding areas. Authors should reference the USFWS Seabird Colony Catalog. To obtain GIS coverages, and data from the Colony Catalog please contact Shawn Stephensen, U.S. Fish and Wildlife Service, Migratory Bird Management, at 786-3691, e-mail: shawn_stephensen@fws.gov.

062

Figures Section. Map 16: Kodiak National Wildlife Refuge is erroneously labeled Alaska Maritime National Wildlife Refuge.

063

Appendix F, Page 3: The document lists “Duck and Chinik Islands NWR;” the correct spelling is “Chisik” Island and both islands were incorporated into the Alaska Maritime National Wildlife Refuge in 1980.

064

Revised: 08/20/2002

SEA OTTER (*Enhydra lutris*): Southwest Alaska Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Sea otters occur in nearshore coastal waters of the U.S. along the North Pacific Rim from the Aleutian Islands to California. The species is most commonly observed within the 40 m depth contour since animals require frequent access to foraging habitat in subtidal and intertidal zones (Reidman and Estes 1990). Sea otters in Alaska are not migratory and generally do not disperse over long distances, although movements of tens of kilometers are normal (Garshelis and Garshelis 1984). Individuals are capable of long distance movements of >100 km (Garshelis *et al.* 1984), however movements of sea otters are likely limited by geographic barriers, high energy requirements of animals, and social behavior.

Applying the phylogeographic approach of Dizon *et al.* (1992), Gorbics and Bodkin (2001) identified three sea otter stocks in Alaska: southeast, southcentral, and southwest. The ranges of these stocks are defined as follows: (1) Southeast stock extends from Dixon Entrance to Cape Yakataga; (2) Southcentral stock extends from Cape Yakataga to Cook Inlet including Prince William Sound, the Kenai peninsula coast, and Kachemak Bay; and (3) Southwest stock which includes Alaska Peninsula and Bristol Bay coasts, the Aleutian, Barren, Kodiak, and Pribilof Islands (Fig. 1). The phylogeographic approach of stock identification, which considers four types of data, is presented in greater detail below.

1) Distributional data: geographic distribution is continuous from Kachemak Bay to Cape Suckling, at which point 125 miles of vacant coastal habitat between Cape Suckling and Yakutat Bay separates the southeast and southcentral Alaska stocks (Doroff and Gorbics 1998). Sea otters in Yakutat Bay and southeast Alaska are the result of a translocation of 412 animals from Prince William Sound and Amchitka in the late 1960s (Pitcher 1989; Reidman and Estes 1990). Prior to translocation, sea otters had been absent from these habitats since the beginning of the 20th century. Distribution is nearly continuous from Attu Island in the western Aleutians to the Alaska Peninsula, although distances of >200 km between island groups in the Aleutians may effectively limit exchange of individuals. Sea otters do not occur in upper Cook Inlet, and population densities are currently low between the Kenai peninsula and the Alaska Peninsula, which suggests discontinuity in distribution at the stock boundary. Physical features that may limit movements of otters between the Kenai and Alaska peninsulas include approximately 100 km of open water across Cook Inlet with a maximum water depth of 100 m, and 70 km of open water between the Kenai Peninsula and the Kodiak Archipelago with a maximum water depth of 200 m. However, the open water between Kenai and Kodiak is interrupted mid-way by the Barren Islands (Gorbics and Bodkin 2001).

Contaminant levels may also indicate geographic isolation of stocks. In general, tissues from sea otters in Alaska contain relatively low levels of contaminants; however, higher levels of heavy metals and trace elements were found in animals from southcentral Alaska, with the general trend among groups being southcentral>southwest>southeast (Comerci *et al.*, in prep.). Patterns of contamination are consistent with distribution of pollutants from anthropogenic sources in populated areas. High levels of PCBs in some otters from the Aleutian Islands (southwest Alaska) likely reflect local "point sources," such as military installations (Estes *et al.* 1997; Bacon *et al.* 1999).

2) Population response data: variation in growth rates and reproductive characteristics among populations likely reflect local differences in habitat and resource availability rather than intrinsic differences between geographically distinct units (Gorbics and Bodkin 2001).

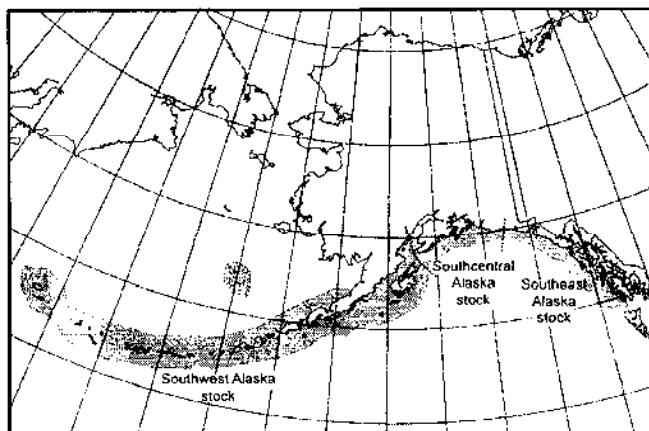


Figure 1. Approximate distribution of sea otters in Alaska waters (shaded area).

3) Phenotypic data: significant differences in sea otter skull sizes exist between Southwest and Southcentral Alaska (Gorbics and Bodkin, 2001).

4) Genotypic data: the three stocks exhibit substantial differences in both mitochondrial and nuclear DNA (Cronin *et al.* 1996; Bodkin *et al.* 1992, 1999, Larson *et al.* in prep.). Significant differences in frequencies of mtDNA haplotypes and genetic differences among geographic areas show sufficient variation to indicate restricted gene flow (Gorbics and Bodkin 2001). A recent analyses of mitochondrial and nuclear DNA by Cronin *et al.* (2002) corroborates the stock structure proposed by Gorbics and Bodkin (2001).

POPULATION SIZE

Historically, sea otters occurred across the North Pacific Rim, ranging from Hokkaido Japan through the Kuril Islands, the Kamchatka Peninsula, the Commander Islands, the Aleutian islands, peninsular and south coastal Alaska and south to Baja, California, Mexico (Kenyon 1969). In the early 1700s, the worldwide population was estimated to be between 150,000 (Kenyon 1969) and 300,000 individuals (Johnson 1982). Prior to large-scale commercial exploitation, indigenous people of the North Pacific hunted sea otters. Although it appears that harvests periodically led to local reductions of sea otters (Simenstad *et al.* 1978), the species remained abundant throughout its range until the mid 1700s. Following the arrival in Alaska of Russian explorers in 1741, extensive commercial harvest of sea otters over the next 150 years resulted in the near extirpation of the species. When sea otters were afforded protection by the International Fur Seal Treaty in 1911, probably fewer than 2,000 animals remained in thirteen remnant colonies (Kenyon, 1969). Population regrowth began following legal protection and sea otters have since recolonized much of their historic range in Alaska.

The most recent population estimates for the Southwest Alaska stock are presented in Table 1.

Table 1. Population estimates for the Southwest Alaska stock of sea otters.

Survey Area	Year	Unadjusted Estimate	Adjusted Estimate	CV	N _{min}	Reference
Aleutian Islands	2000	2,442	8,742	0.215	7,309	Doroff <i>et al.</i> (in press)
North Alaska Peninsula	2000	4,728	11,253	0.337	8,535	USFWS Unpublished data
South Alaska Peninsula - Offshore	2001	1,005	2,392	0.816	1,311	USFWS Unpublished data
South Alaska Peninsula - Shoreline	2001	2,190	5,212	0.087	4,845	USFWS Unpublished data
South Alaska Peninsula - Islands	2001	405	964	0.087	896	FWS Unpublished data
Unimak Island	2001	42	100	0.087	93	FWS Unpublished data
Kodiak Archipelago	2001		5,893	0.228	4,875	USFWS Unpublished data
Kamishak Bay	2002		6,918	0.315	5,340	USGS Unpublished data
Total			41,474		33,203	

Surveys of the Aleutian Islands in summer 2000 included the Near, Rat, Andreanof, Delarof, Four Mountain and Fox Island groups, and resulted in a population estimate of 8,742 (CV= 0.215) sea otters (Doroff *et al.*, in press). In the Aleutian Islands, aerial surveys consisted of shoreline counts that used a correction factor to account for sightability.

A survey of offshore area of the North Alaska Peninsula from Unimak Island to Cape Seniavin flown in summer 2000 produced an abundance estimate of 4,728 (CV= 0.326) sea otters (USFWS unpublished data). A similar survey of offshore areas of the south Alaska Peninsula from False Pass to Pavlov Bay conducted in summer 2001 resulted in

a population estimate of 1,005 (CV = 0.811) animals. Applying a correction factor of 2.38 (CV = 0.087) for sea otter aerial surveys using a twin-engine aircraft (Evans *et al.* 1997) produces adjusted estimates of 11,253 (CV = 0.337) and 2,392 (CV = 0.816) for the north and south Alaska Peninsula offshore areas, respectively.

In 2001, aerial surveys along the shoreline of the South Alaska Peninsula from Seal Cape to Cape Douglas recorded 2,190 sea otters (USFWS unpublished data). Additional aerial surveys of the South Alaska Peninsula island groups (Sanak, Caton, and Deer Islands, and the Shumagin and Pavlov island groups) and a survey of Unimak Island, recorded 405 otters for the South Alaska Peninsula island groups and 42 animals for Unimak Island. Applying the same correction factor of 2.38 (CV = 0.087) for sea otter aerial surveys using a twin-engine aircraft produces adjusted estimates of 5,212 (CV = 0.087), 964 (CV = 0.087) and 100 (CV = 0.087) for the south Alaska Peninsula shoreline, south Alaska Peninsula islands, and Unimak Island, respectively.

An aerial survey of the Kodiak Archipelago conducted in 2001 provided a population estimate of 5,893 (CV = 0.228) sea otters (USFWS unpublished data). The population estimate was calculated by applying a ratio estimate of density to the entire study area, and a correction factor was applied to account for group size bias and undetected diving animals.

Finally, an aerial survey of Kamishak Bay conducted in June 2002 produced a population estimate of 6,918 (CV = 0.315) sea otters. This population estimate was also calculated by applying a ratio estimate of density to the entire study area, and a correction factor was applied to account for group size bias and undetected diving animals.

Combining the adjusted estimates for these study areas results in a total estimate of 41,474 sea otters for the southwest Alaska stock.

Minimum Population Estimate

The minimum population estimate (N_{MIN}) for this stock is calculated using Equation 1 from the PBR Guidelines (Wade and Angliss 1997): $N_{MIN} = N / \exp(0.842 \times [\ln(1 + [CV(N)]^2)]^{0.6})$. The N_{MIN} for each survey area is presented in Table 1; the estimated N_{MIN} for the southwest Alaska stock is 33,203.

Current Population Trend

The first systematic aerial surveys of sea otters in southwest Alaska were conducted from 1957 to 1965. These surveys indicated that sea otter populations were growing and that animals were recolonizing much of their former range. Additionally, surveys showed that the greatest concentration of sea otters in the world was located in the Aleutian Islands (Kenyon 1969). By the 1980s, sea otters were present in all the island groups in the Aleutians (Estes 1990), and the total population in the Aleutian Islands was estimated as 55,100 to 73,700 individuals (Calkins and Schneider 1985). In 1992, nearly three decades after the original aerial surveys, USFWS conducted another systematic aerial survey of the Aleutian Islands. The total uncorrected count for the entire area was 8,042 sea otters. Survey results showed that sea otter abundance had declined since 1965 by more than 50% in several island groups in the central Aleutians (Evans *et al.* 1997). Boat-based surveys conducted during the 1990s independently documented severe declines in sea otter abundance within portions of the central Aleutians (Estes *et al.* 1998). In spring 2000, USFWS repeated the 1992 aerial survey and observed widespread declines throughout the Aleutian Islands, with the greatest decreases occurring in the central Aleutians. The total uncorrected count for the area in 2000 was 2,442 animals, indicating that sea otter populations had declined 70% between 1992 and 2000. In August 2000, USFWS designated the northern sea otter in the Aleutian Islands (from Unimak Pass to Attu) as a candidate species under the Endangered Species Act.

As part of a continued effort to determine the full range of the sea otter decline in Western Alaska, USFWS conducted aerial surveys along the Alaska Peninsula and the Kodiak Archipelago in 2000 and 2001. Surveys of the Alaska Peninsula repeated methods used in a 1986 aerial survey by Brueggeman *et al.* (1988). When current results were compared with those from the previous study, declines of 93-94% were documented for the South Alaska Peninsula and declines of 27-49% were documented for the North Alaska Peninsula (USFWS unpublished data). In the Kodiak Archipelago, data from 2001 aerial surveys indicates that sea otter populations have decreased as much as 40% since 1994 (USFWS unpublished data).

A recent aerial survey of Kamishak Bay indicates nearly 7,000 sea otters inhabit this area. Kamishak Bay was previously surveyed as part of a boat-based survey of lower Cook Inlet (Agler *et al.* 1995). An estimate for just Kamishak Bay is not available, therefore the population trend for that area is unknown. Although large portions of the southwest Alaska stock appears to have undergone dramatic population declines, several areas do not appear to have been affected. Estimates from the Port Moller/Nelson Lagoon area and the Alaska Peninsula from Castle Cape to Cape

Douglas show evidence of population increases. The magnitude of these increases however, does not offset the declines observed in the last 10-15 years.

MAXIMUM NET PRODUCTIVITY RATE

Estes (1990) estimated a population growth rate of 17 to 20% per year for four northern sea otter populations expanding into unoccupied habitat. However, in areas where resources are limiting or where populations are approaching equilibrium density, slower rates of growth are expected (Estes 1990, Bodkin *et al.* 1995). Maximum productivity rates have not been measured through much of the sea otter's range in Alaska. In the absence of more detailed information regarding maximum productivity rates throughout the state, the rate of 20% calculated by Estes (1990) is considered a reliable estimate of R_{MAX} .

POTENTIAL BIOLOGICAL REMOVAL

Under the 1994 reauthorized Marine Mammal Protection Act (MMPA), the potential biological removal (PBR) is defined as the product of the minimum population estimate, one-half the maximum theoretical net productivity rate, and a recovery factor: $PBR = N_{MIN} \times 0.5 R_{MAX} \times F_R$. Since 1992, sea otter counts in the Aleutians have declined by an average of 70%. In August 2000 sea otters in the Aleutian Islands were designated as a Candidate Species under the Endangered Species Act. Candidate species designation was expanded to encompass the entire southwest Alaska stock of sea otters in June 2002. Given the geographic extent and overall magnitude of the decline, along with the uncertainty regarding the cause, we have set the recovery factor (F_R) for this stock at 0.25. Thus, for the Southwest stock of sea otters, $PBR = 830$ animals ($33,203 \times 0.5 (0.2) \times 0.25$).

ANNUAL HUMAN CAUSED MORTALITY

Fisheries Information

Each year, fishery observers monitor a percentage of commercial fisheries in Alaska and report injury and mortality of marine mammals incidental to these operations. In 1992, fisheries observers reported eight sea otters taken incidentally by the Aleutian Island Black Cod Pot Fishery. During that year, 33.8% of the Bering Sea area groundfish fisheries were observed, resulting in a total estimate of 24 ± 3 sea otter mortalities for the Bering Sea groundfish fisheries in 1992. No other sea otter kills were reported by observer programs operating in the region of the Southwest stock from 1993 through 2000 (Perez *et al.* 1999). The NMFS is currently conducting a marine mammal observer program for the Kodiak salmon set net fishery that will operate during the 2002 and 2003 fishing seasons.

An additional source of information on the number of sea otters killed or injured incidental to commercial fishery operations in Alaska are fisher self-reports required of vessel-owners by NMFS. In 1997, fisher self-reports indicated one sea otter kill in the Bering Sea and Aleutian Island groundfish trawl. Self-report records were incomplete for 1994, not available for 1995 and reported no kills or injuries in 1996. From 1998 through 2000, there were no further records of incidental take of sea otters by commercial fisheries in this region. Thus, during the period between 1996 and 2000, fisher self-reports resulted in an annual mean of 0.2 sea otter mortalities from interactions with commercial fishing gear. Credle *et al.* (1994), considered this to be a minimum estimate as fisher self-reports and logbook records (self-reports required during 1990-1994) are most likely negatively biased.

Based on the available data, sea otter abundance in the Southwest stock is not likely to be significantly affected by commercial fishery interactions at present. The total fishery mortality and serious injury (0.2) is less than 10% of the calculated PBR (830) and, therefore, can be considered insignificant and approaching a zero mortality and serious injury rate (Wade and Angliss 1997). A complete list of fisheries and marine mammal interactions is published annually by NMFS [67 FR 2410].

Oil and Gas Development

Exploration, development and transport of oil and gas resources can adversely impact sea otters and nearshore coastal ecosystems in Alaska. Sea otters rely on air trapped in their fur for warmth and buoyancy. Contamination with oil drastically reduces the insulative value of the pelage, and consequently, sea otters are among the marine mammals most likely to be detrimentally affected by contact with oil. It is believed that sea otters can survive low levels of oil contamination (< 10% of body surface), but that greater levels (>25%) will lead to death (Costa and Kooyman 1981, Smiff *et al.* 1982). Vulnerability of sea otters to oiling was demonstrated by the 1989 *Exxon Valdez* oil spill in Prince William Sound. Total estimates of mortality for the Prince William Sound area vary from 750 (range 600-1,000)

(Garshelis 1997) to 2,650 (range 500 - 5,000) (Garrot *et al.* 1993) otters. Statewide, it is estimated that 3,905 sea otters (range 1,904 - 11,257) died in Alaska as a result of the spill (DeGange *et al.* 1994). At present, abundance of sea otters in some oiled areas of Prince William Sound remains below pre-spill estimates, and evidence from ongoing studies suggests that sea otters and the nearshore ecosystem have not yet fully recovered from the 1989 oil spill (Bodkin *et al.*, in press, Stephensen *et al.* 2001). Other areas outside of Prince William Sound that were affected by the spill have not been intensively studied for long-term impacts.

Within the range of the Southwest Alaska sea otter stock, oil and gas development occurs only in Cook Inlet. Although the amount of oil transport in southwest Alaska is small, the *Exxon Valdez* oil spill demonstrated that spilled oil can travel long distances and take large numbers of sea otters far from the point of initial release. Annual mortality due to oil and gas development activities has not been estimated for the Southwest sea otter stock. While the catastrophic release of oil has the potential to take large numbers of sea otters, there is no evidence that routine oil and gas development and transport have a direct impact on the Southwest Alaska sea otter stock.

Subsistence/Native Harvest Information

The Marine Mammal Protection Act of 1972 exempted Native Alaskans from the prohibition on hunting marine mammals. Alaska Natives are legally permitted to take sea otters for subsistence use or for creating and selling authentic handicrafts or clothing. Data for subsistence harvest of sea otters in Southwest Alaska were collected by a mandatory Marking, Tagging and Reporting Program implemented by USFWS since 1988. Fig. 2 provides a summary of harvest information for the Southwest stock from 1989 through 2000. The mean annual subsistence take during the past five years (1996-2000) was 97 animals. Age composition during this period was 87% adults, 10.5% subadults, and 2.5% pups. Sex composition during the past five years was 62% males, 20% females and 18% unknown sex.

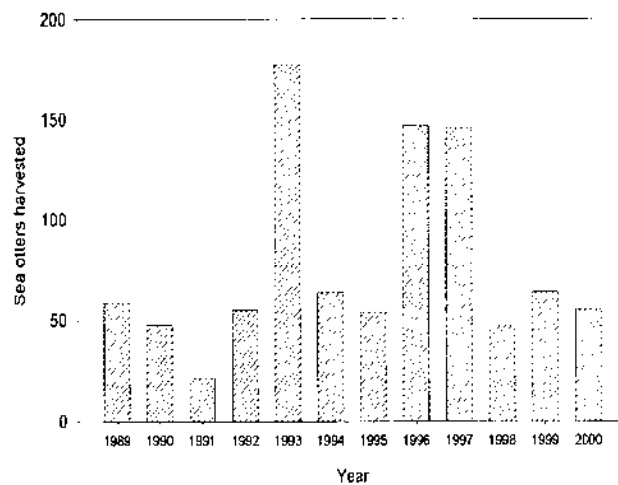


Figure 2. Estimated subsistence harvest of sea otters from the southwest Alaska stock, 1989-2000.

Since 1997, the USFWS and the Alaska Sea Otter and Steller Sea Lion Commission (TASSC) have signed cooperative agreements authorized under Section 119 of the MMPA for the conservation and co-management of sea otters in Alaska. Each of the six TASSC regions has a regional management plan that includes harvest guidelines. Several villages have also developed local management plans that address sea otter harvests.

Research and Public Display

In the past five years, 11 sea otters have been removed from the southwest Alaska stock for public display. A limited amount of live capture for scientific research has been conducted in the Aleutian Islands. There have been no observed effects on sea otter populations in the Southwest Alaska stock from these activities.

STATUS OF STOCK

Sea otters in southwest Alaska are not presently listed as “depleted” under the MMPA. However, based on the best available scientific information that indicates sea otter numbers across southwest Alaska are declining, USFWS designated the southwest Alaska Distinct Population Segment of the northern sea otter as a candidate species under the Endangered Species Act in June 2002. As a result, the southwest Alaska stock is classified as strategic.

In the Aleutians and the Alaska Peninsula, subsistence hunting of sea otters occurs at low levels and does not appear to be a major factor in the decline. Additionally, current levels of incidental take of sea otters by commercial fisheries

in southwest Alaska can be considered insignificant and approaching a zero mortality rate. Thus, these populations are declining for unknown reasons that are not explained by the level of direct human-caused mortality.

Habitat Concerns

Potential threats to sea otter populations include natural fluctuations, such as disease or predation, and indirect effects of human activities. Population studies in the Aleutian Islands indicate that observed declines are the result of increased adult mortality. A current theory proposes that predation by transient killer whales may be a leading cause of the population decline (Estes *et al.* 1998). Studies show that disease, starvation and contaminants are not presently implicated in the Aleutians; however, further evaluation of these factors is warranted along with additional investigation of the predation hypothesis to better elucidate the cause of the decline.

Sea otters play an important role in maintaining the coastal ecosystems they inhabit. In near-shore kelp beds, sea otters function as keystone species, strongly influencing ecosystem functions. In the Aleutian archipelago, sea urchins are a dominant herbivore and an important food source for sea otters (Estes *et al.* 1978). If sea otters disappear from these areas, sea urchin populations will be released from the control of sea otter predation, and may soon overgraze the attachments of bull kelp. Detached kelp is swept away, exposing remaining fish, crustaceans and bivalves. A secondary consequence of the decline in sea otter populations in southwestern Alaska is that kelp forests in many areas may also be in decline (Estes *et al.* 1998).

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MMS Response to Comment Document 111

Response 111-001.

For the agency-preferred alternative, which combines Alternative III and IV, see Section I.C.2.a(5).

Response 111-002.

The MMS believes the buffer is not warranted at this time. Section IV.B.1.b of the EIS discusses the Class I status of Prevention of Significant Deterioration for the area designated as a national wilderness area within Tuxedni National Wildlife Refuge. The MMS air quality modeling shows that the highest pollution concentrations would be well within the Class I Prevention of Significant Deterioration limits. In any event, the EPA has jurisdiction for air quality over the Cook Inlet program area. Lessees must comply with the EPA requirements for OCS sources. Any development that could not meet the Class I standard could not be approved by the EPA. We have added ITL No. 7, Air Quality, to the Final EIS to inform lessees of the Class I PSD status of Tuxedni National Wildlife Refuge.

Section I.C.2 discusses this possible new alternative and explains why it was considered but not included for further study.

Response 111-003.

We are aware of differing requirements for analyses related to ESA listed and proposed species and their critical habitat under NEPA and the ESA. Under NEPA and its implementing regulations, the MMS is required to analyze and discuss both potential direct and indirect effects of the Proposed Action (and alternatives) and the significance of those effects. Under the ESA, the MMS is required to provide NMFS and/or FWS with an evaluation of the potential effects of the Proposed Action on listed and proposed species and designated and proposed critical habitat and to determine whether any species or habitat are likely to be adversely affected by the action. The MMS is required to initiate formal consultation with either the FWS and/or NMFS under Section 7(a)(2) of the ESA, if our analyses indicate the Proposed Action may affect listed species or critical habitat, except as noted in paragraph b of 50 CFR 404 § 402.14. In our analyses on endangered and threatened species, we have evaluated the potential for the Proposed Action to have effects (as defined in 50 CFR 402 § 402.02), including adverse effects, on species that already are listed under the ESA and on candidate species. We also initiated and concluded consultation with both the NMFS and the FWS under Section 7 of the ESA (see Appendix C). Thus, in this document, we have analyzed and discussed potential direct and indirect effects of the proposed action on ESA listed and candidate species and the significance of such effects (required under NEPA); have evaluated the potential for the Proposed Action to have effects, including adverse effects (and including cumulative effects), on such species (required under the ESA); and have consulted with both the NMFS and the FWS under Section 7(a)(2) of the ESA on the Proposed Action.

Under Section 7(a)(2) of the ESA, it is the responsibility of the FWS (or NMFS for their trust species) to formulate their biological opinion as to whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat (50 CFR 402 § 402.12, 402.13, and 402.14). Both the NMFS and the FWS provided the MMS with their opinions on the potential for the Proposed Action to adversely affect listed species under their jurisdiction, to jeopardize the continued existence of such listed and candidate species and, if appropriate, to result in the destruction or adverse modification of critical habitat. These opinions are provided in Appendix C.

Response 111-004.

The FWS conveyed this comment to us during formal Section 7 consultation. We have forwarded this comment to our Environmental Studies Section.

Response 111-005.

Our use of 3% of the total number of Steller's eider observed was based on guidance and references provided by the FWS, Anchorage Field Office during consultation between the MMS and the FWS under Section 7 of the ESA. We understand from FWS staff that, due to declining numbers in Russia and the related relative change in the estimated numbers of birds in Russia versus Alaska, that they are now advising that 4.2% of the total number of Steller's eiders observed in wintering flocks should be considered to be likely to be derived from the Alaska breeding population. Based on this guidance, we have made the changes to the estimates in our EIS of the number of Alaska breeding population Steller's eiders that could potentially be impacted by an oil spill that potentially could result from the proposed action. However, we caution against overinterpretation of these numbers for the following reasons:

- It is not known whether the flocks of wintering Steller's eiders seen in Cook Inlet tend to be composed of individuals from the Russian breeding population and the Alaska breeding population in the same proportions as the relative numbers of breeding birds would lead one to expect.
- The FWS has stated that there are not reliable estimates of the numbers of Steller's eiders in the breeding population in Alaska and, thus, it is difficult to derive reliable ratios on which to base a percentage.
- It is not entirely clear that birds that breed in Alaska do not, in some years, breed in Russia.

Response 111-006.

We have left the level of information provided on sea otters as it was in the draft EIS. We provide detailed information on this stock of sea otter for the following several main reasons.

First, there is no existing recent document that summarizes, synthesizes, and critically evaluates much of the existing data on the biology, ecology or population status of sea otters in Alaska, or of this stock specifically. Conversely, in the case of both Steller sea lions and Cook Inlet beluga whales, there are very recent comprehensive documents such as biological opinions, draft EIS's, Administrative Law Judge hearings or other court-related documents, etc., that provide the aforementioned types of information, that are widely available, and that could be referenced in our document. These documents also have undergone extensive critical review by the relevant scientific, stakeholder, regulatory, and legal communities. There are no such recent comprehensive synthetic and critically analytic documents for sea otters in Alaska or even for this designated population stock of sea otters. We needed such summary, synthesis, and critical evaluation of available information as a foundation on which to undertake and to interpret our analyses of potential effects of the proposed action on this designated stock. As this foundation of information underlies our analyses, we also have an obligation to present the information to enable the readers of the document to best interpret our work.

Second, in the comments from the FWS on the MMS's OCS Oil and Gas Leasing Program from 2002-2002 (the national 5-year plan), the FWS devoted 1.5 out of 8 pages to discuss concerns related to sea otters. In those comments, the FWS recommended "...that the potential impacts to sea otters by the proposed lease sales in the Cook Inlet Planning Area be more fully analyzed and disclosed...." We have attempted to be responsive to the FWS's high level of concern over this stock and to fully evaluate the potential impacts of our actions on this stock.

Third, we provide this information for stakeholders who, during the public-input process related to this EIS and in the course of many other forums (for example, *Exxon Valdez* Oil Spill Trustee Council symposia and meetings, etc.) frequently and strongly have voiced concern over the potential for oil and gas-related activities to impact sea otters. We refer the FWS to Comment 057-005 and our related response. We note that even with the level of information synthesis, evaluation, and analyses provided in this document, some stakeholders would prefer to see additional information.

In summary, because of the following—our concern over the apparent decline of this designated population stock; no existing recent document providing in-depth critical syntheses, discussion, and critical evaluation of available information on this stock; the demonstrated high level of vulnerability of sea otters to oil spills; the demonstrated high level of stakeholder interest and concern over this species; and the aforementioned

comments from the FWS to the MMS on the draft EIS for the 2002-2007, 5-year program—we have provided detailed and, where possible, critically evaluated background information and have undertaken related analysis of the potential impacts of the proposed action on the Southwest Alaska stock of sea otters, which currently is a candidate species for listing under the ESA.

Response 111-007.

Section III.B.5 has been revised to incorporate information from recent field studies of marine and coastal birds in the lower Cook Inlet, including Agler et al. (1995), Gill and Tibbitts (1999), and Piatt (2002).

Response 111-008.

The comment has been noted.

Response 111-009.

The text has been changed to include designated management units.

Response 111-010.

Please see Response 111-003.

Response 111-011.

Please see Response 111-005. Additionally, we have completed consultation with the FWS under Section 7(a)(2) of the ESA. Documents from this consultation, including the memoranda referred to herein, are provided in Appendix C of this EIS. The FWS (see the memorandum of March 21, 2003, concluding consultation) concluded that the "...probability of leasing or exploration activities having an adverse effect upon..." Steller's eiders "...is discountable." In the February 18, 2003, ESA Section 7 memorandum, the FWS stated that: "...Steller's eiders are not known to occur within the proposed action area...."

Response 111-012.

Estimating the recovery rates of seabird populations affected by oil spills is a difficult and complex problem; it depends on the species involved, the area affected, and the time of year. This is particularly true at the lease-sale stage, when it is difficult to predict where an oil spill that might result from the Proposed Action could originate and which areas might be contacted if a spill were to occur. Section ES-5 (and IV.B.1.g(1)) have been revised to provide an expanded discussion of the potential long-term population effects.

Response 111-013.

Information on waterfowl densities in lower Kachemak Bay provided in Agler et al. (1995) has been incorporated into Sections II.D and III.B.5. After reviewing Alternative III, the MMS has concluded that adoption of the Lower Kenai Peninsula Deferral would reduce potential impacts to marine and coastal birds. Section IV.B.3.b(5) has been revised and included as Section IV.B.3.a(2) in the final EIS.

Response 111-014.

The recommended reference is not available in the cited form. Information on seabird colonies on the Barren Islands provided by the FWS has been incorporated into Sections II.E and III.B.5. After reviewing Alternative IV, the MMS has concluded that adoption of the Barren Islands Deferral would reduce potential impacts to marine and coastal birds. Section IV.B.4.b(8) has been revised and included as Section IV.B.4.a(2) in the EIS.

Response 111-015.

Information has been added to Section III.B.1.b(2) on the importance of intertidal clams along the west side of Cook Inlet as a food source for shorebirds and sea ducks, including a reference to the research of Bennett (1996).

Response 111-016.

We have modified this section slightly in response to this comment

Response 111-017.

We have modified this section slightly in response to this comment.

Response 111-018.

We note the comment regarding the difference in lengths of various sections. We have modified the subheading for Section III.B.4.b(9)(d) to remove reference to population structure and stocks, as it is part of the next heading. However, we disagree that the referred-to information about conclusions regarding subspecies identities and population boundaries is not relevant. Information about the relative uniqueness of groups of individuals of a species that might be affected by a proposed action is important to evaluating the significance of any effect. Please also see Response 111-019. We have corrected our typographical error.

Response 111-019.

We have modified the statement to clarify the name of the Native Commission at the time of the MOU and to indicate its relationship to the current entity. We disagree that the information in the paragraph beginning “In the candidate listing designation...” is not relevant. The summarized information presents published statements regarding discontinuities in sea otter habitat and other characteristics, designation of population stocks, and other important characteristics that are important to both evaluating the potential effects of the proposed action on sea otters and to interpreting the potential significance of such effects. Moreover, it illustrates part of the reason why this section is lengthy. There have been a variety of published statements regarding sea otter population stocks, discontinuities that constitute justification of recognition of “distinct population segments” under the ESA, and other related statements that are inconsistent with one another and/or not in agreement. Critical evaluation of available information and data forms the basis of our analyses of potential effects of the Proposed Action. These analyses are required under both the NEPA and the ESA. Under the ESA, for example, the MMS has an obligation to provide the FWS with the best scientific and commercial data available for an adequate review of the potential effects of the proposed action on listed species. This includes the viewpoints of experts on various topics. Experts do not always agree on topics as complex as population structure. It is our perspective that it is best to provide the different scientific viewpoints from qualified scientists on topics rather than simply reporting a single perspective. The history of science, and the history of the official recognition of stock structure of sea otters in Alaska, both clearly illustrate the wisdom of doing so. Thus, with regards to the stock issue, we have left our discussion of the topic as it was in the draft EIS. A biological population is a real, functioning entity whose approximate boundaries may change over time but whose boundaries may or may not be coincident with the officially recognized boundaries. Our review and critical analysis of the topic revealed more than a single perspective on the topic from various experts and revealed also changing official acceptance of various viewpoints that have examined the issue of population structure. Thus, to have a complete discussion of the topic, we have included these varying perspectives. We disagree that the pioneering studies on this issue are “outdated.” An understanding of the population structure of a species is an important component in understanding and interpreting the significance of any potential effects of a proposed Federal action on a given species. Results from studies examining different samples and using different methodologies are valuable to achieving a more complete understanding of any biological phenomena.

Response 111-020.

The typographical error has been corrected.

Response 111-021.

We have maintained the wording as it was in the draft. We believe that this wording more clearly explains to stakeholders the discrepancy between the description of the geographic region described in the *Federal Register* as that in which sea otters are designated as candidates and the current position of the FWS regarding to the geographic extent of the designation than does the suggested wording. Because the specific group of sea otters whose ESA status is at issue are those inhabiting the western side of Cook Inlet, near where the proposed OCS oil and gas lease sales could be held, we believe it is especially important that we present a clear and complete explanation of the issue.

Response 111-022.

We have changed our subheading on this section as recommended. Further, we have changed the subheadings on Sections III.B.4.b(9)(i) through III.B.4.b(9)(q), as these were subheadings of this section that were erroneously assigned their own heading during editing. Other subsequent headings were modified when appropriate.

Response 111-023.

We have retained the subheadings, because we believe the reader can more clearly compare and interpret reported trends in abundance from the different time periods, if the data presentation and summaries are separated. We provide detailed critical analyses of data in the section comparing the 1992 and 1965 data. These analyses help readers interpret the survey data from the different island groups and help readers interpret the overall pattern of abundance and distribution over time in the Aleutian Islands, an important portion of the range of the designated Southwest Alaska sea otter stock.

Response 111-024.

We have retained the italics, because we are quoting the term used by the FWS in the referenced document (please see the reference, which includes the page number on which the quote appears). Please see also Response 111-029.

Response 111-025.

We disagree with the contention that we should not evaluate information but should simply report it. Rigorous scientific analysis requires critical evaluation, not simply the repeating, of available information. Synthesis and evaluation of available information and data are required as part of our obligation under both the NEPA and the ESA. Regarding the difference in our treatment of the sea lion survey data versus the sea otter survey data, we note that, due in part to both the longer course of the sea lion decline (and the related fact that the population segments have been listed for relatively many years under the ESA), lawsuits that have occurred, comprehensive biological opinions that have been written related to various proposed Federal actions, etc., the sea lion survey data (and much of the other sea lion data) are accessible, transparent, and have undergone extensive critical evaluation by the relevant scientific, stakeholder, and legal communities. The needed information that would permit critical scientific evaluation of recent (post-1992) sea otter surveys is not available to the MMS and, to our knowledge, this information has not been made available in detailed reports to the aforementioned types of communities. Hence, we qualify our presentation of these data. We have made the change from "summer" to "April."

Response 111-026.

We have corrected the typographical error. We also have corrected the information on the trend in abundance estimates from the Kodiak Archipelago from a 56% to a 40% apparent decline to reflect the comparison of 1994 to 2001 data. We do not make the comparison between the 1989 and 2001 data, because the 1989 estimate is based on data from a helicopter survey, and the 2001 data are based on fixed-wing surveys.

Response 111-027.

We have deleted the sentence as recommended. We note that the original wording resulted from differences in timing of the writing of sections of the draft EIS (spring, late summer, and fall of 2002) and the availability of the final stock assessment on the web. We received the estimate for this area in an email from the FWS on October 4, 2002, prior to our having the stock assessment.

Response 111-028.

We have slightly modified the statement regarding shark predation and added relevant references.

Response 111-029.

Until the sea otter survey data (years 2000, 2001, and 2002) for the southwest Alaska Stock, and other supporting information, are available in a comprehensive report or paper and have been subject to critical review (for example, as are, and have been, the data for Cook Inlet beluga whales and Steller sea lions), we believe the term “apparent decline” is more appropriate than “decline.” We have added the term “apparent” to the word “decline” in the section on contaminants.

Response 111-030.

We have added the term “subarctic” as suggested. We have changed the wording to read “less likely or possibly within” and referenced these comments for the latter phrase. We also have added the following sentence to reflect FWS conclusions formally submitted to the MMS following consultation under Section 7 of the ESA: “In a Feb. 18, 2003 memorandum at the conclusion of consultation under Section 7 of the Endangered Species Act (please see page 1 of this memorandum which is included in Appendix C), the FWS concluded that ‘Steller’s eiders are not known to occur within the action area.’” We note that the phrase “less likely” is accurate. Available data indicate Steller’s eiders are less likely to occur within the proposed lease-sale area than in shallower nearshore areas (such as those observed by B. Larned and reported on in later parts of this section).

Response 111-031.

Please see Response 111-005.

Response 111-033.

We have corrected the typographical error noted by the commenter.

Response 111-034.

We appreciate the updated information on results from telemetry studies. We have inserted a sentence in our text to include the update.

Response 111-035.

We have made the change as recommended. Please see also Response 111-005.

Response 111-036.

We have added the additional information to the appropriate section as recommended.

Response 111-037.

We have corrected the typographical error.

Response 111-038.

Please see Response 111-003.

Response 111-039.

As stated in Response 111-007, Section III.B.5 has been revised to incorporate information from recent field studies of marine and coastal birds in the lower Cook Inlet, including Agler et al. (1995), Gill and Tibbitts (1999), and Piatt (2002).

Response 111-040.

The stock assessment information attached to the comment is for the Southwest stock of sea otters and is not relevant for Section III.B.6.b on Southcentral Alaskan sea otter stock. USDO, Fish and Wildlife

Service (2002b) information on this stock is included in this section in the third paragraph. The text has been revised in response to this comment.

Response 111-041.

We have left the paragraph referred to in the EIS to clarify the sequence of events for stakeholders and other readers who may otherwise be confused by the difference in the information in the letters (included as part of our documentation of ESA Section 7 consultation activities) and the information on the timing of changes in the ESA status of sea otters presented in the text.

Response 111-042.

Where appropriate, we have added this information to our sections on sea otters.

Response 111-043.

Comment noted.

Response 111-044.

Please see Response 111-012. Estimating the recovery rates of seabird populations affected by oil spills is a difficult and complex problem, which depends on the species involved, the area affected, and the time of year. This is particularly true at the lease-sale stage, when it is difficult to predict where an oil spill that might result from the proposed action could occur and which areas might be contacted, if a spill were to occur. The text in Section IV.B.1.g(1) has been revised to provide an expanded discussion of the potential long-term population effects.

Response 111-045.

Potential oil-spill effects on the sea otters of Kachemak Bay and the lower Kenai Peninsula are addressed in the EIS in Section IV. B.1.h(3)(f)2) under Combined Probably Analysis. It is unlikely (a low probably) that this stock of seas otters would be exposed to the assumed 1,500- or 4,600-barrel spill. It is true that much of the habitat of this stock is not exposed to oil and gas activities in Cook Inlet, but portions of the stock that occur in Kachemak Bay and along the lower Kenai Peninsula could be exposed to the potential spill.

Response 111-046.

The pipeline landfall is assumed to occur north of Anchor Point on the Kenai Peninsula away from sea otter habitats in Kachemak Bay and habitats along the coast of the lower Kenai Peninsula. See Section IV.B.1.h(3)(a)2)a) - Pipeline Development for potential effects on habitats.

Response 111-047.

Additional information has been added to Section III.B.3, and we now conclude that Alternative III would provide greater protection to birds in the deferral areas.

Response 111-048.

After reviewing Alternative III, the MMS has concluded that adoption of the Lower Kenai Peninsula Deferral would reduce potential impacts to marine and coastal birds. Section IV.B.3.b(5) has been revised and included as Section IV.B.3.a(2) in the final EIS. The conditional probabilities that an oil spill occurring at any time during the year would contact Kachemak Bay and/or the lower Kenai Peninsula also have been incorporated into the revised section.

Response 111-049.

Please see Response 111-014.

Response 111-050.

Comment noted.

Response 111-051.

The text has been changed in response to this comment.

Response 111-052.

The FWS is identified in the EIS as having management responsibility for sea otters.

Response 111-053.

While this information is presented in a modified form in Section III, we have retained these three lines to maintain completeness of a section summarizing human-related impacts on this population.

Response 111-054.

We have modified the final sentence of the last paragraph of this section to improve clarity. We added a reference related to reports of ship sinkings and groundings in the Aleutians.

Response 111-055.

We have maintained the heading of "Native Take" to maintain consistency between cumulative effects sections on other threatened and endangered marine mammals. We appreciate the additional information on the FWS's views regarding the accuracy of reported levels of take of sea otters by Alaskan Natives. We have added a sentence to the relevant section to include this information.

Response 111-056.

We have incorporated preliminary information that we obtained from B. Fadely of the NMML. We believe that the studies from the 1980's, which provide the only data of their kind on interactions between sea otters and certain fisheries, are valuable. There has been relatively little subsequent study of this issue and all available information is valuable in the assessment of potential harm that could be occurring to sea otter populations from fisheries.

Response 111-057.

Table III.B-8 has been revised to incorporate the indicated name change from oldsquaw to long-tailed ducks.

Response 111-058.

Table III.B-9 has been revised to incorporate seabird density information from Agler et al. (1995) and Piatt (2002).

Response 111-059.

We have modified presentation of the data in this table. Because the FWS recognizes and has designated all sea otters from western Cook Inlet to the end of the Aleutians as comprising a single Southwest Alaska population stock, the population trends in the Aleutians are relevant to the interpretation of any potential effects from our Proposed Action in Cook Inlet. The trends in the Aleutians are not relevant only if sea otters in the Aleutians are not part of the same population stock as sea otters in western Cook Inlet, Shelikof Strait, and those parts of the Kodiak Archipelago that potentially could be impacted by oil and gas activities in Cook Inlet. Under Section 3 of the MMPA, the "...term 'population stock' or 'stock' means a group of marine mammals of the same species, or smaller taxa in a common spatial arrangement, that interbreed when mature" (16 U.S.C. § 1362 (11)). Relatedly, the FWS has designated sea otters from the Kodiak Archipelago, the Alaska Peninsula coastline, and the Aleutian Islands as a "distinct population segment" and has designated this distinct population segment as a candidate for listing under the ESA. Section 3(15) of the ESA, as amended, states: "(T)he term 'species' includes...any distinct population

segment of any vertebrate fish or wildlife which interbreeds when mature” (16 U.S.C. § 1532). Please see Response 111-019 for more discussion of the population stock and lack of agreement about the number of populations and their boundaries.

Response 111-060.

We have included information from the final stock assessment in the table. However, where numbers from earlier estimates that are based on the same survey are greatly changed, we have included the earlier estimates because we have no basis to evaluate the correction factors or statistical techniques that resulted in the modification. These estimates were presented and interpreted in public documents. We agree that multiple and different estimates that are derived from the same survey data are difficult to interpret without a detailed description of the survey, methodologies and, perhaps most important, the underlying theory that forms the scientific rationale for the estimation procedures (and the reasons for changing estimation procedure). Please see also Responses 111-025 and 111-029.

Response 111-061.

We have modified our reference as suggested. We had included pre-1988 data in an earlier draft, and we appreciate that your careful review caught retention of the now inappropriate reference.

Response 111-062.

A figure depicting seabird colonies in the Cook Inlet region based on information received from the FWS has been developed and included in Volume II of the EIS.

Response 111-063.

The map has been revised.

Response 111-064.

We have corrected the misspelling of Chisik Island. The island is part of the Alaska Maritime National Wildlife Refuge but is mentioned separately, because it and Duck Island were specifically identified during scoping.

Subject: FW: Oppose New Lease Sales in Alaska's Lower Cook Inlet

Follow Up Flag: Follow up

Flag Status: Flagged

112

-----Original Message-----

From: apatello@hotmail.com [mailto:apatello@hotmail.com]

Sent: Tuesday, January 28, 2003 4:09 PM

To: AKEIS

Subject: Oppose New Lease Sales in Alaska's Lower Cook Inlet

Secretary Gale Norton
U.S. Interior Secretary
U.S. Department of Interior, 1849 C Street, N.W.
Washington, DC 20240

Dear Secretary Gale Norton,

I understand the Bush Administration has given it's blessing for Federal Agencies to ignore e-mail messages deemed to me 'mass mailings'. I Respectfully implore you... Please, don't ignore our letters. This is Our Country, too, & our opinions deserve to be heard.

001

I am opposed to new oil and gas lease sales (Outer Continental Shelf Lease Sales 191 and 199) in Alaska's Lower Cook Inlet. New oil and gas drilling will harm these waters and their unique wildlife, so I urge you to cancel these planned sales. Instead, we urge you to pursue more sustainable energy alternatives.

The Lower Cook Inlet is home to killer whales, wild Pacific salmon, sea lions, sea birds, and other sensitive wildlife. These waters are also home to communities dependent upon fishing and tourism. Oil spills and pollution from new oil and gas drilling in the Lower Cook Inlet will not only harm these waters and wildlife, but will also harm the communities dependent upon a healthy marine ecosystem.

Sincerely,

Ann Patello
330 W Hwy 246 #142
Buellton, California 93427

cc:
Mr. John Goll

VII-478

MMS Response to Comment Document 112

Response 112-001.

Please see Response 007-061.

Subject: FW: Don't Lease Sensitive Cook Inlet Habitats & GEOPHYSICAL HAZARDOUS Lower Cook Inlet !

Follow Up Flag: Follow up
Flag Status: Flagged

113
 -----Original Message-----
 From: stevehac@xyz.net [mailto:stevehac@xyz.net]
 Sent: Monday, February 10, 2003 6:55 PM
 To: Goll, John
 Subject: Don't Lease Sensitive Cook Inlet Habitats & GEOPHYSICAL HAZARDOUS Lower Cook Inlet !

Mr. John Goll
 949 East 36th Avenue, Room 308
 Anchorage, AK 99508

Dear Mr. John Goll,

The wilderness waters of Lower Cook Inlet have been called the "biological engine" of the Gulf of Alaska, because they support a diverse range of fish and wildlife species including brown bear, migratory birds, sea lions, whales, and all five species of wild Pacific salmon. The area is valued both nationally and internationally for its incredible productivity. Lower Cook Inlet and the adjacent Shelikof Strait border five National Wildlife Refuges, three National Parks, and several State Game Refuges and Critical Habitat Areas.

Upper Cook Inlet is the only coastal waterbody in the nation where existing oil and gas production dumps billions of gallons of toxic waste into sensitive fisheries each year. A recent EPA study of Cook Inlet Native subsistence resources found a broad array of oil-type contaminants in fish and shellfish.

Yet you want to move forward with lease sales which will produce little more than a week's worth of energy for the U.S. (based on current usage), despite a 1 in 5 risk of a large spill in the rich and productive marine waters of Lower Cook Inlet.

Native subsistence cultures have relied on these resources for tens of thousands of years, and fishing, tourism and related economies rely on Cook Inlet's beauty and productivity.

MMS has made no effort to pursue alternative energies, and with the second highest tides in the world, Cook Inlet produces an enormous amount of renewable energy each day.

Please don't offer this spectacular area for oil and gas leasing. You have an obligation to our future generations.

As a citizen of Alaska who has living within the Cook Inlet Region for the past 40 years and who is a registered professional Earth Scientist (APGS #465 & State of Alaska Geologist #50), I'm VERY CONCERNED that the past(Sale #149) and now present EIS for Lease Sales(#191 & #199)HAVENT SUFFICIENTLT ADDRESSED the SPECIFIC KNOWN GEOPHYSICAL HAZARDS(earthquake frequency, seismic intensity and stress; volcanic activities(magnitude & frequency, ash and flow hazards, and potential induced large tidal surges) KNOWN TO HAVE A VERY LARGE PRESENCES IN THE LOWER COOK INLET REGION.

001

Past EIS's haven't and the current EIS doesn't properly addressed the major geological/geophysical impacts that have affected the Cook Inlet oil/gas pipeline infrastructure during the 1964 Great Alaska Earthquake; and the EIS for sales #191 & #199 hasn't projected what potentially seismic event(s) might do to the present Cook Inlet Petroleum Industry infrastructure or adequately address what probable seismic activity might do to these and potentially more similar or expanded oil & gas facilities in the future (i.e., A RISK ANALYSIS & ASSESSMENT IS NEEDED).

002

In addition, the NEGATIVE ECOMOMIC IMPACTS TO Lower Cook Inlet current local and future regional "COMMERCIAL FISHERIES", "SUBSISTANCE & PERSONAL-USE ACTIVITIES" and "SPORTSFISHERIES & TOURISM" are not adequately addressed in the current EIS. The Lower Cook Inlet waters currently support an VERY IMPORTANT DIVERSE RANGE OF FISH & WILDLIFE SPECIES and this important region NEED TO BE CONSERVED for they are associated with many sensitive habitats and unique biological resources.

003

Thank you for your interest towards addressing my concerns with this important issue(i.e., the proposed up-coming Lease Sales #191 & #199).

Sincerely,

Steve W. Hackett
POB 15344 FCB
20 Mile East End Road
Homer, Alaska 99603-6344

cc:
Ms. Renee Orr

MMS Response to Comment Document 113

Response 113-001.

In the EIS, we deal with geologic hazards only in a general way, because we do not know exactly where offshore operations will be located. Before any exploration or production activities can begin and before an Application for Permit to Drill is approved, geologic hazards are carefully analyzed for each well or platform. We have several of these hazards analyses and reports from previous wells that add to our database for making hazards determination and mitigation. These well site hazard reports include detailed analyses of seafloor and underground hazards and any external geological processes (such as volcanic eruptions and earthquakes) that pose a threat to the operations or personnel.

The Sale 149 EIS has a description of the potential for seismic activity, and a reference to that EIS has been added to this EIS. In addition, volcanoes and potential hazards associated with their eruptions are discussed in the Sale 149 EIS, as are tsunamis and “tidal” surges.

Please see Responses 050-001 and 058-001-002-003 for further discussion.

Response 113-002.

Any and all structures placed on the OCS must be engineered to withstand a maximum climatic or physical event, such as a 100-year storm or a massive earthquake. This standard does not imply the structures will be “quake proof” or that damage would not occur. Over time, construction technology will minimize potential damage to facilities. However, if development and production results from the Proposed Action, a thorough analysis of geological hazards for the proposed production system will occur as part of the NEPA analysis that accompanies the DPP approval.

Response 113-003.

Please see Response 052-004.

Subject: FW: Don't Lease Sensitive Cook Inlet Habitats!

Follow Up Flag: Follow up

Flag Status: Flagged

114

-----Original Message-----

From: susehatch@yahoo.com [mailto:susehatch@yahoo.com]

Sent: Tuesday, February 11, 2003 6:55 AM

To: Goll, John

Subject: Don't Lease Sensitive Cook Inlet Habitats!

Mr. John Goll
949 East 36th Avenue, Room 308
Anchorage, AK 99508

Dear Mr. John Goll,

The wilderness waters of Lower Cook Inlet have been called the "biological engine" of the Gulf of Alaska, because they support a diverse range of fish and wildlife species including brown bear, migratory birds, sea lions, whales, and all five species of wild Pacific salmon. The area is valued both nationally and internationally for its incredible productivity. Lower Cook Inlet and the adjacent Shelikof Strait border five National Wildlife Refuges, three National Parks, and several State Game Refuges and Critical Habitat Areas.

Upper Cook Inlet is the only coastal waterbody in the nation where existing oil and gas production dumps billions of gallons of toxic waste into sensitive fisheries each year. A recent EPA study of Cook Inlet Native subsistence resources found a broad array of oil-type contaminants in fish and shellfish.

Yet you want to move forward with lease sales which will produce little more than a week's worth of energy for the U.S. (based on current usage), despite a 1 in 5 risk of a large spill in the rich and productive marine waters of Lower Cook Inlet.

Native subsistence cultures have relied on these resources for tens of thousands of years, and fishing, tourism and related economies rely on Cook Inlet's beauty and productivity.

MMS has made no effort to pursue alternative energies, and with the second highest tides in the world, Cook Inlet produces an enormous amount of renewable energy each day.

Please don't offer this spectacular area for oil and

gas leasing. You have an obligation to our future generations.

D-114

I would be interested in reviewing and commenting on the state and federal documentation that would be necessary for such energy exploration, as well as the safety record of MMS. Oil and gas exploration could have multiple, significant impacts to wildlife, fisheries, water quality, and economic and social resources (including Native American Tribes). Overuse (oil refinement, tourism, bottom-fisheries, etc.) already threatens the magnificence of Cook Inlet and its associated watershed, which encompasses many federally-protected landscapes. Further development would increase the human population, thereby producing indirect impacts as well as direct impacts from dangerous development. Did you know that the world's largest Horned Puffin rookery (breeding site) is located on an island in lower Cook Inlet? Sooty and Short-tailed Shearwaters (seabirds) from Australia migrate to Cook Inlet every summer to feed. Millions of seabirds (great indicator species) flock to Cook Inlet because it is a very valuable resource in the grand scheme of things. Cook Inlet is not just special to me because I grew up along it's coast, it is special to species after species (millions upon millions of individuals) because they can still live and feed and breed there in harmony. Please consider working toward protecting our natural wonders and giving thanks for the blessings that still abound. Thank you for your attention on this important issue.

001

002

Sincerely,

Susan Hatch
P.O. Box 629
Anchor Point, Alaska 99556

cc:
Ms. Renee Orr

MMS Response to Comment Document 114

Response 114-001.

We do not anticipate an increase in population. Most employment associated with Sale 191, except during exploration, would be taken by workers who currently live on the Kenai Peninsula. See Section IV.B.1.j for an analysis of effect on the economy including employment.

Response 0114-002.

As the commenter points out, the lower Cook Inlet is a very important habitat for both breeding and migratory marine and coastal birds. The occurrence of horned puffins and shearwaters in the lower Cook Inlet is discussed in Section III.B.5 (see also Table III.B-8). The potential impacts of the Proposed Action on these and other marine and coastal bird species are discussed in Section IV.B.1.g.

Subject: FW: Don't Lease Sensitive Cook Inlet Habitats!

Follow Up Flag: Follow up

Flag Status: Flagged

115

-----Original Message-----

From: leder@xyz.net [mailto:leder@xyz.net]

Sent: Monday, February 10, 2003 9:56 PM

To: Goll, John

Subject: Don't Lease Sensitive Cook Inlet Habitats!

Mr. John Goll
949 East 36th Avenue, Room 308
Anchorage, AK 99508

Dear Mr. John Goll,

The wilderness waters of Lower Cook Inlet have been called the "biological engine" of the Gulf of Alaska, because they support a diverse range of fish and wildlife species including brown bear, migratory birds, sea lions, whales, and all five species of wild Pacific salmon. The area is valued both nationally and internationally for its incredible productivity. Lower Cook Inlet and the adjacent Shelikof Strait border five National Wildlife Refuges, three National Parks, and several State Game Refuges and Critical Habitat Areas.

Upper Cook Inlet is the only coastal waterbody in the nation where existing oil and gas production dumps billions of gallons of toxic waste into sensitive fisheries each year. A recent EPA study of Cook Inlet Native subsistence resources found a broad array of oil-type contaminants in fish and shellfish.

Yet you want to move forward with lease sales which will produce little more than a week's worth of energy for the U.S. (based on current usage), despite a 1 in 5 risk of a large spill in the rich and productive marine waters of Lower Cook Inlet.

Native subsistence cultures have relied on these resources for tens of thousands of years, and fishing, tourism and related economies rely on Cook Inlet's beauty and productivity.

MMS has made no effort to pursue alternative energies, and with the second highest tides in the world, Cook Inlet produces an enormous amount of renewable energy each day.

Please don't offer this spectacular area for oil and

gas leasing. You have an obligation to our future generations.

I am particularly concerned that the current Environmental Impact Statement does not place enough weight on the adverse environmental, financial, and psychological impacts of oil development in the Lower Cook Inlet. Any risk of an oil spill, even if it were much smaller than 1 in 5 is a huge and serious risk for the native subsistence based communities, tourism and fishery based jobs in this area. It is important to give enough weight in the EIS to lives and livelihoods in the areas impacted. Increased cancer risk for subsistence users of filter feeders is a current issue for natives in Lower Cook Inlet. It would be criminal to permit further oil development in this region knowing that there is at least a 1 in 5 chance of another major spill. It is time for our country to develop alternative, renewable energy sources that are not as hard on our oceans and ozone layer. As a nurse I am very concerned about the rapid rate of loss of thickness in the ozone layer over North America in the last five years and the resulting increases in skin cancers. We are subsidizing the oil industry in not requiring them to pay for increased medical costs from the results of environmental destruction. Thank you for your attention to this important issue.

Sincerely,

PeggyEllen Kleinleder
PO Box 367
Homer, Alaska 99603

cc:
Ms. Renee Orr

MMS Response to Comment Document 115

Response 115-001.

Please see Response 104-001.

Subject: FW: Don't Lease Sensitive Cook Inlet Habitats!

Follow Up Flag: Follow up

Flag Status: Flagged

116

-----Original Message-----

From: ckroll@prodigy.net [mailto:ckroll@prodigy.net]

Sent: Monday, February 10, 2003 4:59 PM

To: Goll, John

Subject: Don't Lease Sensitive Cook Inlet Habitats!

Mr. John Goll
949 East 36th Avenue, Room 308
Anchorage, AK 99508

Dear Mr. John Goll,

The wilderness waters of Lower Cook Inlet have been called the "biological engine" of the Gulf of Alaska, because they support a diverse range of fish and wildlife species including brown bear, migratory birds, sea lions, whales, and all five species of wild Pacific salmon. The area is valued both nationally and internationally for its incredible productivity. Lower Cook Inlet and the adjacent Shelikof Strait border five National Wildlife Refuges, three National Parks, and several State Game Refuges and Critical Habitat Areas.

Upper Cook Inlet is the only coastal waterbody in the nation where existing oil and gas production dumps billions of gallons of toxic waste into sensitive fisheries each year. A recent EPA study of Cook Inlet Native subsistence resources found a broad array of oil-type contaminants in fish and shellfish.

Yet you want to move forward with lease sales which will produce little more than a week's worth of energy for the U.S. (based on current usage), despite a 1 in 5 risk of a large spill in the rich and productive marine waters of Lower Cook Inlet.

Native subsistence cultures have relied on these resources for tens of thousands of years, and fishing, tourism and related economies rely on Cook Inlet's beauty and productivity.

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gas leasing. You have an obligation to our future generations.

D-116

This area has personal value to me and my fiancée who have recently purchased my grandfather's homestead in Tuxedni Bay. I have lived in the Cook Inlet area most of my life. I grew up fishing for salmon along the pristine "West Side." The Exxon Valdez oil spill was a shocking reminder that even the most remote, seemingly pristine areas are vulnerable to pollution. There is no spill contingency plan that takes into account the distance of the West Shore from any populated areas, and there is no boat that can cross the Cook Inlet in less than two hours, and this would be only attainable with a speed boat. We are very concerned about the valuable wildlife in our area which contains the Tuxedni Wilderness Area, a bird sanctuary designated by Teddy Roosevelt, and Lake Clark National Park, comparable in beauty and natural grandeur to Yellowstone and Yosemite.

001

Thank you for your attention to this important issue.

Sincerely,

Caroline Kroll
1052 Echo Drive
Los Altos, California 94024

cc:
Ms. Renee Orr

VII-491

MMS Response to Comment Document 116

Response 116-001.

Information to Lessees No. 3 - Sensitive Areas to be Considered in Oil-Spill-Response Plans lists several areas on the “west side” of the Cook Inlet. Please see Section II.F.2.c of the EIS. Information to Lessees No. 5 - Information on Oil-Spill-Response Preparedness indicates that the location of response equipment will be evaluated during review of the EP or DPP, if leasing should result in either or both of these activities.

Subject: FW: Don't Lease Sensitive Cook Inlet Habitats!

Follow Up Flag: Follow up

Flag Status: Flagged

117

-----Original Message-----

From: myalaska@xyz.net [mailto:myalaska@xyz.net]
Sent: Tuesday, February 11, 2003 8:49 AM
To: Goll, John
Subject: Don't Lease Sensitive Cook Inlet Habitats!

Mr. John Goll
949 East 36th Avenue, Room 308
Anchorage, AK 99508

Dear Mr. John Goll,

The wilderness waters of Lower Cook Inlet have been called the "biological engine" of the Gulf of Alaska, because they support a diverse range of fish and wildlife species including brown bear, migratory birds, sea lions, whales, and all five species of wild Pacific salmon. The area is valued both nationally and internationally for its incredible productivity. Lower Cook Inlet and the adjacent Shelikof Strait border five National Wildlife Refuges, three National Parks, and several State Game Refuges and Critical Habitat Areas.

Upper Cook Inlet is the only coastal waterbody in the nation where existing oil and gas production dumps billions of gallons of toxic waste into sensitive fisheries each year. A recent EPA study of Cook Inlet Native subsistence resources found a broad array of oil-type contaminants in fish and shellfish.

Yet you want to move forward with lease sales which will produce little more than a week's worth of energy for the U.S. (based on current usage), despite a 1 in 5 risk of a large spill in the rich and productive marine waters of Lower Cook Inlet.

Native subsistence cultures have relied on these resources for tens of thousands of years, and fishing, tourism and related economies rely on Cook Inlet's beauty and productivity.

MMS has made no effort to pursue alternative energies, and with the second highest tides in the world, Cook Inlet produces an enormous amount of renewable energy each day.

Please don't offer this spectacular area for oil and

gas leasing. You have an obligation to our future generations.

D-117

Thank you for your attention to this important issue. I would like to further consider this lease sales impact on business like mine (alaskabeartours.com) that depend on an unindustrialized upper Cook Inlet. I have taken hundreds of clients right through the middle of this lease sale on the way to Katmai National Park and can tell you that oil rigs and the threat of oil spills will detract and have an economic impact on me. My business and quite a few others that do the same thing will be impacted and that impact has not been given due consideration. Please familiarize yourself with the Tri Borough Agreement between the Kenai Peninsula Borough, the Lake Peninsula Borough, and the Kodiak Borough and include their demands in your recommendations for carrying out this lease. Also please address the concerns of the City Council of Homer resolution in opposition to this lease sale until additional safeguards are in place. Please specifically address these concerns in your EIS and also your alternatives. Please address Chisik Island in your EIS and give us some alternatives that reflect the concerns of the lower inlet communities. This large scale of this lease sale deserves more alternatives than you have given us. Please consider MMS studies that show the extent of range that the sea birds of the Barren Islands and Chisik Island use for feeding and adjust your alternatives appropriately. Thank you and please contact me at 907-299-2628 if you have any questions.

001

Michael Yourkowski 3059 Kachemak Drive Homer, AK 99603

Sincerely,

Michael Yourkowski
3059 Kachemak Drive
Homer, Alaska 99603

cc:
Ms. Renee Orr

MMS Response to Comment Document 117**Response 117-001.**

Please see Response 005-027 for information regarding the Tri-Borough Agreement; Response 007-045 regarding tug escorts; and Response 008-003 regarding zero discharge.

Chisic (sic) Island, part of the Alaska Maritime National Wildlife Refuge, is identified as an area of special biological sensitivity that must be considered in an OSCP. Alternatives III and IV protect locally important resources, endangered and threatened species, and other resources at the Barren Islands and the Lower Kenai Peninsula, including Kachemak Bay. See also Response 007-002 for more information regarding the alternatives analyzed in the EIS.

Subject: FW: LEASE SALE 191 AND

Follow Up Flag: Follow up

Flag Status: Flagged

118

-----Original Message-----

From: Mitch Hrachiar [mailto:MHrachiar@ci.homer.ak.us]

Sent: Tuesday, January 14, 2003 10:51 AM

To: 'bob@inletkeeper.org'; 'frank_murkowksi@gov.state.ak.us'; 'AKEIS@mms.gov'; 'gale_norton@ios.doi.gov'

Cc: Mitch Hrachiar

Subject: LEASE SALE 191 AND 199

Concerning the lease sale of Cook Inlet: Northern California around 1990 was going through the same situation, the environmental focus was both ecological and physical, the area's of lease sales where about the area of the Mendocino Triple Junction, the area where the San Andres fault and the Cascade subduction zone meet which of coarse is an active Geologic area, an earthquake centered at near the triple junction caused the Intertidal zone to up heave in a local area and the surface and subsurface perhaps to change. The Cook Inlet of coarse is in an active subduction zone as you know, an earthquake can cause turbidity currents which is a subsurface landslide which can fan out for miles and scour the ocean floor and take oil rigs with it, and of coarse swamis which you the results. The proposed area has recently experience volcanic action in the last 20 Years, St Augustine, Redoubt, and Mt. Spur, so is this lease a good idea?

001

Oil rigs also effect tourism which tourist do not like to see, the lower Cook inlet depends on tourism. The Cook inlet has also has experienced a declined in it's fisheries, would drilling cause further decline i do not know and the biologist can answer these questions.

I am perplexed by the Bush's administration energy doctrine that mentions very little about conservation. The bottom line is that we all use oil and this lease would not be a dent our dependence on foreign oil demands. There are no incentive for the Auto makers for development of Hybrid Cars or solar or wind generators.

MR. Murkowksi: It would be nice to save some resources for the further generations of Americans and not to pad the states coffers which would only provide a temporary solution to the State of Alaska budget Deficit. Alaskan should step up to the plate and Start to pay Taxes and tap the PFD.

Mr. Murowski and Ms. Norton please acknowledge you have read this e-mail.

Thank you for your time on this matter

Mitchell Hrachiar
Geologist and Geographer
PO Box 27
Homer Alaska. 99603

MMS Response to Comment Document 118

Response 118-001.

Please see response 067-001.

Subject: FW: Draft EIS for O&G Lease Sales 191 & 119

-----Original Message-----

From: Margaret Spahn [mailto:mspahn@acsalaska.net]

Sent: Tuesday, February 11, 2003 11:05 AM

To: AKEIS

Cc: Gale Norton/SIO/OS/DOI

Subject: Draft EIS for O&G Lease Sales 191 & 199

I would like to register my opposition to the Minerals Management Service proposed lease Sales 191 and 199 in Lower Cook Inlet.

The waters of Lower Cook Inlet are recognized and highly valued for their biological productivity. This value has been reflected through the designation of National Parks, Wildlife Refuges, State Critical Habitat Areas, including Katmai National Park, Lake Clark National Park, Alaska Maritime National Wildlife Refuge, McNeil River State Game Refuge and State Game Sanctuary, as well as the Kalgin Island, Clam Gulch and Kachemak Bay State Critical Habitat Areas. Though lacking in "official" recognition, the marine waters and shores of Kamishak and Tuxedni Bays, the Barren Islands, and Kennedy and Stevenson Entrances are also productive and sensitive areas whose protection should be ensured by specific protective measures prior to any lease sale.

The proposed lease sale poses a threat to significant segments of the local economy. The lower inlet relies heavily on commercial fishing, sport fishing, and tourism. The products and services of these businesses require clean water. Even the perception of a "less than pristine" environment can damage businesses in which local residents are heavily invested.

Subsistence resources are a vital part of the cultural as well as economic well-being of the residents of Port Graham, Nanwalek, and Seldovia. The potential loss of subsistence resources and cultural identity through a catastrophic event or through slow degradation of water quality cannot be mitigated by any means.

Existing regulations provide inadequate protection to the highly productive waters of lower Cook Inlet. Protection should include a prohibition of discharges from both exploration and development activities in the entire lease sale area, as well as requirements for transportation safeguards and adequate spill response. We cannot assume that protective measures will be required during permitting for exploration and development. A "no discharge" requirement should be specifically addressed during the leasing phase – both for the protection of the environment and so that any bidders in a potential sale are fully informed of the standards to which they will be held should a lease sale occur. If requiring zero discharge during exploration and development is beyond the authority of the MMS, it should not proceed with a sale until the appropriate agency enacts a "zero discharge" rule for Lower Cook Inlet.

001

Thank you for the opportunity to comment.

Margaret Spahn
PO Box 102

VII-498

4/18/2003

Soldotna, AK 99669

MMS Response to Comment Document 119

Response 119-001.

Please see Response 008-003.

Subject: FW: Comments on Cook Inlet Oil and Gas Lease Sales 191 & 199De



mms comments
112303.doc (13 KB..)

-----Original Message-----

From: Joel Cooper [mailto:joel@inletkeeper.org]
Sent: Tuesday, February 11, 2003 7:28 AM
To: AKEIS
Cc: frank_murkowski@gov.state.ak.us; gale_norton@ios.doi.gov
Subject: Comments on Cook Inlet Oil and Gas Lease Sales 191 & 199De

Dear Mr. John Goll

Please find attached my comments. They are also pasted below. Thank you! Joel Cooper

Joel Cooper
P.O. Box 3585
Homer, Alaska 99603

February 11, 2003

John Goll, Regional Director
MMS Alaska OCS Region
949 E. 36th Ave., Rm 308
Anchorage, AK 99508-4363
AKEIS@mms.gov

Re: Comments Opposing Lease Sales 191 and 199

Dear John:

Thank you for coming to Homer on January 23rd to hear my communities comments on the proposed lease sales. I hope the comments are taken to Secretary of the Interior Gale Norton and that she listens to them!! What information does the Secretary use to make the final decision?

I did not study the EIS in the great detail that I did last time with Lease Sale 149. I did not have the time nor did I feel like I should have to take the time. To me it is obvious that not much has changed in the way MMS views lease sales. That oil and gas resources must be found, extracted and consumed. That MMS is going to do everything it can to hold the lease sales.

I guess the part that saddens me the most is that MMS and the oil and gas companies will not even try to consider other means of energy or other means of employment. And the part that makes it even harder to swallow is that these lease sales and their development, production, and sale of product supports outlandish lifestyles of a few people. That Cook

Inlet oil and gas will help maintain someone's annual income of millions, 10s of millions, or hundred's of millions of dollars. Even annual incomes in the hundred's of thousands of dollars is more than enough for an individual or family to live very comfortably. Yet we must put lower Cook Inlet at risk for these extravagant lifestyles!

I feel that the EIS should address profit margins of the oil and gas companies. It is in these profit margins, these extravagant lifestyles of the few, that we find the answer to zero discharge in the upper inlet and adequate spill prevention and response. Does the EIS address industry profit margin? If so, where in the EIS? If not, why?

001

The EIS states that no new jobs will be created, but that it will maintain nearly 400 existing jobs for the people working the upper inlet fields. At the Homer hearing, John you mentioned that the lease sales are mainly focused on gas and maintaining Cook Inlet area gas supply. I also heard Bill Popp with the Kenai Peninsula Borough state that the upper inlet fields would be depleted in about 15 years and that if this lease sale goes through and resources discovered that these new discoveries would come on line just as the old fields are running out. With that said, I have the following questions.

If there are no resources found, what will the oil and gas workers do for employment?

002

If there are resources found, what will the oil and gas workers do for employment when those resources are gone in 10 to 30 years?

003

What is the transition plan for oil and gas resource workers when there are no oil and gas resources left to develop? There has to be a plan and a transition for when there are no more of these resources in Cook Inlet and MMS should be involved.

004

I truly believe that we can maintain the employment of these oil and gas workers and also create more jobs by researching and developing other energy sources and we can make the transition before the upper inlet fields are depleted. That lower Cook Inlet would not have to be leased, explored or developed. All that is lacking is the will to try.

We know the technology is there. That we could maintain our electrical, heating, and transportation fuel needs. What's slowing us down is our governments' reluctance to move out of the oil and gas era and the industry executives who demand obscene profits at other people's expense. In this case the people of lower Cook Inlet.

I think MMS should explore and put the money into developing alternative energies such as tidal, wind, solar, and fuel cells to name a few. I also think we should develop a mass transit system in Alaska. I request that MMS make this the alternative to oil and gas leasing and development. And if MMS doesn't explain why.

In closing I am including an opinion piece I submitted to my local newspaper. This piece discusses our local economy and the impact a large corporate owned box store could have on our community. It tries to encourage people to look at our economy and each other in a different light. It applies here as well and I hope you can least try to start thinking out outside of the box.

Thank You!

Sincerely,

Joel Cooper

TIME TO START THINKING OUTSIDE OF THE BOX

It is time for people of a region to start a serious and constructive discussion about our economic system, one that includes everyone who lives in the region. Our current economic system has destroyed, or is destroying, our basic necessities, our equality, our democracy and our local sovereignty. Our society appears to have limited our choices to communism or capitalism. I feel that is too simplistic and not realistic. If there is any hope of peoples existing in harmony with each other, we are going to have to study and change our current economic system, and the scale at which this should take place is locally.

Consider the words of poet and farmer Wendell Berry-"To those who still uphold the traditions of religious and political thought that influenced the shaping of our society and the founding of our government, it is astonishing, and of course discouraging, to see economics elevated to the position of ultimate justifier and explainer of all the affairs of our daily life, and competition enshrined as the sovereign principle and ideal of economics."

To me, Mr. Berry's words help explain the frustration in my work and my existence within my community. Why is economics the "ultimate justifier and explainer of all the affairs of our daily life"?

To be stranded in a system that is dependent on unemployment, the change of interest rates, cheap affordable goods that end up in a landfill and one that leaves the majority of people in debt their entire life, is a cruel act of slavery and an attack on our necessities that keep us alive. Not only are we enslaved by debt, but also we are being forced to compete with each other economically for our very existence, and this I feel is an insult to human intelligence. Why are we competing with each other in this way?

Think about it, when we compete with each other for jobs and money, and if you are fortunate enough to win, then that means that someone else lost. That means that someone is unemployed, that they have to find other work, or they may have to move. And this someone is your neighbor, friend, or maybe even a member of your family. The Native peoples of this land have questioned the humanity of this system ever since it was forced upon them, and for good reason.

When we look to the Fred Meyer controversy, the discussion is centered on maintaining the economy and providing affordable goods. And most everyone seems to agree, even those who don't want a large corporate-owned box store in our community, that the only way that we can get affordable goods to our community is to rely on large corporations that are not locally owned or operated. That these stores can buy larger quantities of goods and sell them cheaper than the smaller, locally-owned stores is something that should be questioned not accepted. Even the recent statewide K-Mart store closure didn't seem to affect people's thoughts of the vulnerability we place our community in by becoming dependent on such a store.

We should be questioning why our locally-owned businesses couldn't buy the same goods at the same cost per unit as the large corporation. And our discussion should go beyond affordable goods and also include the quality of goods. Our current economic system is dependent on the landfill and poorly made goods (i.e. affordable goods). Those who make less money buy things that fall apart, and the upper classes buy the higher quality goods. Economic discrimination is never discussed, and the landfills grow in number and size. Why do we accept and make poor quality goods?

There is so much that is wasteful about our current economic system, but that which stands out most is time. This system has us enslaved to 40-80 hour work weeks and often doing many things that are not necessary. Why? We cannot live in harmony with the seasons, weather, land, sea or each other.

I see and experience the competition for funds and ideas against each other in the sciences as a hindrance that keeps great minds from working together and produces wasteful redundancy, all because we must compete with each other economically. Surely there is more of an argument for the advancement of technology and efficiency than competitive economics.

I think all the people of Kachemak Bay region should begin a discussion on developing a truly local economy. That the people of the region decide and inform its state, its country and the world what resources it has to share and how to use and extract them, without harm of its land, air, water, flora, fauna or people. Some items I see necessary to include in the discussion: equality; employment for everyone; health care for everyone; debt, absenteeism, absentee land ownership, absentee governance and absentee business ownership and/or operation; quality products instead of affordable goods; a transportation infrastructure; energy sources; and energy use to name a few.

As much as we desire to live and control things in more than one place at one time, the fact remains that we can truly only live in one place. When we put people and place above economics, when we begin exchanging our trust, our love, our knowledge and our skills without the control of supply and demand economics, we will begin to live in peace with each other locally and perhaps globally.

Joel Cooper
P.O. Box 3585
Homer, Alaska 99603

MMS Response to Comment Document 120

Response 120-001.

Please see Response 020-001.

Response 120-002.

If no resources are found, oil and gas workers who would have had employment associated with Sale 191 or 199 would have to look for oil and gas work elsewhere, use their skills in different applications, or find different kinds of work. Some unemployment could result for some period of time. This is characteristic of the economic system we have in the United States.

Response 120-003.

Please see Response 120-002.

Response 120-004.

No transition plan exists for oil and gas workers who lose their jobs. The MMS does not have responsibilities under any existing legislation in this regard. The State of Alaska operates a program to administer unemployment insurance, and that presumably would continue in the future. The Federal, State, and local governments have in the past, and probably will have in the future, programs for training individuals who have lost work and wish to be trained other skills. However, these are not guaranteed, and the MMS does not have any relationship or control over these programs. Otherwise, it is the responsibility of individual workers to find employment, as is described in Response 120-002.

Subject: FW: Lease Sales

120

-----Original Message-----

From: David Schneider [mailto:sundog@xyz.net]

Sent: Tuesday, February 11, 2003 11:54 AM

To: AKEIS

Cc: frank_murkowski@gov.state.ak.us; galr_norton@ios.doi.gov

Subject: Lease Sales

Dear Mr. Goll, Governor Murkowski, Secretary Norton,

We wish to offer our opposition to lease sales 191 and 199.

We chose to live and raise a family here twenty eight years ago largely due to the rich and diverse biology of this area. It is our opinion that the presence of oil and gas exploration and development is inconsistent with this existing wealth.

Cook Inlet, along with Bristol Bay and the Copper River, stand on the threshold of an opportunity to become the last places in the world where wild fresh seafood, especially salmon, can be produced and brought to market. Many people are justifiably upset with the impact farmed seafood is having upon coastlines and local biology. They will increasingly seek a sustainable and environmentally reliable source of seafood. Right or wrong, drilling rigs on the horizon will not convey the confidence they will seek.

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It is short sighted and dangerous to trade off the opportunities we have to enhance our existing assets for the chance to extract some marginal amounts of fossil fuels. These proposed sales are inconsistent with the economic, social, aesthetic and cultural values of the lower Cook Inlet environment, its residents, and its visitors.

We urge you to cancel lease sales 191 and 199.

Respectfully yours,

David Schneider and Bonnie Jason

MMS Response to Comment Document 121

Response 121-001.

The MMS has no regulatory authority over farmed seafood. The MMS regulates the offshore oil and gas industry.

Response 121-002.

The branding of wild salmon, for example, “Kenai Wild,” for marketing and the strategies for conveying that image and message to consumers and potential entrants into the market and the effect an offshore platform could have on these decisions are beyond the scope of an environmental analysis.

Subject: FW: Cook Inlet Sales 191 and 199

122

-----Original Message-----

From: Mike Gracz [mailto:anmbg@uaa.alaska.edu]
Sent: Tuesday, February 11, 2003 1:18 PM
To: AKEIS; anmbg@uaa.alaska.edu
Subject: Cook Inlet Sales 191 and 199

Dear John Goll-

I am writing to express opposition to proposed oil and gas lease sales 191 and 199. The strongest argument against holding these sales is the impact that oil and gas production activities would have on the native communities in the area of the proposed sales.

I realize that my comments should be directed only towards activities associated with the sale. However, I believe that the opportunity to address production activities is limited: A problem with the format of these sales is that once the process has begun, realistic opportunity to stop or place adequate controls on production are nearly absent. If production exceeds MMS estimates, for example, no mechanism is currently in place to address the potential for a substantially increased risk that greater production would pose to the resources of Cook Inlet. Cook Inlet and the communities adjacent to it are unique. Native villages and oil-and-gas-based economies exist side-by-side along the inlet. I do not believe this can continue. Ample economic opportunities are available here and elsewhere for the folks relying on the oil and gas industry for their livelihood. Opportunities for the Native communities are not available elsewhere.

The native villages have maintained a somewhat continuous existence since before contact with Europeans. Recommendations from a currently available EPA sponsored study suggest that no one should eat halibut weighing more than 30 pounds from Cook Inlet due to contaminant levels.

Some of those contaminants are the same ones that oil production has dumped into the upper Inlet. The Exxon Valdez Oil Spill shook many peoples' faith in the safety of their subsistence food. When will the last straw break the back of these communities? Please weigh these substantial issues carefully when considering the fairness of the proposed sales.

Mike Gracz
POB 15301
Fritz Creek, Alaska 99603-6301
907-235-2218
mnm@alaska.net

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MMS Response to Comment Document 122

Response 122-001.

Please see Response 007-020.

APPENDIX A

**OIL SPILL RISK ANALYSIS (OSRA)
INFORMATION, MODELS,
AND ASSUMPTIONS
AND SUPPORTING TABLES**

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APPENDIX A-1: THE INFORMATION, MODELS, AND ASSUMPTIONS WE USE IN THIS EIS TO ANALYZE THE EFFECTS OF OIL SPILLS

We analyze oil spills and their relative impact to environmental, economic, and sociocultural resource areas and the coastline that could result from offshore oil exploration and development in the Cook Inlet Planning Area. Predicting an oil spill is an exercise in probability. Uncertainty exists regarding the location, number, and size of oil spills and the wind, ice, and current conditions at the time of a spill. Although some of the uncertainty reflects incomplete or imperfect data, a considerable amount of uncertainty exists simply because it is difficult to predict events 15-40 years into the future.

We make assumptions to analyze the effects of hypothetical oil spills. To judge the effect of an oil spill, we estimate information regarding the type of oil, the source of an oil spill, the location and size of a spill, the chemistry of the oil, how the oil will weather, how long it will remain, and where it will go. We describe the rationale for these assumptions in the following subsections. The rationale for these assumptions about an oil spill is a mixture of project-specific information, modeling results, statistical analysis, and professional judgment. Based on these assumptions, we first assume a spill could occur and then analyze its effects. This constitutes the “what if” analysis, where we judge what the impacts would be if a spill occurred. After we analyze the effects of an oil spill, we consider the chance of an oil spill ever occurring.

A. ESTIMATES OF THE SOURCE, TYPE, AND SIZE OF OIL SPILLS

Table IV.A-1 shows the source of a spill(s), type of oil, size of spill(s) in barrels, and the receiving environment we assume in our analysis of the effects of oil spills in this EIS for the Alternative I for Sales 191 and 199 and their Alternatives and other analyses. The sources of large spills are generically divided into platform or pipeline. There is no tankering in the development scenario. In the development scenario, all the produced crude oil is piped to shore and consumed locally. The type of crude oil we use in this analysis is Cook Inlet crude. We divide spills into three sizes—small, large, and very large spills. Small spills are those less than 1,000 barrels. Large spills are greater than or equal to 1,000 barrels, and very large spills are greater than or equal to 120,000 barrels. The MMS uses these sizes based on the fact that large spills are more likely to be identified and reported; therefore, these records are more comprehensive than those of smaller spills (Anderson and LaBelle, 2000). Large spills persist long enough to be simulated by an oil-spill-trajectory model. Small spills are analyzed without the use of a trajectory analysis. Very large spills are typical of the sizes of spills estimated by industry in their oil-spill discharge-prevention and -contingency plans for the State of Alaska based on a blowout scenario. Table IV.A-1 shows the EIS section where we analyze the effects of a large, small, and very large spill.

A.1. Source and Spill-Size Assumptions

We divide the source of spills into two general categories: either pipeline facilities or platform facilities. We do not differentiate between subcomponents of these systems. Platform facilities include spills that occur on the platform, including spills from storage tanks. Pipeline spills include spills from pipelines on the seafloor or the risers or onshore.

The spill assumptions we use for offshore large and small spills are based on the historic spill sizes from production in the Gulf of Mexico OCS and what we believe is likely to occur. A preliminary assessment of Cook Inlet crude oil spills in State waters yields similar spill rates when compared to the OCS data. The OCS data represent a broader range of facilities, a validated database, and a longer and a voluminous record of production. Because the spill rates between the OCS and Cook Inlet are similar and we have more confidence in the reliability of the OCS data, we use the OCS spill rates for analysis.

The spill assumptions we use for onshore large spills are based on historic spill sizes from onshore crude transmission pipelines from 1986-2002. These data are reported to the U.S. Department of Transportation. The Office of Pipeline Safety Research and Special Programs Administration keeps information about distribution and transmission accident and incident data online (U.S. Dept. of Transportation, 2002).

We estimate the likely large and small spill size based on the median spill size on the OCS or onshore. Very large spill-size assumptions are based on industry's estimates of the worst case for response planning standards calculated in oil discharge prevention and contingency plans.

A.1.a. Historical Crude Oil Spills Greater Than or Equal to 1,000 Barrels on the Outer Continental Shelf

We focus our attention on historical crude oil spills greater than or equal to 1,000 barrels on the OCS from pipelines and platform facilities. The Gulf of Mexico and Pacific OCS data show that the most likely location of a large spill is from a pipeline or a platform facility. The median size of a crude oil spill greater than or equal to 1,000 barrels from a pipeline from 1985-1999 on the OCS is 4,600 barrels, and the average is 6,700 barrels (Anderson and LaBelle, 2000). The median spill size for a platform on the OCS over the entire record from 1964-1999 based on trend analysis is 1,500 barrels, and the average is 3,300 barrels (Anderson and LaBelle, 2000). For purposes of analysis, we use the median OCS spill size as the likely spill size for the analysis of large spills in Cook Inlet. We use the median, because the average is overly influenced by outliers in the data.

A.1.b. Historical Crude Oil Spills Greater Than or Equal to 1,000 Barrels in Cook Inlet

This section presents the available information on Cook Inlet crude oil spills from pipelines or platform facilities. The oil-spill records are not complete for the entire production period of Cook Inlet (1957 to present); however, this section provides some information about the nature of oil spills from production facilities and pipelines in Cook Inlet. The information was compiled from the following sources:

- Sienkiewicz and Wondzell (1992). Draft Spill Database Report on Kenai District Spills.
- State of Alaska, Dept. of Environmental Conservation (2002a). Database of Cook Inlet Spills, July 1995 to December 2001.
- State of Alaska, Dept. of Environmental Conservation (2002b). Files of Cook Inlet Spills 1993-2001.
- Gulf Canada Resources, Inc. (1982). Analysis of Accidents in Offshore Operations Where Hydrocarbons Were Lost, Canada.
- Phillips 66 (1998). Tyonek Deep Project (Tyonek Platform and Oil Pipeline North Cook Inlet, Alaska). Oil Discharge Prevention and Contingency Plan.
- Forest Oil Corporation (2001). Oil Discharge Prevention and Contingency Plan for Cook Inlet Area Production Operations.
- Marathon Oil Company, (1998). Oil Discharge Prevention and Contingency Plan, Cook Inlet, Alaska.
- Unocal Alaska (2001). Oil Discharge Prevention and Contingency Plan Cook Inlet Production Facilities.

- XTO Energy Inc. (2001). Cook Inlet Middle Ground Shoal Facilities (Platform A and C and Onshore Facility). Oil Discharge Prevention and Contingency Plan (18 AAC 75.425).
- USDOC, NOAA (2002). Restoration and Response, Historical Incidents Database.
- Whitney (2002). List of Cook Inlet Oil Spills NOAA Responded to (1984-2001).
- Epstein (2002). Lurking Below: Oil and Gas Pipeline Problems in the Cook Inlet Watershed, Anchorage, Alaska.

Sienkiewicz and Wondzell (1992) compiled spill data greater than or equal to 1 barrel from the Environmental Protection Agency; Alaska Oil and Gas Conservation Commission; and the State of Alaska, Department of Environmental Conservation from 1949-1994. They determined the data reliability to be good to fair with data gaps in the mid-1970's and from 1981-1985. The reporting criteria was variable throughout that time period.

A.1.c. Historical Crude- and Refined-Oil Spills Greater Than or Equal to 1,000 Barrels from Offshore Cook Inlet Pipelines

Three spills greater than or equal to 1,000 barrels are listed in the Sienkiewicz and Wondzell (1992) database. The pipeline spills in 1966 and 1967 also are listed in Gulf Canada Resources, Inc. (1982). They are shown as follows:

Year of Spill	Company Platform	Size of Spill	Cause of Spill
1966	Shell Platform A	1,400 barrels	Pipe Rupture
1967	Shell Platform B	1,400 barrels	Pipe Rupture
1968	Shell Platform B	1,000 barrels	Pipe Rupture

The MMS searched for spills greater than or equal to 1,000 barrels in the above mentioned sources. The other available sources listed do not list crude-oil spills greater than or equal to 1,000 barrels from production facilities or offshore pipelines. These databases should have included such spills if they occurred.

For purposes of analysis, the records are not complete enough for quantitative analysis. At a minimum and perhaps a maximum, three spills greater than or equal to 1,000 barrels from pipelines occurred in Cook Inlet State waters. The cause of the three spills was due to vortex shedding. Pipelines installed in areas with high currents, such as Cook Inlet, normally will exhibit vortex-induced vibrations set up by the near seabed current flow. Such vibrations pose a potential fatigue-damage problem. From 1965-1976, there were 14 vortex failures, including the three large spills described previously. Industry designed a program to prevent and eliminate vortex shedding. Annual surveys of the pipeline are performed, and sand or cement bags are placed at 50-foot intervals and 1 foot off the bottom (Visser, 2002).

From the available records, it does not appear as though any platform spills greater than or equal to 1,000 barrels have occurred.

A.1.d. Historical Crude- and Refined-Oil Spills Greater Than or Equal to 1,000 Barrels from Tankers and Motor Vessels

Seven spills greater than or equal to 1,000 barrels are listed in the Sienkiewicz and Wondzell (1992) database. They are as follows:

Year	Vessel Name	Location of Spill	Type of Spill	Size of Spill (barrels)
1966	<i>Tanker Vessel</i>	Nikiski	Diesel	2,000
1966	<i>Tanker Vessel</i>	Nikiski Dock	Oil	1,000
1967	<i>T/V Washington Trader</i>	Drift River Terminal	Crude Oil	1,700
1976	<i>USNS Sealift Pacific</i>	Nikiski	JP-4	9,420
1984	<i>M/V Cepheus</i>	Near Anchorage	Jet A	4,286
1987	<i>T/V Glacier Bay</i>	Near Kenai	Crude Oil	3,100
1989	<i>Lorna B</i>	Nikiski	Diesel	1,547-1,714

In addition to the previously mentioned tanker spills, there were at least two documented spills from outside the Cook Inlet area that have drifted into Cook Inlet. The first spill was from an unidentified source documented by the Federal Water Pollution Control Administration (1970). The suspected source of the spill was from a tank vessel dumping ballast and slop at sea, which was a common practice. No oil-spill volume is estimated. Based on the estimated number of dead birds and the length of coastline oiled, we estimate this spill was greater than or equal to 1,000 barrels. This spill impacted lower Cook Inlet, including the Barren Islands, Kodiak Island, and Shelikof Strait. The second documented tanker spill was the T/V *Exxon Valdez*. This spill drifted into lower Cook Inlet. It is estimated that approximately 1-2% of the spill entered lower Cook Inlet reaching as far north as Anchor Point.

A.1.e. Historical OCS Alaska North Slope and Cook Inlet Crude-Oil Spills Greater Than or Equal to 1,000 Barrels from Blowouts

The MMS considers blowouts to be unlikely events. Blowout events often are equated with catastrophic spills; however, in actuality very few blowout events have resulted in spilled oil, and the volumes spilled are often small. All five of the blowout events greater than or equal to 1,000 barrels in the outer continental shelf database occurred between 1964 and 1970 (Table A.1-1a). Following the Santa Barbara blowout in 1969, amendments to the OCS Lands Act and implementing regulations significantly strengthened safety and pollution prevention requirements for offshore activities. Well-control training, redundant pollution prevention equipment, and subsurface safety devices are among the provisions that have been adopted in the regulatory program. From 1971-2000, 199 blowouts occurred on the OCS while drilling approximately 29,000 wells and producing 11.4 billion barrels of oil. Twenty eight of those 199 blowouts resulted in oil spills of crude or condensate with the amount of oil spilled ranging from less than 1 barrel to 200 barrels. The total volume spilled from those 28 blowouts is approximately 1,200 barrels. The volume spilled from blowouts was approximately 0.00001% of the volume produced. There are no spills greater than or equal to 1,000 barrels from blowouts in the last 30 years on the OCS.

The record for Alaska North Slope blowouts is not validated but is presented as the best available information. There are two written reports regarding blowouts on the Alaska North Slope: Mallory (1998) and Fairweather (2000). Fairweather found 10 blowouts, 6 that Mallory had identified and 4 prior to 1974. Of the 10 blowouts, 9 were gas and 1 was oil. The blowout of oil in 1950 was unspectacular and could not have been avoided, because there were no casings or blowout preventors available at that time (Fairweather, 2000). These drilling practices from 1950 would not be relevant today. A third study confirmed that no crude oil spills greater than or equal to 100 barrels from blowouts occurred between 1985 and 1999 (Hart Crowser, Inc., 2000). A recent report titled *Blowout Frequency Assessment of Northstar* (Scandpower, 2001) uses statistical blowout frequencies modified to reflect specific field conditions and operative systems at Northstar in the Beaufort Sea. This report concludes that the blowout frequency for drilling the oil-bearing zone is 1.5×10^{-5} per well drilled. This compares to a statistical blowout frequency of 7.4×10^{-5} per well (for an average development well). This same report estimates that the frequency of oil quantities per well drilled for Northstar for a spill greater than 130,000 barrels is 9.4×10^{-7} per well.

The record for Cook Inlet blowouts is not validated but is presented as the best available information based on newspaper accounts. No oil spills due to blowouts were identified in either the spill data or the newspaper accounts.

A minimum and perhaps a maximum of three natural gas blowouts occurred in Cook Inlet. The following identifies the three gas blowouts:

1. The Pan American blowout occurred during drilling on August 1962 from the Cook Inlet State No. 1 well. The well encountered natural gas and blew gas from August 23, 1962, to October 23, 1963. Pan American Petroleum Corporation drilled a relief well, No. 1-A, to stop the blowout.
2. A short-term natural gas blowout occurred at the Grayling Platform in May 1985. Union Oil Company was drilling well G-10RD into the McArthur River Field when the blowout occurred. The event lasted from May 23 to May 26. The platform was evacuated, and observers noted a plume of gas, water, and mud reaching a height of 600 feet above sea level. Union prepared to drill a relief well, but the blowout stopped on its own because of bridging. Bridging seals off the escaping fluids and gases when part of the formation around the well bore collapses into the well bore and naturally closes it. The operator regained permanent well control by pumping cement through the drill pipe in G-10RD. There was no fire or injuries, and personnel shut in all oil wells prior to evacuating the platform.
3. A blowout occurred at the Steelhead Platform from well M-26 on December 20, 1987. Marathon Oil Company was drilling into the McArthur River Field. The gas blowout lasted from December 20, 1987, until December 28, 1987. A relief well was started, but the blowout bridged before the relief well was completed. The well blew out natural gas, water, coal, and rocks. The escaping gas caught fire, which damaged the deck of the platform.

However unlikely it might be for a blowout to cause crude oil spills, it is a significant concern to the public and, therefore, we analyze the effects of a 120,000-barrel spill in Section IV.F – Low Probability, Very Large Oil Spill.

A.1.f. Historical Crude Oil Spills Greater Than or Equal to 1,000 Barrels from Onshore Liquid Transmission Pipelines

Epstein (2002) looked at oil and gas pipeline data in the Cook Inlet watershed from 1997-2001. Epstein (2002) contains final volumes that are not included in the State of Alaska, Department of Environmental Conservation (2002a) database of initial reports. No onshore pipeline crude oil spills greater than or equal to 1,000 barrels occurred during this time. There is one crude and produced water spill reported greater than or equal to 1,000 barrels. Unocal's estimate of the total volume of produced fluids discharged is 228,648 gallons (5,444 barrels). Of this total volume, Unocal has estimated that approximately 95% was produced water (217,224 gallons; 5172 barrels) and 5% was crude oil (11,424 gallons; 272 barrels) (State of Alaska, Dept. of Environmental Conservation, 1999). The Sienkiewicz and Wondzell (1992) report was deemed relatively reliable for offshore spills, but lack of reported onshore spills suggests missing data. The lack of data and the quality of the data make the Cook Inlet data unusable for quantitative estimates of spill size or frequency for large onshore spills.

The U.S. Department of Transportation, Office of Pipeline Safety Research and Special Programs Administration keeps information about distribution and transmission accident and incident data online (U.S. Dept. of Transportation, 2002). The Hazardous Liquid Accident Data (1986-2002) was analyzed to estimate crude oil-spill sizes for onshore pipelines. The data were sorted for onshore crude oil spills greater than or equal to 1,000 barrels. Summary statistics were generated for the 243 crude oil spills identified. The median crude oil-spill size is 2,513 barrels and the average is 4,435 barrels. For purposes of analysis, we use the median Dept. of Transportation spill size as the likely spill size for the analysis of large onshore spills adjacent to Cook Inlet. The spill size is rounded to the nearest hundred, resulting in an estimate of 2,500 barrels for an onshore pipeline spill.

B. BEHAVIOR AND FATE OF CRUDE OILS

Several processes alter the chemical and physical characteristics and toxicity of spilled oil. Collectively, these processes are referred to as weathering or aging of the oil and, along with the physical oceanography and meteorology, the weathering processes determine the oil's fate. The major oil-weathering processes are spreading, evaporation, dispersion, dissolution, emulsification, microbial degradation, photochemical oxidation and sedimentation to the seafloor or stranding on the shoreline (Payne et al., 1987; Boehm, 1987; Lehr, 2001).

The physical properties of a crude oil spill, the environment it occurs in, and the source and rate of the spill will affect how an oil spill behaves and weathers. Tables A.1-1 and A.1-2 show the properties of Cook Inlet and Drift River crude oil. The environment in which a spill occurs, such as the water surface or subsurface, spring ice overflow, summer open water, winter under ice, or winter broken ice, will affect how the spill behaves. In ice-covered waters, many of the same weathering processes are in effect; however, the sea ice changes the rates and relative importance of these processes (Payne, McNabb, and Clayton, 1991).

Oil spills spread less in cold water than in temperate water because of the increased oil viscosity. This property will reduce spreading. An oil spill in broken ice would spread less than in summer open water and would spread between icefloes into any gaps greater than about 8-15 centimeters (Free, Cox, and Shultz, 1982).

The lower the temperature, the less crude oil evaporates. Oil between or on icefloes is subject to normal evaporation. Dispersion of oil spills occurs from wind, waves, currents, or ice. Any waves within the ice pack tend to pump oil onto the ice. Some additional oil dispersion occurs in dense, broken ice through floe-grinding action. More viscous and/or weathered crude oils may adhere to porous icefloes, essentially concentrating oil within the floe field and limiting the oil dispersion.

Solar irradiation of crude oil compounds is known to affect the toxicity of oil (Larson and Berenbaum, 1988; Bongiovanni, Borgarello, and Pelizetti, 1989). Malins et al. (1983) indicate that, while UV irradiation (sunlight) can produce photooxidized products from Cook Inlet Crude Oil and Prudhoe Bay Crude Oil in seawater, the amounts produced do not appear to be sufficiently large to cause—at least in the short term—marked environmental damage. Environmentally realistic concentrations of crude oil and oxidation products obtained in the seawater-accommodated fractions (SWAF's) did not cause extensive short-term mortality of English sole embryos and larvae, or of surf smelt larvae, under the laboratory conditions used. Swimming behavior of surf smelt larvae was affected only by SWAF's from freshly prepared reference oils. Barron and Ka'aihue (2002) suggest, based on the work of Pelletier et al. (1997) that showed mortality of larval shrimp and shellfish embryos, further research is needed regarding the photoenhanced toxicity of oil in Alaskan waters. Recent work by Duesterloh, Short, and Barron (2002) investigates the photoenhanced toxicity of weathered Alaska North Slope crude oil to the Calanoid copepods *Calanus marshallae* and *Metridia okhotensis*. Barron et al. (2003) investigates photoenhanced toxicity of aqueous phase and chemically dispersed weathered Alaska North Slope crude oil to Pacific herring eggs and larvae.

B.1. Persistence

The Lower Cook Inlet/Shelikof Strait shoreline oil-retention characteristics were surveyed by Michel, Jordana, and Ballou (1986); Domeracki et al. (1981); Ruby et al. (1979); and Michel and Ballou (1986). Using the Environmental Sensitivity Index (ESI), these studies rank the Cook Inlet and Shelikof Strait shorelines in increasing order of sensitivity to oil on a scale from 1-10. Gundlach et al. (1990) published a dataset summarizing shoreline characteristics from the above reports into seven ESI types for Cook Inlet/Shelikof Strait: (1) rocky shore; (2) gravel/cobble/boulder beach; (4) sandy beach; (5) mixed sand and gravel beaches; (6) tidal flat; (7) marsh; and (8) lagoon. The kilometers of each shoreline type from 1 through 8 are calculated for land segments. In the total coastal environment adjacent to the study area, approximately 49 percent is sheltered/exposed rocky shores and wave-cut platforms; 31 percent is mixed sand and gravel beaches; 12% is gravel beaches; and less than 7% is sand beaches, tidal flats, and marshes (Gundlach et al., 1990).

Stranded-oil persistence results from oil remaining after cleanup or where cleanup may cause more environmental damage than if the oil were left in place. The coastal environments adjacent to the study area are similar to the coastal environments contacted by *Exxon Valdez* Oil Spill in Prince William Sound and the Gulf of Alaska. Therefore, shoreline-oil persistence and weathering in Prince William Sound provides an analogy for how oil may weather if an oil spill contacted the coastal areas adjacent to the planning area. However, Cook Inlet and Shelikof Strait have more wave exposure and energy, which may accelerate weathering processes.

Some of the coastal environments adjacent to the study area previously were oiled from the *Exxon Valdez* spill. Re-oiling from another spill would affect oil persistence and weathering.

The coastal environment adjacent to the study area has approximately 49% exposed rocky shore. The ESI predicts short-term effects for exposed rocky shores. During the *Exxon Valdez* oil spill, most exposed rocky shorelines showed little to no oil persistence besides staining and scattered tar blotches (Gundlach et al., 1990). On a small

scale, however, these rocky shorelines are indented and fractured, creating numerous pockets. Some rocky shorelines are sheltered from wave and wind direction. On some exposed rocky shores sheltered to wind and waves, heavy oil concentrations were found 8 months after the *Exxon Valdez* spill (Gundlach et al., 1990).

The study area has about 31% mixed sand and gravel beaches and 12% gravel beaches. The ESI predicts oil mixing deeply (less than 10 centimeters up to a meter) in well-sorted sand and gravel, gravel material, and especially deep burial along the berm. Mixed sand and gravel beaches were a shore type affected from the *Exxon Valdez* spill (Gundlach et al., 1990). Gravel beaches pose a special problem because of the potential for deep oil burial and the persistence of subsurface oil for decades (Hayes, Michel, and Noe, 1991; Hayes and Michel, 1999; Irvine, Mann, and Short, 1999; Michel et al., 1991; Michel and Hayes, 1993a, 1993b; Owens, 1991, 1993). Gravel beaches enhance oil accumulation through burial by accretion features and the formation of asphalt pavement, and the armoring of the gravel beach impedes erosion (Hayes, Michel and Noe, 1991; Michel and Hayes, 1993a, 1993b).

The study area has approximately 2% coarse-grained-sand beaches. The ESI predicts oil deposition primarily high on the beach face and potential deep burial along the berm. Oil persistence depends on the wave energy, with sheltered areas harboring oil for years to decades (Prince, Owens and Sergy (2002). The ESI predicts longer persistence on coarse- rather than fine-grained-sand beaches. On fine-grained-sand beaches in Katmai, oil remained on or near the surface (Gundlach et al., 1990). Clay-oil flocculation is identified as a process on fine-grained-sand beaches that accelerates weathering and prevents asphalt-pavement formation, thereby reducing oil persistence (Bragg and Yang, 1993).

Exposed tidal flats make up approximately 3% of the study area. The ESI predicts that most oil would be pushed across the tidal flat onto adjacent shores. The high sensitivity rating is due to the biological components using the tidal flat. Coarse cobbles on the tidal flat can cause oil to persist for several months (Gundlach et al., 1990).

Adjacent to the study area, less than 1% is marshes. This coastal environment has the highest ESI ranking of 8. The ESI predicts long-term persistence for marshes due to the sheltered nature of the shoreline or the fine-grained sediments. Recent examination of past spills continues to confirm the long term persistence of oil for marshes (Reedy et al. 2002; Wang et al., 2001) The *Exxon Valdez* oil spill data indicate long-term persistence (Gundlach et al., 1990).

B.2. Assumptions about Oil Weathering

The following assumptions are made regarding oil weathering in a Cook Inlet crude-oil spill:

- The crude oil properties will be similar to Cook Inlet crude.
- The size of the spill is 1,500 or 4,600 barrels.
- The wind, wave, and temperature conditions are as described.
- Meltout spills occur into 50% ice cover.
- The properties predicted by the model are those of the thick part of the slick.
- The spill occurs as an instantaneous spill over a short period of time.

Uncertainties exist, such as the following:

- The actual size of the oil spill or spills, should they occur;
- whether the spill is instantaneous or chronic;
- wind, current, wave, and ice conditions at the time of a possible oil spill; and
- the crude-oil properties at the time of a possible spill.

B.3. Modeling Simulations of Oil Weathering

To judge the effect of an oil spill, we estimate information regarding how much oil evaporates, how much oil is dispersed, and how much oil remains after a certain time period. We derive the weathering estimates of Cook Inlet crude oil from modeling results from the SINTEF Oil Weathering Model (OWM) Version 2.0 (Reed et al., 2000) for up to 30 days.

Tables A.1-3 through A.1-6 show the results for Cook Inlet crude-oil spills using the SINTEF model. The SINTEF OWM changes both oil properties and physical properties of the oil. The oil properties include density, viscosity, pour point, flash point, and water content. The physical processes include spreading, evaporation, oil-in-water dispersion, and water uptake. The SINTEF OWM Version 2.0 performs a 30-day time horizon on the model-weathering calculations but with a warning that the model is not verified against experimental field data for more than 4-5 days. The SINTEF OWM has been tested extensively with results from three full-scale field trials of experimental oil spills (Daling and Strom, 1999).

The SINTEF OWM does not incorporate the effects of the following:

- currents,
- beaching,
- containment,
- photo-oxidation,
- microbiological degradation,
- adsorption to particles, and
- encapsulation by ice.

The assumed Cook Inlet crude-oil spill sizes are 1,500 or 4,600 barrels. We simulate three general scenarios: two in which the oil spills into open water during summer or winter and one in which the oil spills into 50% ice cover during winter. We assume open water can occur year-round depending on the area of lower Cook Inlet, and we also assume that winter occurs October to April. For open water and ice, we model the weathering of the 1,500- or 4,600-barrel spill as if they are instantaneous spills. We report the results at the end of 1, 3, 10, and 30 days. Tables A.1-3 through A.1-6 summarize the results we assume for the fate and behavior of Cook Inlet crude oil in our analysis of the effects of oil on environmental and social resources. In our analysis, we assume the following fate of the crude oil without cleanup. After 30 days in open water or ice: 33-36% evaporates, 13-62% disperses, and 5-52% remains.

C. ESTIMATES OF WHERE AN OFFSHORE OIL SPILL MIGHT GO

We study how and where large (greater than or equal to 1,000 barrels) offshore spills move by using a computer model called the Oil-Spill-Risk Analysis model (Smith et al., 1982). The original model by Smith et al. has been enhanced by MMS over the years (LaBelle and Anderson, 1985; Price et al., 2002). This model analyzes the likely paths of oil spills in relation to biological, physical, and social resources. The model uses information about the physical environment, including files of wind, ice, and current data. It also uses the locations of Environmental Resource Areas, islands, and the coast that might be contacted by a spill.

C.1. Inputs to the Oil-Spill-Trajectory Model

The following is a list of the inputs to the oil-spill-trajectory model, which are discussed in further detail.

- study area
- seasons
- location of the coastline
- location of environmental resource areas
- location of land segments
- location of boundary segments
- location of hypothetical launch areas
- location of hypothetical pipelines and transportation assumptions
- current information from a general circulation models
- wind information

C.1.a. Study Area and Boundary Segments

Map A-1 shows the Cook Inlet Sales 191 and 199 oil-spill-trajectory study area extends from latitude 55° N. to 61° N. and from longitude 147° W. to 160° W. The study area is formed by 17 boundary segments and the Gulf of Alaska, Shelikof Strait, Alaska Peninsula, and Cook Inlet coastline. The boundary segments are vulnerable to spills in both summer and winter. We chose a study area large enough to contain the paths of 3,240 hypothetical oil spills each through as long as 30 days.

C.1.b. Seasons

We define three time periods for the trajectory analysis of oil spills and name them “summer,” “winter,” and “annual.” The first, “summer,” is from April through September and represents open water or subarctic summer. We ran 1,620 trajectories in the subarctic summer. The second, winter, is from October through March and represents open water, partial ice cover, or subarctic winter. We also ran 1,620 trajectories in the subarctic winter. The last, annual, is from January to December and represents the entire year. We ran 3,240 trajectories total.

C.1.c. Locations of Environmental Resource Areas

Map A-2 shows the location of 31 Environmental Resource Areas, which represent concentrations of wildlife, subsistence-hunting areas, and subsurface habitats. Our analysts designate these Environmental Resource Areas. The analysts also designate in which months these environmental resource areas are vulnerable to spills. The names or abbreviations of the environmental resource areas and their months in which they are vulnerable to spills are shown in Table A.1-7a. Table A.1-7b shows important environmental resource areas by identification number, geographic area, and where they are discussed in Section IV of this EIS. We also include “Land” as an additional environmental resource area; Land is the entire study area coastline.

C.1.d. Location of Land Segments

Land was further analyzed by dividing the Cook Inlet, Shelikof Strait, Alaska Peninsula, and Gulf of Alaska coastline into 97 land segments. Map A-3 shows the location of these 97 land segments. Table A.1-8 shows the geographic locations within the land segments. Land segments are vulnerable to spills in both summer and winter and all year. The model defines summer as May through September and winter from October through April.

C.1.e. Location of Proposed and Alternative Hypothetical Launch Areas and Pipeline Segments

Map A-4 shows the location of the seven hypothetical launch areas and six pipeline segments, which are the sites where large oil spills could originate, if they were to occur. There are 991 spill points evenly spread over the seven hypothetical launch areas. There are 100 spill points spaced uniformly along each of the hypothetical transportation segments for pipelines. Hypothetical spills were started at the 1,591 spill points. The seven hypothetical launch areas group the 991 and the 6 pipeline segments group the 600 hypothetical spill points for data reduction and analysis. Landfall locations for pipelines were chosen based on educated guesses. Their use is to evaluate relative differences in pipeline locations along the shoreline. Their locations on Map A-4 are not meant to be representative of actual pipeline locations if development were to occur. Map A-4 shows the location of the alternatives to indicate which launch areas could be removed if a deferral alternative were chosen. Table A.1-9 shows the transportation assumptions for the launch areas and their associated pipelines.

C.1.f. Current and Tide Information from a General Circulation Model

For the Cook Inlet Multiple Sales, we use a general circulation model to simulate the wind-driven and density-induced ocean-flow fields and the tide-motion fields. For a full discussion see Johnson et al. (1994) and Johnson, Marshall, and Lear (2002). The following summarizes the major components of the model. The tidal currents, both residual (time averaged) and time varying, are simulated using a two-dimensional, vertically averaged simulation. The model is forced using the Schwiderski tidal constituents for 11 constituents. The model physics is based on Kowalik (1984) and Johnson and Kowalik (1986). The grid is a rectangular mesh and a 50° angle to the east and north.

Two sets of U_{density} currents are simulated using a three-dimensional hydrodynamic model run in the robust diagnostic mode. In Cook Inlet, the model is based on Semtner (1974) and Chao (1987). Because the density data needed to force the model are scarce in their temporal and spatial distribution, only two seasonal diagnostic representations are possible. The grid is the same as in the tidal calculation with up to nine 20-meter-thick layers. For the Gulf of Alaska, the U_{density} currents are simulated using a three-dimensional hydrodynamic model run in the diagnostic mode. The density data for this model were derived from the Levitus annual climatology (Levitus, 1982). The model is based on the model of Semtner (1974) and on the dissertation work of Bang (1991). The grid spacing is 1/2° longitude and 1/3° latitude, and it has a maximum of 20 layers. Further details are given in Johnson et al. (1994).

C.1.g. Wind Information

We use the National Weather Service Limited Fine Mesh model wind data set (Gerrity, 1977). The 9-year simulation (1978-1986) covered both the low-frequency variability and interannual variability. The Limited Fine Mesh winds were modified in the vicinity of Cook Inlet and Shelikof Strait following discussions with National Oceanic and Atmospheric Administration investigators (Stabeno, 1993, pers. commun.). The National Oceanic and Atmospheric Administration projects in Shelikof Strait since 1978 have shown that the winds are significantly modified by the local topography (Muench and Schumacher, 1980). Recent low-level aircraft observations have suggested that the directions of the winds calculated from the large-scale pressure field should be corrected to account for these orographic effects (Lackmann and Overland, 1989). Their experience with the wind product produced from the barometric pressure calculation revealed that the winds within Shelikof Strait and Lower Cook Inlet should be modified as described in Johnson et al. (1994) and Johnson, Marshall, and Lear (2002).

C.1.h. Oil-Spill Scenario

For purposes of this trajectory simulation, all spills occur instantaneously. For each trajectory simulation, the start time for the first trajectory was the first day of the season (summer or winter) of the first year of wind data (1978) at 6 a.m. Greenwich Mean Time. We launch hypothetical spills every day (on average) for each of the 9 years of wind.

C.2. Oil-Spill-Trajectory Model Assumptions

The following describes the assumptions we use in our oil spill trajectory model scenarios and the uncertainties. Oil-spill-trajectory model assumptions are as follows:

- Oil spills occur in the hypothetical launch areas or along pipeline segments.
- Companies transport the produced oil through pipelines to the Kenai Peninsula.
- An oil spill reaches the water.
- Oil spills occur and move without consideration of weathering. The oil spills are simulated each as a point with no mass or volume. The weathering of the oil is estimated in the stand-alone SINTEF OWM model.
- Oil spills occur and move without any cleanup. The model does not simulate cleanup scenarios. The oil-spill trajectories move as though no booms, skimmers, or any other response action is taken.
- Oil spills stop when they contact the mainland coastline and the islands identified as “land segments.”

Uncertainties exist, such as:

- the actual size of the oil spill or spill, should they occur;
- whether the spill reaches the water;
- whether the spill is instantaneous or a long-term leak;
- the wind, current, and ice conditions at the time of a possible oil spill;
- how effective cleanup is;
- the characteristics of crude oil at the time of the spill;
- how Cook Inlet crude oil will spread; and
- whether or not production occurs.

C.3. Oil-Spill-Trajectory Simulation

The trajectory simulation portion of the model consists of many hypothetical oil-spill trajectories that collectively represent the mean surface transport and the variability of the surface transport as a function of time and space. The trajectories represent the Lagrangian motion that a particle on the surface might take under given wind, ice, and ocean-current conditions. Multiple trajectories are simulated to give a statistical representation, over time and space, of possible transport under the range of wind, tide, and ocean-current conditions that exist in the area.

Trajectories are constructed from simulations of wind-driven and density-induced ocean flow fields and the tide-motion field. The basic approach is to simulate these time and spatially dependent currents separately, then combine them through linear superposition to produce an oil-transport vector. This vector is then used to create a trajectory. Simulations are performed for three seasons: winter (October-March), summer (April-September) and annual (January-December). The choice of this seasonal division was based on meteorological, climatological, and biological cycles and consultation with MMS Alaska OCS Region analysts.

Each trajectory is constructed using vector addition of the ocean current field and 3.5% of the instantaneous wind field—a method based on work done by Huang and Monastero (1982), Smith et al. (1982), and Stolzenbach et al. (1977). The following equation shows the components of motion that are simulated and used to describe the oil transport for each trajectory:

$$U_{oil} = U_{current} + 0.035 U_{wind}$$

where:

U_{oil} = oil drift vector

$U_{current}$ = current vector

U_{wind} = wind speed at 10 meters above the sea surface

The wind drift factor was estimated to be 0.035, with a variable drift angle ranging from 0° to 25° clockwise. The drift angle was computed as a function of wind speed according to the formula in Samuels, Huang, and Amstutz (1982). (The drift angle is inversely related to wind speed.)

$$U_{current} = U_{tidal} + U_{density}$$

where:

U_{tidal} = tidal currents

$U_{density}$ = density induced and net transport flows

The trajectories age while they are in the water and/or on the ice. For each day that the hypothetical spill is in the water, the spill ages—up to a total of 30 days. When in open water, the trajectory ages to a maximum of 30 days and is terminated. Trajectories are constructed from simulations of tidal, wind-driven, and density-induced flow fields. The basic approach is to simulate these time and spatially dependent currents separately, then to combine them through linear superposition to produce an oil-transport vector. This vector is then used to create a trajectory. Simulations are carried out for two seasons: winter (October-March) and summer (April-September).

For each trajectory simulation, the start time for the first trajectory was the first day of the season (winter or summer) of the first year of wind data (1978) at 6 a.m. Greenwich Mean Time. Each subsequent trajectory was started every 1.5 days, on average, at 6 a.m. Greenwich Mean Time. A total of 3,240 trajectories (1,620 in winter, 1,620 in summer) were launched over the 9-year period of wind data (1978-1986). The current field was assembled with the use of the start time to establish the tidal currents, the appropriate seasonal diagnostic density current, and the wind data to be used. Each simulation lasted for up to 30 days, and data from each flow field were matched in

time and space to create a final U_{oil} . Surface transport of the oil slick for each spill was simulated as a series of straight-line displacements in 3-hour increments of a point governed by the U_{oil} vectors discussed above.

A major assumption used in this analysis is that the mean flows are quasi-steady and that they can be adequately represented by addition of the flow components. More specifically, this assumption implies that the nonlinear interactions are small and do not substantively contribute to the circulation. Field and theoretical studies are under way at present to quantify these effects, not only in the study area but also throughout the world's oceans (Westerink, Stolzenbach, and Conner, 1989). Sensitivity tests and comparisons with data illustrate that the linear superposition captures the first-order transport and the dominant flow. After quality assurance checks were passed, the trajectories were used in the Oil-Spill-Risk Analysis model structure. Each trajectory was plotted, and the Oil-Spill-Risk Analysis model was run, given the land/sea segments and environmental resources specified for this analysis. Individual plots of trajectories and overlays of land/sea segments and environmental resources were examined to ensure that contacts were properly established and tabulated.

As the simulated oil spill moved, any contacts with environmental resource areas, land segments, or boundary were recorded. Spill movement continued until the spill contacted land, moved out of the study area, or aged more than 30 days.

C.4. Results of the Oil-Spill-Trajectory Model

C.4.a. Conditional Probabilities: Definition and Application

The chance that an oil spill will contact a specific environmental resource area or land or boundary segment within a given time of travel from a certain location or launch area is termed a conditional probability. The condition is that we assume a spill occurs. Conditional probabilities assume a spill has occurred and the transport of the spilled oil depends only on the winds, tide, and ocean currents in the study area. For the Cook Inlet multiple sale, we estimate conditional probabilities of contact within 3, 10, or 30 days during all year, summer or winter. Summer spills are spills that begin in April through September. Therefore, if any contact to an environmental resource area or land segment is made by a trajectory that began before the end of September, it is considered a *summer contact* and is counted along with the rest of the contacts from spills launched in the summer. Winter spills are spills that begin in October through March. Therefore, if any contact to an environmental resource area or land segment is made by a trajectory that began by the end of March, it is considered a *winter contact* and is counted along with the rest of the contacts from spills launched in the winter. Annual spills are spills are launched in both summer and winter.

C.4.a.(1) Conditional Probabilities: Results

The chance of a spill contacting is taken from the oil-spill trajectory model results summarized below and listed in Tables A.2-1 through A.2-30.

C.4.a.(1)(a) Comparisons and Generalities between Spill Location and Season

The primary differences of contact between spill locations are geographic in the perspective of east to west and northern lower inlet versus southern lower inlet. The land segments with the highest chance of contact from all launch areas are generally along the western shores of lower Cook Inlet in Kamishak Bay and Shelikof Strait. Contacts to the western shorelines are greater in magnitude and length of coastline contacted is longer for launch areas located on the western side of Cook Inlet. Launch areas in southern Cook Inlet tend to produce patterns of contacts that show spills overall move more southward in the Inlet. For a particular launch area, contacts to the south are further away and higher in magnitude than contacts to the North. This reflects the predominate flow in the inlet and strait to the south. Pipelines generally have balanced east and west contacts. Winter contacts are generally higher in magnitude than summer contacts for the same launch area.

C.4.a.(1)(b) Generalities Through Time

3 Days: Generally, the highest chance of contacts after 3 days are directly adjacent to the launch area for both environmental resource areas and land segments.

10 Days: Generally, a majority of the trajectories contact shoreline within 10 days due to the enclosed nature of the shoreline of Cook Inlet. In many cases, there was little difference between the 10-day and 30-day estimated chance of contact. This is because the study area is restricted within Cook Inlet and Shelikof Strait, and long travel times for oil-spill trajectories were not observed.

30 Days: The chance of contacts within 30 days generally increase only slightly if at all from 10 days.

D. OIL-SPILL-RISK ANALYSIS

A measure of oil spill impact is determined by looking at the chance of a spill occurring and then contacting a resource of concern. This analysis helps determine the relative spill occurrence and contact associated with oil and gas production in different regions of the proposed area. Combined probabilities are estimated using the conditional probabilities, the historical oil-spill rates, the resource estimates, and the assumed transportation scenarios. These are combined through matrix multiplication to estimate the mean number of spills occurring and contacting.

D.1. Chance of a Large Offshore Spill Occurring

The chance of a spill occurring is derived from three components: (1) the spill rate and (2) the resource volume estimates, and (3) the production and transportation assumptions.

D.1.a. Large Offshore Spill Rates

We use the large spill rates from Anderson and LaBelle (2000). These rates are based on historical OCS spills from platforms or pipelines from 1985 to 1999 as well as OCS production during that same time period.

The spill rates as follows:

- Platforms 0.13 spills per billion barrels produced
- Pipelines 1.38 spills per billion barrels produced

D.1.b. Resource Volume Estimates

The resource volume estimates are discussed in Appendix B.

D.1.c. Transportation Assumptions

Appendix A (Section C.1.e) discusses the transportation assumptions for the launch areas and their associated pipelines.

D.1.d. Method for Estimating the Chance of a Spill Occurring

The poisson distribution is used for estimating oil-spill occurrence. Spill occurrence has been modeled previously as a poisson process (Smith et al., 1982; Lanfear and Amstutz, 1983; Anderson and LaBelle, 1990, 1994; 2000). Because spill occurrences meet the criteria for a poisson process, the following equations were used in our estimation of spill rates. The estimated volume of oil handled is the exposure variable.

Smith et al. (1982), using Bayesian inference techniques, presented a derivation of this process, assuming the probability of n spills over some future exposure t is expected to occur at random with a frequency specified by equation (1):

$$P(n \text{ spills over future exposure } t) = \frac{(\lambda t)^n e^{-\lambda t}}{n!} \quad (1)$$

where λ is the true rate of spill occurrence per unit exposure. The predicted probability takes the form of a negative binomial distribution specified by equation (2):

$$P(n) = \frac{(n + v - 1)! t^n \tau^v}{n! (v - 1)! (t + \tau)^{n+v}} \quad (2)$$

where τ is past exposure and v is the number of spills observed in the past. The negative binomial is then shown to converge over time to the Poisson, with λ estimated using equation (3) (Smith et al., 1982):

$$\lambda = v / \tau \quad (3)$$

Using the spill rate and the volume of oil assumed to be produced the estimated mean number of spills is calculated. That spills are distributed as a poisson distribution. The probability of one or more is equal to 1 minus the probability of zero spills. The probability of one or more spills occurring is calculated using the following equations.

$$P(n) = \frac{e^{-\lambda} * \lambda^n}{n!}$$

$P(n)$ = probability of n spills occurring

n = specific number of spills

e = base of the natural logarithm

λ = parameter of the poisson distribution (mean number of spills)

D.1.e. Results for the Chance of an Offshore Spill Occurring

Using the above spill rates, Table A-1-10 shows the percent chance of one or more spills occurring for Alternative I - Proposed Action for Sales 191 and 199 as well as for Alternatives II, III, and IV. For alternative II for Sales 191 and 199, we estimate 0.19 pipeline spills and 0.02 platform spills. The chance of one or more pipeline spills is 17% and the chance of one or more platform spills is 2%. The chance of one or more spills total is 19%. For alternatives III and IV for Sales 191 and 199, we estimate 0.17 pipeline spills and 0.02 platform spills. The chance of one or more pipeline spills is 16% and the chance of one or more platform spills is 2%. The chance of one or more spills total is 17%. There is no significant difference among the action alternatives concerning the percent chance of one or more spills greater than or equal to 1,000 barrels occurring.

D.2. Chance of a Spill Contacting Land Segments, Boundary Segments, or Environmental Resource Areas

The chance of a spill contacting land segments, boundary segments, or environmental resource areas is taken from the oil-spill-trajectory model results summarized above in Section C.4.a and listed in Tables A.2-1 through A.2-33.

D.3. Combined Probabilities: Definition and Application

The chance that one or more oil spills could occur and contact a specific environmental resource area or land or boundary segment within a given time of travel is termed a combined probability. Combined probabilities are not conditioned on a spill occurring, but factor in the chance of a spill occurring in the first place. Combined

probabilities depend not only on the physical conditions, but also on the rates of historical spill occurrence, estimated volume of oil to be transported and the oil transportation scenario. For the Cook Inlet multiple sale, we estimate combined probabilities of contact and occurrence within 3, 10, or 30 days during all year in Tables A.2-31 through A.2-33.

Results of the Oil Spill Risk Analysis: Combined Probabilities. Tables A.2-31 through A.2-33 show the annual combined probabilities for the alternatives for Sales 191 and 199. For the majority of resource areas and land segments, the chance of one or more spills occurring and contacting resources and land segments is less than 0.5%. The highest values are a 19% chance of one or more spills occurring and contacting land with other values of less than 0.5% to 6% after 30 days. The relative risk from the Alternative I for Sales 191 and 199 and the other alternatives is that there is a less than 0.5% to a 6% chance for one or more oil spills to occur and contact environmental resource areas. There is a 19% of one or more oil spills occurring and contacting land. Because the combined probabilities range from less than 0.05% to 19% and the relative difference between the values of the combined probabilities are small or negligible, it is difficult to distinguish differences between the Alternative I for Sales 191 and 199 and the other alternatives based on combined probabilities. For Alternative I for Sales 191 and 199 and the other alternatives, there is a less than 0.05% to a 19% chance of one or more oil spills occurring and contacting environmental resource areas and coastline over the life of the development activities.

E. LARGE ONSHORE OIL SPILLS

Onshore oil spills are analyzed without the use of a trajectory analysis. Hovey and Farmer (1993) conducted an analysis of U.S. petroleum product pipelines from 1982-1991. The exposure variable was pipeline mile-years. They base their analysis on pipeline accidents reported to the U.S. Department of Transportation. These pipelines are onshore and offshore and carry other petroleum products in addition to crude oil.

The Hovey and Farmer rate was 0.000888 spills per pipeline mile-year for spills greater than or equal to 5 or 50 barrels, depending on the reporting requirement. In a followup article, Hovey and Farmer (1999) indicate that the rate at which pipeline accidents occur shows no significant change over the last 16 years. Trench (1999) looked at a longer time period from 1969-1998 and determined the oil-pipeline industry's spill record has improved substantially over the last 30 years. The number of spills decreased by nearly 40%, and the volume of oil spilled decreased by about 60%.

Large onshore oil spills are not analyzed to determine a spill rate using the existing data for the Cook Inlet watershed. The Sienkiewicz and Wondzell (1992) report was deemed relatively reliable for offshore spills but lack of reported onshore spills suggests missing data. Epstein (2002) researched Cook Inlet watershed spills for the last 5 years (1997-2001) and presents a complete database with final volumes. However, no large onshore pipeline crude spills occurred during this period.

Using data from the Department of Transportation, Office of Pipeline Safety, a spill rate for crude and petroleum pipeline spills greater than or equal to 1,000 barrels was estimated. The spill rate for crude and refined spills greater than or equal to 1,000 barrels from 1986-2002 is 0.00021 spills per mile-year. For purposes of analysis, we use this rate as a proxy for a onshore crude oil-spill rate. The mean number of large onshore pipeline spills over the life of the project is 0.016. By this method, we estimate the chance of one or more spills greater than or equal to 1,000 barrels for Cook Inlet onshore pipeline length of 75 miles is 1.6% over the life of the project.

F. SMALL OIL SPILLS

Small spills are less than 1,000 barrels. We analyze the effects of small spills in Section IV.B. We consider two types of small spills: crude oil and refined oil.

We use the OCS record of small spills from 1985-1999, because we determined the OCS rate is similar to the Cook Inlet rate in a preliminary assessment of the Cook Inlet spills. The OCS rate of crude and refined small spills is approximately 3,460 spills per billion barrels, and the Cook Inlet spill rate is approximately 2,700 spills per billion barrels. Because of the similarity of spill rates between Cook Inlet and the OCS in magnitude, we believe it is reasonable to assume that the spill rate in Cook Inlet will be similar to the rate on the OCS. In addition, we are

concerned about the oil-spill data and the low-production volume in Cook Inlet in terms of statistical robustness and quality of data. Further data validation and cross checking is necessary. The OCS rates are based on a database maintained by the MMS, as well as on a large production volume. The Cook Inlet rate is not similar to the Alaska North Slope rate. The Alaska North Slope rate is approximately 618 spills per billion barrels. Therefore, we did not use the Alaska North Slope rate as an analogy for Cook Inlet.

The analysis of operational small oil spills uses MMS historical oil-spill databases and simple statistical methods to derive general information about small crude- and refined-oil spills that occur on the OCS. This information includes estimates of how often a spill occurs for every billion barrels of oil produced (oil-spill rates), the mean (average) number of oil spills, and the mean and median size of oil spills from facilities, pipelines, and flowlines combined (Anderson and LaBelle, 2000). We then use this information to estimate the number, size, and distribution of operational small spills that may occur from the Cook Inlet multiple-sale area. The analysis of operational small oil spills considers the entire production life of the Cook Inlet multiple sale and assumes the following:

- commercial quantities of hydrocarbons are present in the multiple-sale program area, and
- these hydrocarbons will be developed and produced at the estimated resource levels.

Uncertainties exist, such as:

- the estimates required for the assumed resource levels, or
- the actual size of a crude- or refined-oil spill.

Results for Small Operational Oil Spills. The analysis of OCS small oil spills is performed collectively for all facilities, pipelines, and flowlines (Anderson and LaBelle, 2000). The pattern of small oil spills on the OCS is one of numerous small spills. Of the small oil spills that occurred between 1985 and 2000, 97% were less than or equal to 1 barrel; 2% were greater a barrel but less than 10, 0.2 % were greater than or equal to 10 barrels and less than 50 barrels, and 0.1% were greater than or equal to 50 barrels and less than 500 barrels. The spill sizes in the database range from less than 1 gallon to 999 barrels. Table A.1-11 shows the number and average and median spill size for small spills on the OCS.

Table A.1-11 shows the estimated small-spill rate for the OCS ranging from 3,357 spills per billion barrels produced to one-half a spill per billion barrels produced depending upon the size category. Very small spills occur most frequently. Small spills were estimated for each spill size category. The median spill size was used as the assumed spill size. Table A.1-12 shows the assumed number, size, and total volume of small spills for the alternatives for Sales 191 and 199.

APPENDIX A-1
TABLES

Contents of Appendix A-1

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A.1-4	Fate and Behavior of a Hypothetical Broken-Ice Oil Spill, 1-500 Barrels in Size from a Platform in Lower Cook Inlet
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**Table A.1-1
Spill-Related Properties of Cook Inlet Crude Oil**

Property ¹	Measurement		
Evaporation(Volume %)	0	26.79	37.30
Density (g/cm³)			
1°C (34°F)	0.872	0.913	0.929
15°C (60°F)	0.857	0.899	0.917
Viscosity			
Dynamic (mPa.s)			
1°C (34°F)	27.2	1,841.6	4,324.4
15°C (60°F)	12.3	129.3	354.9
Kinematic (mm ² s)			
1°C (34°F)	31.2	2,017.0	4,654.7
15°C (60°F)	14.4	143.9	387.2
Interfacial Tensions (dyne/cm)			
Oil/Air	29.6	32.0	33.5
Oil/Seawater	10.7	23.6	14.8
Pour Point	-9	3	6
Flash Point	—	76	112
Emulsion Formation @ 5°C)			
Tendency	1	1	1
Stability	0.1	1	1
ASTM Modified Distillation (°C)			
Evaporation (% Volume)	Liquid Temperature (°C)	Vapor Temperature (°C)	
IBP	85.9	45.9	
5	151.5	98.8	
10	174.2	124.2	
15	199.7	146.5	
20	225.2	166.5	
30	280.8	234.4	
40	333.1	282.4	

Note:

¹Temperatures listed are reference temperature at which measurement was taken.

Key:

— = no vapors to measure flash point

% = percent

°C = degrees Celsius

°F = degrees Fahrenheit

@ = at

ASTM = American Standard of Testing and Materials

IBP = Initial Boiling Point

dyne/cm = dyne per centimeter

g/cm³ = grams per cubic centimeters

mm²/s = millimeter squared per second or centistoke

mPa.s = millipascal second or centipoise

Source:

S.L. Ross, Environmental Research Ltd. (2000).

Table A.1-1a
Number of Blowouts per Year in the Gulf of Mexico, Pacific and Alaska OCS Regions

Year	Number of Blowouts	Total Incidents with Condensate/Oil	Amount of Condensate/Oil (Barrels)				Production				Drilling				Workover/Completion	Wells Drilled
			Development	Exploration	Total Exploration and Development	Total	Fire	Hurricane	Other	Total	Exploration	Development	Unknown	Total		
1956	1	0	—	—	0	—	—	—	—	—	—	—	—	—	—	
1957	1	0	—	—	0	—	—	—	—	—	—	—	—	—	—	
1958	2	1	Minimal	—	1	1	1	—	—	—	—	—	—	—	—	
1959	1	0	—	—	0	—	—	—	—	—	—	—	—	—	—	
1960	2	0	—	—	0	—	—	—	—	—	—	—	—	—	—	
1961	0	0	—	—	0	—	—	—	—	—	—	—	—	—	—	
1962	1	0	—	—	0	—	—	—	—	—	—	—	—	—	—	
1963	1	0	—	—	0	—	—	—	—	—	—	—	—	—	—	
1964	7	3	10,380	—	10,380	3	1	2	—	—	—	—	—	—	—	
1965	5	2	1,688	—	1,688	1	—	1	—	1	—	—	1	—	—	
1966	2	2	Minimal	—	1	—	—	—	—	1	—	—	1	—	—	
1967	1	1	Minimal	—	1	1	—	—	1	—	—	—	—	—	—	
1968	9	0	—	—	0	—	—	—	—	—	—	—	—	—	—	
1969	3	3	82,500	—	82,500	2	—	—	2	1	—	1	—	—	—	
1970	23	3	83,000	—	83,000	2	2	—	—	1	—	1	—	—	—	
1971	9	1	450	—	450	1	1	—	—	—	—	—	—	—	851	
1972	5	1	Minimal	—	1	—	—	—	—	1	—	—	1	—	845	
1973	3	1	Minimal	—	1	—	—	—	—	1	—	1	—	—	820	
1974	6	2	275	—	275	2	—	2	—	—	—	—	—	—	802	
1975	7	1	Minimal	—	1	—	—	—	—	—	—	—	—	1	842	
1976	6	0	—	—	0	—	—	—	—	—	—	—	—	—	1,078	
1977	10	0	—	—	0	—	—	—	—	—	—	—	—	—	1,240	
1978	12	1	Minimal	—	1	—	—	—	—	—	—	—	—	1	1,164	
1979	5	2	Minimal	—	1	—	—	—	—	2	—	2	—	—	1,140	
1980	8	2	1	—	1	1	—	—	1	1	—	1	—	—	1,158	
1981	10	4	64	—	64	—	—	—	—	2	—	2	—	2	1,208	
1982	9	2	Minimal	—	1	—	—	—	—	1	—	1	—	1	1,255	
1983	12	0	—	—	0	—	—	—	—	—	—	—	—	—	1,180	
1984	5	0	—	—	0	—	—	—	—	—	—	—	—	—	1,352	
1985	6	1	40	—	40	1	—	—	1	—	—	—	—	—	1,169	
1986	2	0	—	—	0	—	—	—	—	—	—	—	—	—	694	
1987	13	1	60	—	60	—	—	—	—	1	—	1	—	—	845	
1988	3	0	—	—	0	—	—	—	—	—	—	—	—	—	950	
1989	12	0	—	—	0	—	—	—	—	—	—	—	—	—	947	
1990	7	3	20.5	—	20.5	1	—	—	1	—	—	—	—	2	1,018	
1991	6	1	—	0.8	0.8	—	—	—	—	1	1	—	—	—	726	
1992	1	1	—	100	100	—	—	—	—	1	1	—	—	—	431	
1993	2	0	—	—	0	—	—	—	—	—	—	—	—	—	879	
1994	0	0	—	—	0	—	—	—	—	—	—	—	—	—	845	
1995	1	0	—	—	0	—	—	—	—	—	—	—	—	—	798	
1996	4	0	—	—	0	—	—	—	—	—	—	—	—	—	889	
1997	5	0	—	—	0	—	—	—	—	—	—	—	—	—	954	
1998	7	1	1.5	—	1.5	1	—	—	1	—	—	—	—	—	993	
1999	5	0	—	—	0	—	—	—	—	—	—	—	—	—	962	
2000	9	3	—	200	200	—	—	—	—	2	2	—	—	1	1,315	
Total	258	43	178,480	300.8	0	17	—	—	—	17	—	—	—	9	29,350	

Source:
 USDOl, MMS, Alaska OCS Region (2002).

**Table A.1-2
Spill-Related Properties of Drift River Crude Oil**

Property ¹	Measurement		
Evaporation (Volume %)	0	26.79	37.30
Density (g/cm³)			
1°C (34°F)	0.882	0.926	0.936
15°C (60°F)	0.871	0.916	0.927
Viscosity			
Dynamic (mPa.s)			
1°C (34°F)	109.7	768.0	4,589.5
15°C (60°F)	21.9	178.6	555.2
Kinematic (mm²/s)			
1°C (34°F)	124.4	829.3	4,894.1
15°C (60°F)	25.1	194.9	599.1
Interfacial Tensions @ 72°F (dyne/cm)			
Air/Oil	30.0	33.2	34.0
Oil/Seawater	9.5	19.0	15.8
Pour Point	-21	-3	3
Flash Point	-	76	112
Emulsion Formation @ 5°C			
Tendency	0	1	1
Stability	0	1	1
ASTM Modified Distillation (°C)			
Evaporation (% Volume)	Liquid Temperature (°C)	Vapor Temperature (°C)	
IBP	107.7	49.9	
5	158.9	101.5	
10	183.7	131.1	
15	211.2	156.5	
20	237.5	181.6	
30	292.5	249.1	
40	344.9	301.5	

Note:

¹Temperatures listed are reference temperature at which measurement was taken.

Key:

— = no vapors to measure flash point

% = percent

°C = degrees Celsius

°F = degrees Fahrenheit

@ = at

ASTM = American Standard of Testing and Materials

IBP = Initial Boiling Point

dyne/cm = dyne per centimeter

g/cm³ = grams per cubic centimeters

mm²/s = millimeter squared per second or centistoke

mPa.s = millipascal second or centipoise

Source:

S.L. Ross Environmental Research Ltd. (2000).

Table A.1-3**Fate and Behavior of a Hypothetical Open-Water Oil Spill, 1,500 Barrels in Size, from a Platform in Lower Cook Inlet**

Description	Summer Spill ¹ (Time after spill in days)				Winter Spill ² (Time after spill in days)			
	1	3	10	30	1	3	10	30
Oil Remaining (%)	76.9	69.3	53.4	29.2	73.1	59.5	29.8	5.4
Oil Dispersed (%)	1.4	4.0	15.1	35.7	4.0	13	38.8	61.5
Oil Evaporated (%)	21.7	26.7	31.5	35.1	22.9	27.5	31.4	33.1
Thickness (mm)	2.3	1.3	1.0	1.0	1.8	1.1	1	1
Discontinuous Area (km ²) ³	8	32	150	621	8	31	77	618
Estimated Coastline Oiled (km) ⁴	23				17			

Notes:

Calculated with the Sintef oil-weathering model Version 2.0 of Reed et al. (2000) and assuming a Cook Inlet Crude (S.L. Ross, 2001).

¹Summer (April-September), 11.5 knot wind speed, 8.8 °C, 1-meter-wave height. Average Weather Marine Area A, Brower et al. (1988).

²Winter (October-March), 16-knot wind speed, 4.76 °C, 1.8-meter-wave height. Average Weather Marine Area A, Brower et al. (1988).

³Calculated from Equation 6 of Table 2 in Ford (1985) and is the discontinuous area of a continuing spill or the area swept by an instantaneous spill of a given volume.

⁴Calculated from Equation 17 of Table 4 in Ford (1985) and is the result of stepwise multiple regression for length of historical coastline affected.

Key:

% = percent

km = kilometers

km² = square kilometers

mm = millimeters

Source:

USDOI, MMS, Alaska OCS Region (2002).

Table A.1-4
Fate and Behavior of a Hypothetical Broken-Ice Oil Spill, 1,500 Barrels in Size, from a Platform in Lower Cook Inlet

Description	Winter Spill ¹ (Broken Ice) (Time after spill in days)			
	1	3	10	30
Oil Remaining (%)	77.4	71.1	61.6	48
Oil Dispersed (%)	0.9	2.6	6.7	15.8
Oil Evaporated (%)	21.7	26.3	31.7	36.2
Thickness (mm)	3.2	1.9	1	1
Discontinuous Area (km ²) ²	8	31	77	618
Estimated Coastline Oiled (km) ³	17			

Notes:

Calculated with the Sintef oil-weathering model Version 2.0 of Reed et al. (2000) and assuming a Cook Inlet Crude (S.L. Ross, 2001).

¹Winter (October-March), 16-knot wind speed, 4.76 °C, 1.8-meter-wave height. Average Weather Marine Area A, Brower et al. (1988).

²Calculated from Equation 6 of Table 2 in Ford (1985) and is the discontinuous area of a continuing spill or the area swept by an instantaneous spill of a given volume.

³Calculated from Equation 17 of Table 4 in Ford (1985) and is the result of stepwise multiple regression for length of historical coastline affected.

Key:

% = percent

km = kilometers

km² = square kilometers

mm = millimeters

Source:

USDOI, MMS, Alaska OCS Region (2002).

Table A.1-5
Fate and Behavior of a Hypothetical Open-Water Oil Spill, 4,600 Barrels in Size, from a Offshore Pipeline in Cook Inlet

Description	Summer Spill ¹ (Time after spill in days)				Winter Spill ² (Time after spill in days)			
	1	3	10	30	1	3	10	30
Oil Remaining (%)	77.8	70.6	55.4	30.2	74.3	62.2	32.2	5.8
Oil Dispersed (%)	1.1	3.3	13.4	34.7	3.3	10.8	36.6	61
Oil Evaporated (%)	21.1	26.1	31.2	35.1	22.4	27	31.2	33.2
Thickness (mm)	2.9	1.6	1	1	3.4	1.6	1	1
Discontinuous Area (km ²) ³	13	56	265	1100	13	55	263	1094
Estimated Coastline Oiled (km) ⁴	38				28			

Notes:

Calculated with the Sintef oil-weathering model Version 2.0 of Reed et al. (2000) and assuming a Cook Inlet Crude (S.L. Ross, 2001).

¹Summer (April-September), 11.5 knot wind speed, 8.8 °C, 1-meter-wave height. Average Weather Marine Area A, Brower et al. (1988).

²Winter (October-March), 16-knot wind speed, 4.76 °C, 1.8-meter-wave height. Average Weather Marine Area A, Brower et al. (1988).

³Calculated from Equation 6 of Table 2 in Ford (1985) and is the discontinuous area of a continuing spill or the area swept by an instantaneous spill of a given volume.

⁴Calculated from Equation 17 of Table 4 in Ford (1985) and is the result of stepwise multiple regression for length of historical coastline affected.

Key:

% = percent

km = kilometers

km² = square kilometers

mm = millimeters

Source:

USDOI, MMS, Alaska OCS Region (2002).

Table A.1-6
Fate and Behavior of a Hypothetical Broken-Ice Oil Spill, 4,600 Barrels in Size, from a Offshore Pipeline in Cook Inlet

Description	Winter Spill ¹ (Broken Ice) (Time after spill in days)			
	1	3	10	30
Oil Remaining (%)	79.3	73.6	65.9	52
Oil Dispersed (%)	0.6	1.6	4	12.5
Oil Evaporated (%)	20.1	24.8	30.1	35.5
Thickness (mm)	5.6	3.3	1.1	1
Discontinuous Area (km ²) ²	13	33	263	1,094
Estimated Coastline Oiled (km) ³	28			

Notes:

Calculated with the Sintef oil-weathering model Version 2.0 of Reed et al. (2000) and assuming a Cook Inlet Crude (S.L. Ross, 2001).

¹Winter (October-March), 16-knot wind speed, 4.76 °C, 1.8-meter-wave height. Average Weather Marine Area A, Brower et al. (1988).

²Calculated from Equation 6 of Table 2 in Ford (1985) and is the discontinuous area of a continuing spill or the area swept by an instantaneous spill of a given volume.

³Calculated from Equation 17 of Table 4 in Ford (1985) and is the result of stepwise multiple regression for length of historical coastline affected.

Key:

% = percent

km = kilometers

km² = square kilometers

mm = millimeters

Source:

USDOI, MMS, Alaska OCS Region (2002).

Table A.1-7a
Environmental Resource Area Identification Numbers, Names, and Spill-Vulnerable Months

ERA ID	ERA Name	Months in Which ERA is Vulnerable to Oil Spills
1	Tuxedni Bay	January-December
2	Chinitna Bay	January-December
3	Outer Kachemak Bay	January-December
4	Outer Kamishak Bay	January-December
5	Inner Kamishak Bay	January-December
6	Barren Islands	January-December
7	Cape Douglas	January-December
8	Shuyak Island	January-December
9	Hallo/Kukak Bays	January-December
10	Kupreanof Strait	January-December
11	Katmai Bay	January-December
12	Puale Bay	January-December
13	Middle Cape	January-December
14	Sutwik Island	January-December
15	Chignik Bay	January-December
16	Semidi Islands	January-December
17	Chirikof Island	January-December
18	Trinity Islands	January-December
19	Twoheaded Island	January-December
20	South Albatross Bank	January-December
21	Ugak Bay	January-December
22	Cape Chiniak	January-December
23	N. Albatross Bank	January-December
24	Marmot Island	January-December
25	Portlock Bank	January-December
26	Pye Islands	January-December
27	Forelands	January-December
28	South Kalgin Island	January-December
29	South Shelikof Strait	January-December
30	Marmot/Chiniak Bay	January-December
31	Kachemak Bay/Outer Peninsula	January-December

Key:

ERA = Environmental Resource Area
ID = identification (number)

Table A.1-7b

Important Environmental Resource Areas by Identification (ID) Number, Geographic Area, and Where They are Discussed in Section III or IV of This EIS

ERA ID	Geographic Area¹	Non-endangered Marine Mammals	Marine and Coastal Birds	Terrestrial Mammals	Endangered and Threatened Species	Subsistence
1	Tuxedni Bay	Marine Mammals	Seabirds, Waterfowl, Shorebirds	Terrestrial Mammals	Beluga Whale	Subsistence
2	Chinitna Bay	Marine Mammals	Seabirds, Waterfowl	Terrestrial Mammals	Beluga Whale	—
3	Outer Kachemak Bay	Sea Otters, Harbor Seals	Seabirds, Waterfowl	—	Steller's Eider	—
4	Outer Kamishak Bay	Harbor Seals	Seabirds	—	Sea Otters	—
5	Inner Kamishak Bay	Harbor Seals	Seabirds, Waterfowl	Brown Bear, Terrestrial Mammals	Steller's Eider, Sea Otters	—
6	Barren Islands	Marine Mammals	Seabirds	—	Steller Sea Lion, Sea Lion Critical Habitat, Endangered Whales	—
7	Cape Douglas	Marine Mammals	Seabirds, Waterfowl	Terrestrial Mammals	Steller Sea Lion, Sea Lion Critical Habitat, Sea Otters	—
8	Shuyak Island	Marine Mammals	Seabirds	—	Steller Sea Lion, Sea Lion Critical Habitat, Sea Otters	—
9	Hallo/Kukak Bays	Harbor Seals	Waterfowl	—	Steller Sea Lion, Sea Lion Critical Habitat, Endangered Whales, Sea Otters	—
10	Kupreanof Strait	Harbor Seals	Seabirds, Waterfowl	—	Endangered Whales, Sea Lion Critical Habitat, Sea Otters	Subsistence
11	Katmai Bay	Harbor Seals	Waterfowl	Brown Bear, Terrestrial Mammals	Steller Sea Lion, Sea Otters , Endangered Whales	—
12	Puale Bay	Marine Mammals	Seabirds	—	Steller Sea Lion, Sea Lion Critical Habitat, Sea Otters	—
13	Middle Cape	Marine Mammals	Seabirds	—	Endangered Whales, Steller Sea Lion, Sea Lion Critical Habitat	Subsistence
14	Sutwik Island	Marine Mammals	—	—	Endangered Whales, Steller Sea Lion, Sea Lion Critical Habitat	—
15	Chignik Bay	Sea Otters	Waterfowl	—	Endangered Whales, Steller Sea Lion, Sea Otters	Subsistence
16	Semidi Islands	Marine Mammals	Seabirds	—	Aleutian Canada Goose Endangered Whales, Steller Sea Lion, Sea Lion Critical Habitat, Sea Otters	—
17	Chirikof Island	Harbor Seals	Seabirds	—	Endangered Whales, Steller Sea Lion, Sea Lion Critical Habitat	—
18	Trinity Islands	Harbor Seals	Waterfowl (Winter)	—	Endangered Whales, Steller Sea Lion, Sea Lion Critical Habitat, Steller's Eiders, Albatross	Subsistence
19	Twoheaded Island	Harbor Seals	Seabirds	—	Steller Sea Lion, Sea Lion Critical Habitat	—
20	S. Albatross Bank	Cetaceans, Pinnipeds	Seabirds	—	Endangered Whales, Short-tailed Albatross	—
21	Ugak Bay	Harbor Seals	Seabirds	—	Endangered Whales, Steller Sea Lion, Sea Lion Critical Habitat	—

22	Cape Chiniak	Marine Mammals	Seabirds	—	Endangered Whales, Steller Sea Lion, Steller's Eiders	—
23	N. Albatross Bank	Cetaceans, Pinnipeds	Seabirds	—	Endangered Whales	—
24	Marmot Island	Marine Mammals	Seabirds	—	Endangered Whales, Steller Sea Lion	—
25	Portlock Bank	Cetaceans, Pinnipeds	Seabirds	—	Endangered Whales	—
26	Pye Islands	Marine Mammals	Seabirds	—	Steller Sea Lion, Humpback Whales	—
27	Forelands	Marine Mammals	Seabirds, Waterfowl	—	Beluga Whales	—
28	S. Kalgin Island	Beluga Whales, Harbor Seals	Seabirds	—	Beluga Whales	—
29	S. Shelikof Strait	Harbor Seals, Fur Seals (Summer)	Seabirds	—	Endangered Whales, Sea Otters, Steller Sea Lions, Sea Lion Critical Habitat	—
30	Marmot/Chiniak Bay	Harbor Seals	Seabirds	—	Steller's eider, Steller Sea Lions, Sea Lion Critical Habitat	—
31	Kachemak Bay/Outer Peninsula	—	Seabirds, Waterfowl, Shorebirds	—	Endangered Whales, Steller's Eiders	Subsistence

Notes:

ERA = Environmental Resource Area

All geographic areas refer to an area surrounding the named geographic place.

Source: USDO, MMS, Alaska OCS Region (2003).

**Table A.1-8
Land Segment ID and the Geographic Place Names within the Land Segment**

ID	Geographic Place Names	ID	Geographic Place Names
1	Mount Stepo, Stepovak Bay	50	Barren Islands, Ushagat Island
2	Stepovak Bay, Kupreanof Peninsula, Ivanoff Bay	51	Amatuli Cove, East and West Amatuli Island
3	Chiachi Island, Jacob Island, Perryville	52	Chugach Bay, Rocky Bay, Windy Bay
4	Mitrofanina Bay, Mitrofanina Island	53	West Arm Port Dick, Qikutulig Bay, Touglalek Bay
5	Kuiuikta Bay, Seal Cape	54	Gore Point, Port Dick, Tonsina Bay
6	Warner Bay	55	Nuka Passage, Nuka Bay, Nuka Island
7	Castle Bay, Chignik, Chignik Lagoon	56	Pye Islands, Surprise Bay
8	Chignik Bay	57	Black Bay, Thunder Bay, Two Arm Bay
9	Kujulik Bay, Unavikshak Island	58	Aialik Bay, Harris Bay
10	Aniakchak Bay, Cape Kumlik, Kumlik Island	59	Aialik Cape, Aialik Bay, Resurrection Bay
11	Amber Bay, Yantarni Bay	60	Cape Resurrection, Day Harbor, Whidbey Bay
12	Nakalilok Bay, Ugaiushak Island	61	Johnstone Bay, Puget Bay
13	Cape Providence, Chiginagak Bay	62	Elrington Island, Latouche Island
14	Agripina Bay, Ashiak Island, Cape Kilokak	63	Montague Strait, Cape Clear
15	Cape Kayakliut, Wide Bay	64	Monatgue Island
16	Cape Kanatak, Cape Lgvak, Cape Unalishagvak, Portage Bay	65	Montague Island
17	Cape Aklek, Puale Bay	66	Montague Island
18	Alinchak Bay, Cape Kekurnoi, Bear Bay	67	Aiaktalik Island, Japanese Bay, Kaguyak Bay, Russian Harbor
19	Cape Kubugakli, Kashvik Bay, Katmai Bay	68	Kiavak Bay, Knoll Bay, Natalia Bay, Rolling Bay
20	Amalik Bay, Cape Iiktugitak, Dakavak Bay, Kinak Bay, Takli Island	69	McCord Bay, Newman Bay, Ocean Bay, Sitkalidak Island, Sitka
21	Kafliia Bay, Kukak Bay, Kuliak Bay, Missak Bay	70	Boulder Bay, Outer Right Cape, Kiluida Bay
22	Devils Cove, Hallo Bay	71	Gull Point, Pasagshak Bay, Ugak Bay
23	Cape Chiniak, Swikshak Bay	72	Barry Lagoon, Cape Chiniak, Cape Greville
24	Fourpeaked Glacier	73	Long Island, Chiniak Bay
25	Spotted Glacier, Sukoi Bay	74	Anton Larsen Bay, Narrow Strait, Kodiak, Spruce Island, Spruce Cape
26	Douglas River	75	Duck Bay, Marmot Bay, Spruce Island
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	76	Izhut Bay, Pillar Cape
28	Amakdedulia Cove, Bruin Bay, Chenik Head	77	King Cove, Tonki Cape Peninsula
29	Augustine Island	78	Marmot Cape, Marmot Island, Marmot Strait
30	Rocky Cove, Tignagvik Point	79	Seal Bay, Tonki Bay
31	Iiamna Bay, Iniskin Bay, Ursus Cove	80	Andreon Bay, Big Fort Island, Big Waterfall Bay, Perenosa Bay
32	Chinitna Point, Dry Bay	81	Shuyak Island
33	Chinitna Bay	82	Bluefox Bay, Shuyak Island, Shuyak Strait
34	Iliamna Point	83	Foul Bay, Paramanof Bay
35	Chisik Island, Tuxedni Bay	84	Malina Bay, Raspberry Island, Raspberry Strait
36	Redoubt Point	85	Kupreanof Strait, Viekoda Bay
37	Drift River, Drift River Terminal	86	Uganik Bay Uganik Strait, Cape Ugat
38	Kalgin Island	87	Cape Kuliuk, Spiridon Bay, Uyak Bay
39	Seal River, Big River	88	Karluk Lagoon, Northeast Harbor, Karluk
40	West Forelands	89	Halibut Bay, Middle Cape, Sturgeon Head
41	East Forelands, Kenai, Nikiski	90	Ayakulik, Bumble Bay, Gurney Bay
42	Kalifornsky, Kasilof River, Kenai River	91	Low Cape, Sukhoi Bay
43	Clam Gulch, Kasilof	92	Aiaktalik, Alitak Bay, Cape Alitak
44	Deep Creek, Ninilchik, Ninilchik River	93	Sitkinak Island
45	Cape Starichkof, Happy Valley	94	Tugidak Island
46	Anchor Point, Anchor River	95	Chirikof Island
47	Seldovia	96	Semidi Islands
48	Nanwalek, Port Graham	97	Sutwik Island
49	Elizabeth Island, Port Chatham, Koyuktolik Bay	—	—

Table A.1-9
Assumptions about How Launch Areas are Serviced by Pipelines for the
Oil Spill Trajectory Analysis

Launch Areas	Serviced by Pipeline(s)
LA1	P1
LA2	P2
LA3	P4 to P3 to P2
LA4	P3 to P2
LA5	P3 to P2
LA6	P6 to P5 to P3 to P2
LA7	P5 to P3 to P2

Key:
LA = Launch Area
P = Pipeline

Table A.1-10
Estimated Percent Chance of One or More Platform, Pipeline, and Total Platform and Pipeline Spills for Alternatives for Lease Sales 191 and 199

Alternative	Percent Chance of One or More Platform Spills	Percent Chance of One or More Pipeline Spills	Percent Chance of One or More Spills Total
I – Proposed Action	2	17	19
II – No Sale	0	0	0
III – Lower Kenai Peninsula Deferral	2	16	17
IV – Barren Islands Deferral	2	16	17

Table A.1-11
Overall Small Spill Size Characteristics on the Outer Continental Shelf

Spill Size in Barrels	Number of Spills	Platform Versus Pipeline	Spill Rate	Average Spill Size (Barrels)	Median Spill Size (Barrels)
0 to 1.0	19,506	—	3,357.31	0.07	—
1.1 to 9.9	434	326/108	74.70	3.2	2.8
10 to 49.9	94	66/28	16.18	19.1	17.8
50.0 to 499.9	37	28/9	6.37	123	87
500 to 999.9	3	2/1	0.32	681	643

Key:

— means data are unavailable

Source:

Anderson and LaBelle (2000).

Table A.1-12
Assumed Number and Size of Small Spills

Spill Size in Barrels	Spill Rate	Mean Spill Number	Average Spill Size (Barrels)
0 to 1.0	3,357.31	470	0.07
1.1 to 9.9	74.70	11	3.2
10 to 49.9	16.18	2	19.1
50.0 to 499.9	6.37	1	123
500 to 999.9	0.32	1	681

Source:

USDOJ, MMS, Alaska OCS Region (2002).

APPENDIX A-1

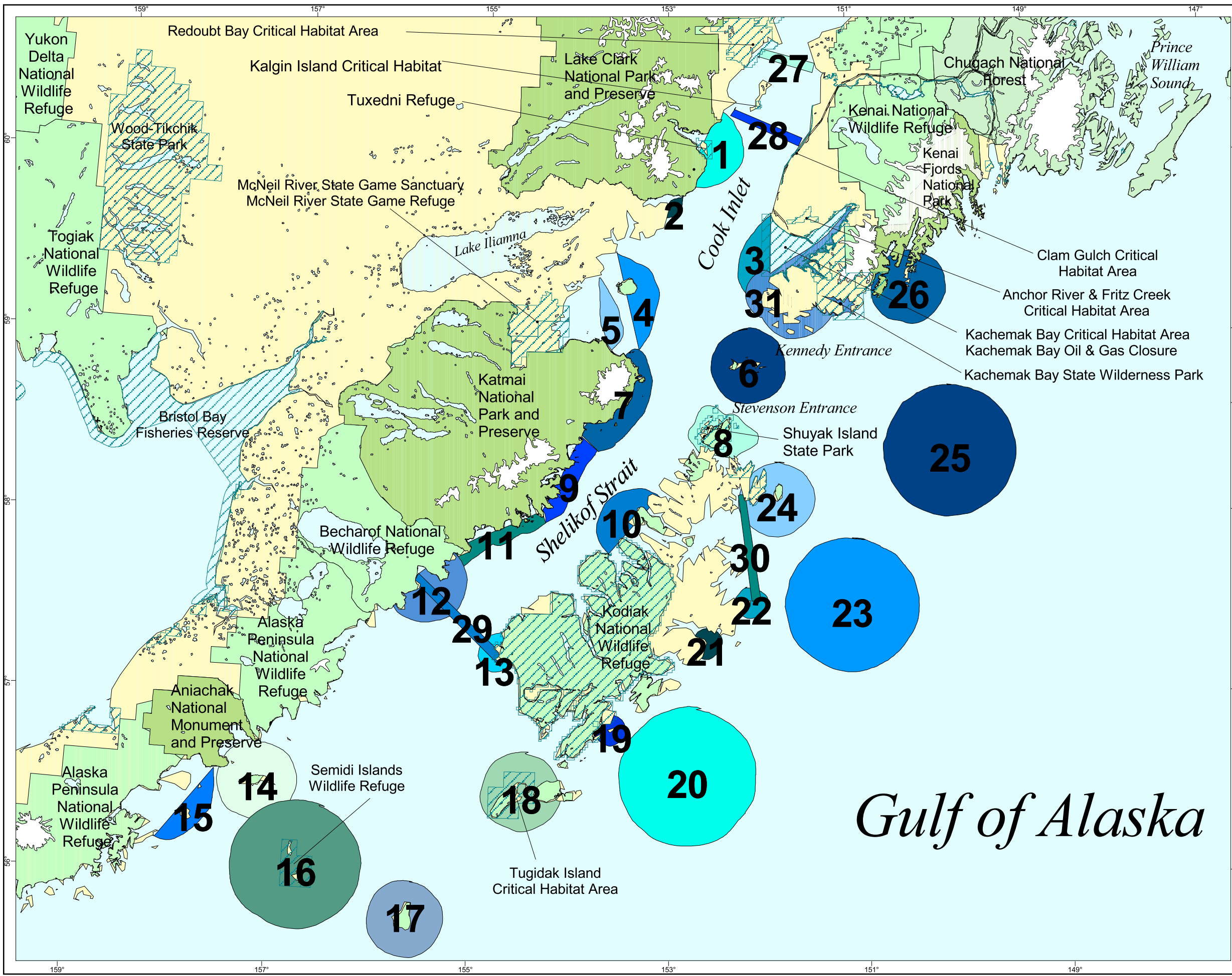
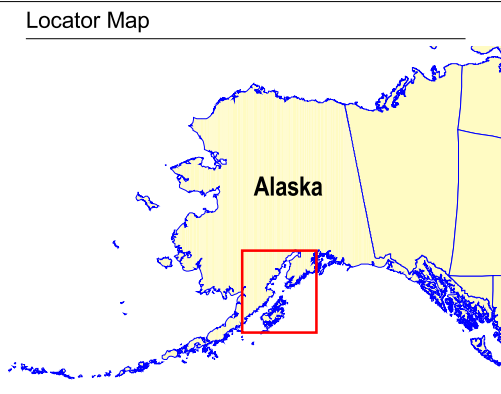
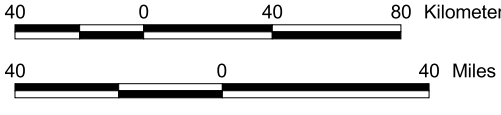


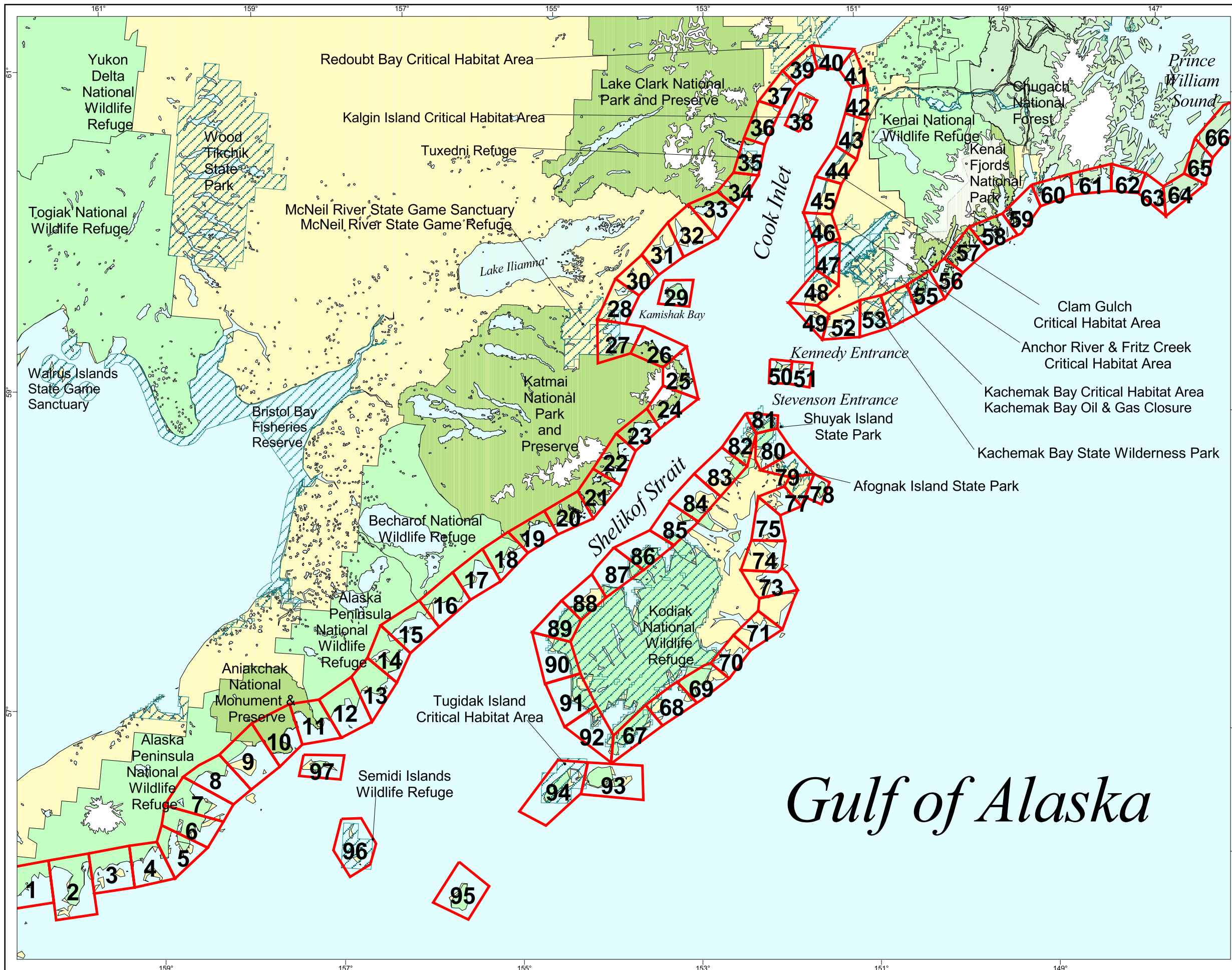
MAPS

Map A-2 Environmental Resource Areas Used in the Oil-Spill- Trajectory Model

- ### Legend
- Critical Habitat, State Refuges and Parks
 - Glaciers
 - Lakes
 - Highways
 - National Wildlife Refuges
 - National Parks
 - National Forest

- ### Environmental Resource Areas
- 1 Tuxedni Bay
 - 2 Chinitna Bay
 - 3 Outer Kachemak Bay
 - 4 Outer Kamishak Bay
 - 5 Inner Kamishak Bay
 - 6 Barren Islands
 - 7 Cape Douglas
 - 8 Shuyak Island
 - 9 Hallo/Kukak Bays
 - 10 Kupreanof Strait
 - 11 Katmai Bay
 - 12 Puale Bay
 - 13 Middle Cape
 - 14 Sutwik Island
 - 15 Bay
 - 16 Semidi Islands
 - 17 Chirikof Island
 - 18 Trinity Islands
 - 19 Twoheaded Island
 - 20 South Albatross Bank
 - 21 Ugak Bay
 - 22 Cape Chiniak
 - 23 N. Albatross Bank
 - 24 Marmot Island
 - 25 Portlock Bank
 - 26 Pye Islands
 - 27 Forelands
 - 28 South Kalgin Island
 - 29 South Shelikof Strait
 - 30 Marmot/Chiniak Bay
 - 31 Kachemak Bay/Outer Peninsula

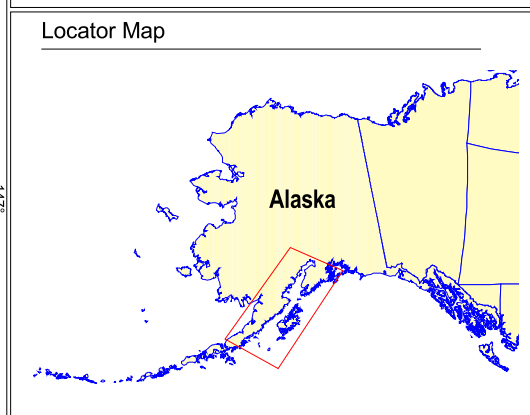
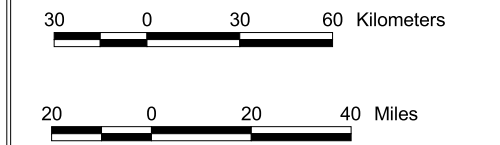




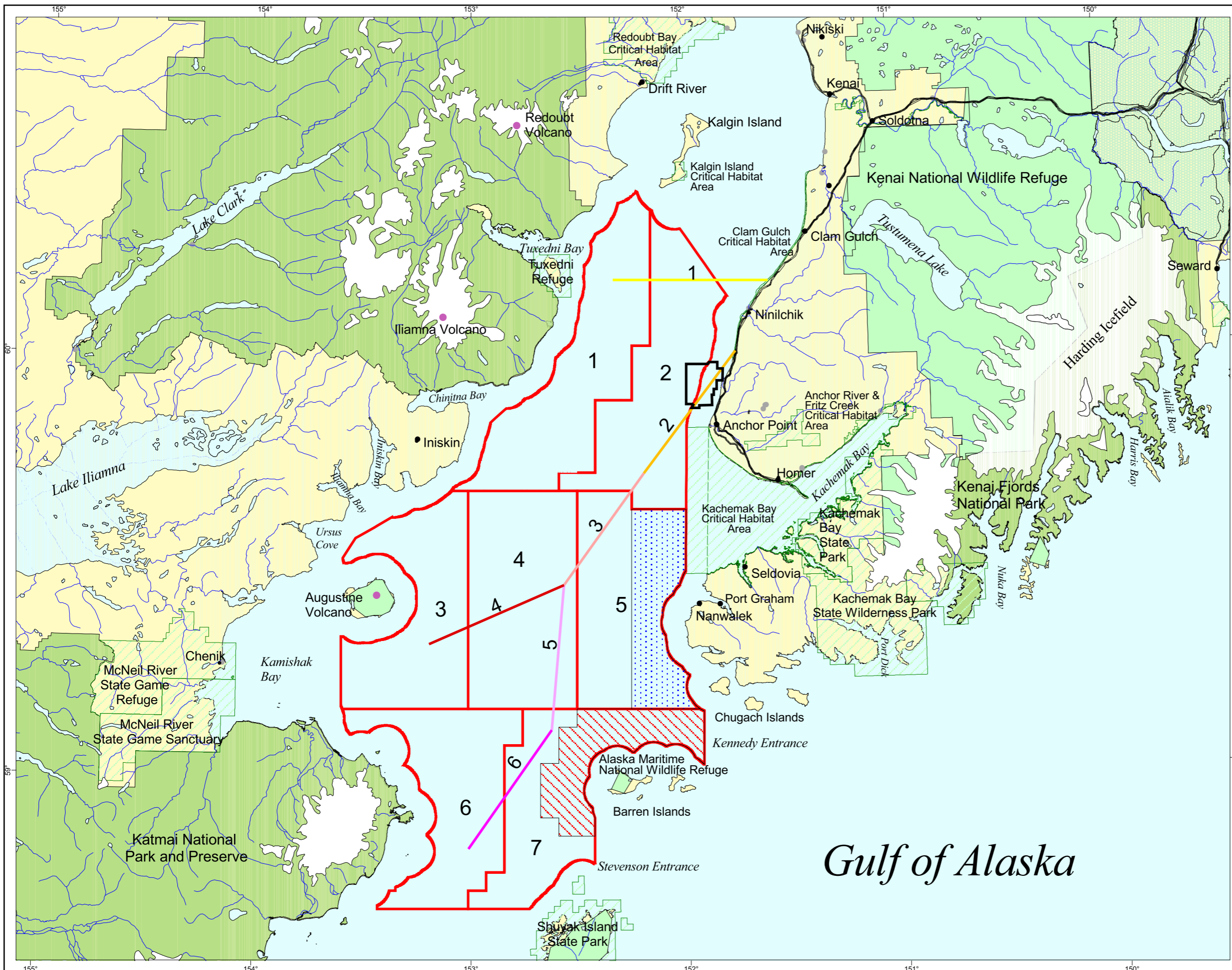
Map A-3
Land Segments
Used in the Oil-Spill-
Trajectory Analysis

Legend

- Highways
- Glaciers
- Land Segments
- Chugach National Forest
- National Wildlife Refuges
- National Parks
- Critical Habitat, State Parks and Refuges

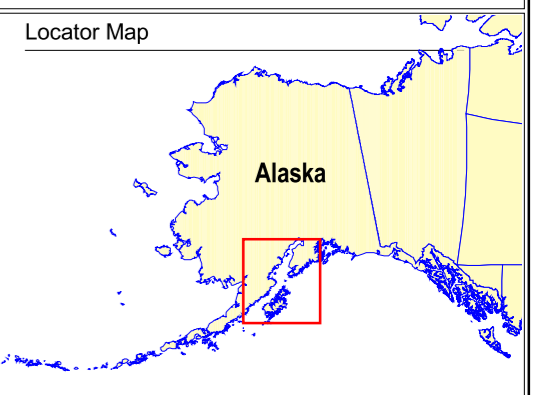
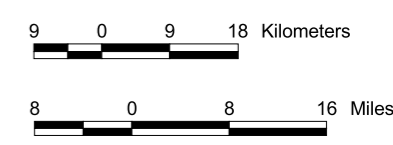


Map A-4
Launch Areas and Pipelines
Used in the Cook Inlet
Multisale Oil-Spill-
Trajectory Analysis



Legend

- Critical Habitat, State Parks and Refuges
 - Cosmopolitan Unit
 - Lower Kenai Peninsula Deferral
 - Barren Islands Deferral
- Hypothetical Pipelines**
- 1
 - 2
 - 3
 - 4
 - 5
 - 6
- Launch Areas
 - Roads
 - Highways
 - Lakes
 - Rivers
 - Chugach National Forest
 - Volcanoes
 - Glaciers
 - Towns and Villages
 - National Wildlife Refuges
 - National Parks
 - Alaska



Gulf of Alaska

APPENDIX A-2

SUPPORTING TABLES FOR APPENDIX A OIL-SPILL-RISK ANALYSIS

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A.2-6	Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 30 Days-Cook Inlet Lease Sales 191 and 199.
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A.2-8	Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 10 Days-Cook Inlet Lease Sales 191 and 199.
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A.2-11	Summer 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-Cook Inlet Lease Sales 191 and 199.
A.2-12	Summer 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-Cook Inlet Lease Sales 191 and 199.
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A.2-15	Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 30 Days, Cook Inlet Lease Sales 191 and 199.
A.2-16	Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 3 Days, Cook Inlet Lease Sales 191 and 199.
A.2-17	Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 10 Days, Cook Inlet Lease Sales 191 and 199.

- A.2-18 Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 30 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-19 Winter 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, Cook Inlet Lease Sales 191 and 199.
- A.2-20 Winter 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, Cook Inlet Lease Sales 191 and 199.
- A.2-21 Winter 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, Cook Inlet Lease Sales 191 and 199.
- A.2-22 Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 3 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-23 Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 10 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-24 Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 30 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-25 Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 3 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-26 Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 10 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-27 Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 30 Days, Cook Inlet Lease Sales 191 and 199.
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- A.2-29 Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Group Land Segment within 10 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-30 Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Group Land Segment within 30 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-31 Annual Combined Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Occur and Contact Certain Environmental Resource Areas within 3, 10, or 30 Days, Cook Inlet Lease Sales 191 and 199.
- A.2-32 Annual Combined Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Occur and Contact Certain Land Segment within 3, 10, or 30 Days, Cook Inlet Lease Sales 191 and 199.
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Table A.2-1

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 – Cook Inlet Lease Sales 191 and 199

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	65	49	64	41	29	55	38	64	48	30	32	42	43
1	Tuxedni Bay	50	30	—	—	1	—	—	65	11	2	—	—	—
2	Chinitna Bay	16	9	—	1	1	—	—	6	8	2	—	—	—
3	Outer Kachemak Bay	3	18	—	4	39	—	2	1	29	19	5	3	—
4	Outer Kamishak Bay	13	13	78	45	24	10	3	2	13	33	28	64	2
5	Inner Kamishak Bay	2	3	37	16	8	6	1	—	2	11	11	29	1
6	Barren Islands	—	—	1	2	14	3	42	—	—	1	5	1	9
7	Cape Douglas	1	—	10	15	12	56	28	—	—	4	26	11	44
8	Shuyak Island	—	—	1	1	1	5	11	—	—	—	2	1	7
9	Hallo/Kukak Bays	—	—	1	1	1	16	12	—	—	—	2	1	17
10	Kupreanof Strait	—	—	—	—	—	2	2	—	—	—	1	—	2
11	Katmai Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
12	Puale Bay	—	—	—	—	—	1	1	—	—	—	—	—	—
13	Middle Cape	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Sutwik Island	—	—	—	—	—	—	—	—	—	—	—	—	—
15	Chignik Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
16	Semidi Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Marmot Island	—	—	—	—	—	—	—	—	—	—	—	—	—
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	—	—	—	—	—	—	—	—	—	—	—	—	—
28	S. Kalgin	8	10	—	—	—	—	—	27	1	—	—	—	—
29	S. Shelikof Strait	—	—	—	—	—	—	1	—	—	—	—	—	—
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	1	2	—	2	18	—	2	—	2	5	2	1	—

Key:

** = Greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-2

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 – Cook Inlet Lease Sales 191 and 199

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	95	93	93	89	86	91	86	97	93	88	86	89	88
1	Tuxedni Bay	51	34	—	2	3	—	—	69	15	6	1	1	—
2	Chinitna Bay	18	13	1	2	3	—	—	8	13	5	1	1	—
3	Outer Kachemak Bay	5	20	2	7	41	1	4	3	31	22	9	6	1
4	Outer Kamishak Bay	19	24	80	54	40	11	8	7	27	49	38	71	4
5	Inner Kamishak Bay	5	8	41	23	18	7	4	2	8	21	19	37	2
6	Barren Islands	1	1	2	4	15	5	44	—	1	2	7	3	13
7	Cape Douglas	3	4	16	24	23	63	40	2	4	11	39	20	56
8	Shuyak Island	1	1	3	4	3	9	15	—	1	2	5	4	12
9	Hallo/Kukak Bays	1	1	3	5	6	24	22	—	1	3	10	5	28
10	Kupreanof Strait	—	—	1	2	2	5	5	—	—	1	3	2	6
11	Katmai Bay	—	—	1	1	1	6	6	—	—	1	2	1	6
12	Puale Bay	—	—	1	2	2	6	8	—	—	1	3	2	7
13	Middle Cape	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Sutwik Island	—	—	—	—	—	—	—	—	—	—	—	—	—
15	Chignik Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
16	Semidi Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Marmot Island	—	—	—	—	—	—	1	—	—	—	—	—	1
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	—	—	—	—	—	—	—	1	—	—	—	—	—
28	S. Kalgin	9	13	—	1	1	—	—	29	4	2	1	—	—
29	S. Shelikof Strait	—	—	1	2	2	6	8	—	—	1	3	2	7
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	2	3	1	3	20	—	4	—	3	7	4	3	1

Key:

** = Greater than 99.5%
 — = less than 0.5%

ID = identification
 LA = Launch Area

P = Pipeline

Table A.2-3

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 – Cook Inlet Lease Sales 191 and 199

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	**	**	**	**	**	99	99	**	**	**	**	**	99
1	Tuxedni Bay	51	34	1	2	4	—	1	69	15	6	2	2	—
2	Chinitna Bay	19	13	1	3	4	—	1	9	13	6	2	2	—
3	Outer Kachemak Bay	5	20	2	7	42	1	5	3	31	23	9	7	2
4	Outer Kamishak Bay	20	25	80	55	41	11	8	8	28	51	40	72	4
5	Inner Kamishak Bay	6	8	41	24	19	8	4	3	9	22	20	38	2
6	Barren Islands	1	1	2	4	16	5	44	—	1	3	8	4	13
7	Cape Douglas	3	5	17	26	25	64	42	2	4	13	41	22	57
8	Shuyak Island	1	1	4	4	3	9	15	—	1	2	6	4	12
9	Hallo/Kukak Bays	1	1	4	7	7	25	24	1	1	3	11	6	30
10	Kupreanof Strait	1	1	2	3	2	6	6	—	1	2	4	2	6
11	Katmai Bay	1	1	1	2	2	7	8	—	—	1	3	2	7
12	Puale Bay	1	1	1	2	2	7	9	—	1	1	4	2	8
13	Middle Cape	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Sutwik Island	—	—	—	—	—	1	1	—	—	—	—	—	1
15	Chignik Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
16	Semidi Islands	—	—	—	—	—	1	1	—	—	—	—	—	1
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Marmot Island	—	—	—	—	—	—	1	—	—	—	—	—	1
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	—	1	—	—	—	—	—	1	—	—	—	—	—
28	S. Kalgin	10	13	—	1	2	—	—	29	4	3	1	1	—
29	S. Shelikof Strait	1	1	1	3	3	7	9	—	1	1	4	2	8
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	2	3	1	4	20	1	4	1	3	7	4	3	1

Key:

** = Greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-4

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 3 Days – Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
21	Kaflia Bay, Kukak Bay, Kuliak Bay, Missak Bay	—	—	—	—	—	3	3	—	—	—	—	—	4
22	Devils Cove, Hallo Bay	—	—	—	—	—	5	3	—	—	—	1	—	5
23	Cape Chiniak, Swikshak Bay	—	—	—	—	—	4	3	—	—	—	—	—	4
24	Fourpeaked Glacier	—	—	1	2	2	15	8	—	—	—	4	1	14
25	Spotted Glacier, Sukoi Bay	—	—	5	8	6	14	5	—	—	2	12	6	6
26	Douglas River	—	—	12	6	3	4	—	—	—	3	5	11	—
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	—	—	9	3	1	1	—	—	—	1	1	6	—
28	Amakdedulia Cove, Bruin Bay, Chenik Head	—	—	6	2	—	—	—	—	—	1	1	4	—
29	Augustine Island	3	3	14	9	3	—	—	—	4	7	3	9	—
30	Rocky Cove, Tignagvik Point	3	2	7	2	—	—	—	—	1	1	—	1	—
31	Iliamna Bay, Iniskin Bay, Ursus Cove	2	1	6	3	1	—	—	—	1	2	—	1	—
32	Chinitna Point, Dry Bay	7	3	3	3	1	—	—	1	4	3	—	1	—
33	Chinitna Bay	15	8	—	1	1	—	—	5	8	2	—	—	—
34	Iliamna Point	13	8	—	—	—	—	—	15	4	1	—	—	—
35	Chisik Island, Tuxedni Bay	12	6	—	—	—	—	—	18	1	—	—	—	—
36	Redoubt Point	5	3	—	—	—	—	—	6	—	—	—	—	—
38	Kalgin Island	1	1	—	—	—	—	—	3	—	—	—	—	—
43	Clam Gulch, Kasilof	—	1	—	—	—	—	—	2	—	—	—	—	—
44	Deep Creek, Niniilchik, Niniilchik River	—	1	—	—	—	—	—	9	—	—	—	—	—
45	Cape Starichkof, Happy Valley	1	5	—	—	—	—	—	5	15	1	—	—	—
46	Anchor Point, Anchor River	—	3	—	—	2	—	—	—	6	2	—	—	—
47	Seldovia	—	1	—	—	2	—	—	—	2	2	—	—	—
48	Nanwalek, Port Graham	—	1	—	—	3	—	—	—	1	2	1	—	—
49	Elizabeth Island, Port Chatham, Koyuktolik Bay	—	—	—	—	2	—	1	—	—	—	—	—	—
50	Barren Islands, Ushagat Island	—	—	—	—	1	1	5	—	—	—	1	—	2
51	Amatuli Cove, East and West Amatuli Island	—	—	—	—	—	—	1	—	—	—	—	—	—
81	Shuyak Island	—	—	—	—	—	1	2	—	—	—	—	—	1
82	Bluefox Bay, Shuyak Island, Shuyak Strait	—	—	1	—	—	3	3	—	—	—	1	1	3
83	Foul Bay, Paramanof Bay	—	—	—	—	—	1	1	—	—	—	—	—	1

Key:

** = Greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-5

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 10 Days – Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
13	Cape Providence, Chiginagak Bay													
14	Agripina Bay, Ashiik Island, Cape Kilokak	—	—	—	—	—	—	1	—	—	—	—	—	1
15	Cape Kayakliut, Wide Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
16	Cape Kanatak, Cape Unalishagvak, Portage Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
17	Cape Aklek, Puale Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
18	Alinchak Bay, Cape Kekumoi, Bear Bay	—	—	—	—	—	1	2	—	—	—	1	—	1
19	Cape Kubugakli, Kashvik Bay, Katmai Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
20	Amalik, Dakavak and Kinak Bay, Takli Island	—	—	—	—	—	2	2	—	—	—	1	—	2
21	Kafliia Bay, Kukak Bay, Kuliak Bay, Missak Bay	—	—	1	1	2	7	7	—	—	1	3	1	9
22	Devils Cove, Hallo Bay	—	—	1	2	2	9	8	—	—	1	4	2	10
23	Cape Chiniak, Swikshak Bay	—	—	1	1	1	7	6	—	—	1	2	1	7
24	Fourpeaked Glacier	—	1	2	4	4	18	12	—	—	2	8	4	18
25	Spotted Glacier, Sukoi Bay	1	2	8	11	11	16	8	1	2	5	17	9	9
26	Douglas River	2	2	15	9	8	5	1	1	2	8	8	15	1
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	1	2	12	7	6	1	1	—	3	7	5	12	—
28	Amakdedulia Cove, Bruin Bay, Chenik Head	1	2	8	5	4	1	1	—	2	5	4	8	—
29	Augustine Island	5	7	16	13	9	1	1	2	9	13	7	13	1
30	Rocky Cove, Tignagvik Point	5	5	9	5	3	—	—	2	6	5	2	3	—
31	Iliamna Bay, Iniskin Bay, Ursus Cove	4	4	7	5	4	—	—	1	5	6	2	2	—
32	Chinitna Point, Dry Bay	9	7	5	6	4	—	—	2	7	7	2	3	—
33	Chinitna Bay	18	13	1	2	3	—	—	8	13	5	1	1	—
34	Iliamna Point	15	11	—	1	2	—	—	18	7	3	1	1	—
35	Chisik Island, Tuxedni Bay	14	9	—	—	—	—	—	22	3	1	—	—	—
36	Redoubt Point	6	5	—	—	—	—	—	9	2	—	—	—	—
37	Drift River, Drift River Terminal								1	—	—	—	—	—
38	Kalgin Island	2	3	—	—	—	—	—	6	1	1	—	—	—
42	Kalifornsky, Kasilof River, Kenai River	—	—	—	—	—	—	—	1	—	—	—	—	—
43	Clam Gulch, Kasilof	1	1	—	—	—	—	—	3	1	—	—	—	—
44	Deep Creek, Ninilchik, Ninilchik River	1	2	—	—	—	—	—	10	1	—	—	—	—
45	Cape Starichkof, Happy Valley	2	6	—	—	1	—	—	6	16	2	—	—	—
46	Anchor Point, Anchor River	1	3	—	1	3	—	—	1	7	3	1	1	—
47	Seldovia	1	2	—	1	4	—	1	—	3	4	1	1	—
48	Nanwalek, Port Graham	1	1	—	1	4	—	1	—	1	3	1	1	—
49	Elizabeth, Island, Port Chatham, Koyuktolik Bay	—	—	—	—	2	—	1	—	—	—	1	—	—
50	Barren Islands, Ushagat Island	—	—	1	1	2	2	6	—	—	1	2	1	4
51	Amatuli Cove, East and West Amatuli Island	—	—	—	—	—	—	2	—	—	—	—	—	1
81	Shuyak Island	—	—	1	1	1	2	4	—	—	—	2	1	3
82	Bluefox Bay, Shuyak Island, Shuyak Strait	—	—	2	2	1	6	6	—	—	1	3	2	6
83	Foul Bay, Paramanof Bay	—	—	1	1	1	3	3	—	—	1	1	1	3
84	Malina Bay, Raspberry Island, Raspberry Strait	—	—	—	1	1	1	1	—	—	—	1	—	1
85	Kupreanof Strait, Viekada Bay	—	—	—	—	—	1	1	—	—	—	1	—	1
86	Uganik Bay Uganik Strait, Cape Ugat	—	—	—	1	—	2	1	—	—	—	1	1	2
87	Cape Kuliuk, Spiridon Bay, Uyak Bay	—	—	—	—	—	1	1	—	—	—	1	—	1
88	Karluk Lagoon, Northeast Harbor, Karluk	—	—	—	—	—	—	1	—	—	—	—	—	1

Key:

** = Greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-6

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 30 Days – Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
13	Cape Providence, Chiginagak Bay	—	—	—	—	—	—	1						
14	Agripina Bay, Ashiik Island, Cape Kilokak	—	—	—	—	—	1	1	—	—	—	—	—	1
15	Cape Kayakliut, Wide Bay	—	—	—	—	—	1	2	—	—	—	1	—	1
16	Cape Kanatak, Cape Unalishagvak, Portage Bay	—	—	—	1	—	1	2	—	—	—	1	—	1
17	Cape Aklek, Puale Bay	—	—	—	—	—	1	1	—	—	—	1	—	1
18	Alinchak Bay, Cape Kekurnoi, Bear Bay	—	—	—	1	1	2	2	—	—	—	1	—	2
19	Cape Kubugakli, Kashvik Bay, Katmai Bay	—	—	—	—	1	2	2	—	—	—	1	—	2
20	Amalik, Dakavak and Kinak Bay, Takli Island	—	—	—	1	1	2	2	—	—	—	1	—	2
21	Kafliia Bay, Kukak Bay, Kuliak Bay, Missak Bay	—	—	1	2	2	7	7	—	1	1	3	2	10
22	Devils Cove, Hallo Bay	—	1	1	2	2	9	9	—	—	1	4	2	11
23	Cape Chiniak, Swikshak Bay	—	—	1	2	2	8	7	—	—	1	3	2	8
24	Fourpeaked Glacier	1	1	3	5	5	19	13	—	1	2	9	4	19
25	Spotted Glacier, Sukoi Bay	1	2	8	12	11	16	8	1	2	6	17	10	9
26	Douglas River	2	3	15	10	8	5	2	1	3	8	9	16	1
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	1	2	12	7	6	1	1	1	3	8	6	12	1
28	Amakdedulia Cove, Bruin Bay, Chenik Head	1	2	8	6	4	1	1	1	2	5	5	8	—
29	Augustine Island	6	8	17	14	10	1	2	2	9	14	8	14	1
30	Rocky Cove, Tignagvik Point	5	5	9	5	4	—	1	2	6	5	3	4	—
31	Iliamna Bay, Iniskin Bay, Ursus Cove	4	5	7	5	4	—	1	1	5	7	2	3	—
32	Chinitna Point, Dry Bay	9	7	5	6	5	—	1	2	8	8	3	4	—
33	Chinitna Bay	18	13	1	3	4	—	1	8	13	6	2	2	—
34	Iliamna Point	15	12	—	1	2	—	—	18	8	3	1	1	—
35	Chisik Island, Tuxedni Bay,	14	10	—	—	1	—	—	22	3	1	—	—	—
36	Redoubt Point	6	5	—	—	—	—	—	9	2	1	—	—	—
37	Drift River, Drift River Terminal								1	—	—	—	—	—
38	Kalgin Island	2	3	—	—	1	—	—	6	1	1	—	—	—
42	Kalifornsky, Kasilof River, Kenai River								1	—	—	—	—	—
43	Clam Gulch, Kasilof,	1	2	—	—	—	—	—	3	1	1	—	—	—
44	Deep Creek, Ninilchik, Ninilchik River	1	2	—	—	—	—	—	10	1	—	—	—	—
45	Cape Starichkof, Happy Valley	2	6	—	1	1	—	—	6	16	2	1	—	—
46	Anchor Point, Anchor River	1	3	—	1	3	—	—	1	7	4	1	1	—
47	Seldovia	1	2	—	1	4	—	1	—	3	4	2	1	—
48	Nanwalek, Port Graham	1	1	—	1	4	—	1	—	1	3	1	1	—
49	Elizabeth Island, Port Chatham, Koyuktolik Bay	—	—	—	—	2	—	1	—	—	—	1	—	—
50	Barren Islands, Ushagat Island	—	—	1	1	2	2	7	—	—	1	3	1	4
51	Amatuli Cove, East and West Amatuli Island	—	—	—	—	—	—	2	—	—	—	—	—	1
81	Shuyak Island	—	—	1	1	1	2	4	—	—	1	2	1	3
82	Bluefox Bay, Shuyak Island, Shuyak Strait	—	1	2	2	2	6	6	—	1	1	3	2	6
83	Foul Bay, Paramanof Bay	—	—	1	1	1	3	3	—	—	1	1	1	3
84	Malina Bay, Raspberry Island, Raspberry Strait	—	—	—	1	1	1	1	—	—	—	1	1	2
85	Kupreanof Strait, Viekoda Bay	—	—	—	1	1	1	1	—	—	—	1	1	1
86	Uganik Bay Uganik Strait, Cape Ugat	—	—	1	1	1	2	1	—	—	—	1	1	2
87	Cape Kuliuk, Spiridon Bay, Uyak Bay	—	—	—	1	—	1	1	—	—	—	1	1	1
88	Karluk Lagoon, Northeast Harbor, Karluk	—	—	—	—	—	1	1	—	—	—	—	—	1

Key:

** = Greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-7

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 3 Days – Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-8

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 10 Days – Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-9

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 30 Days – Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-10

Summer 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 – Cook Inlet Lease Sales 191 and 199

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	59	41	52	29	19	45	28	60	40	19	19	28	32
1	Tuxedni Bay	51	34	—	—	1	—	—	64	14	2	—	—	—
2	Chinitna Bay	15	7	—	1	—	—	—	2	7	2	—	—	—
3	Outer Kachemak Bay	2	18	—	4	42	—	3	1	33	21	6	3	—
4	Outer Kamishak Bay	6	5	78	42	18	12	3	—	5	24	28	62	2
5	Inner Kamishak Bay	1	1	33	12	4	7	1	—	1	6	9	24	—
6	Barren Islands	—	—	—	1	14	3	46	—	—	—	4	1	11
7	Cape Douglas	—	—	7	7	6	52	23	—	—	—	16	3	39
8	Shuyak Island	—	—	—	—	—	5	11	—	—	—	1	—	7
9	Hallo/Kukak Bays	—	—	—	—	—	10	5	—	—	—	—	—	9
10	Kupreanof Strait	—	—	—	—	—	1	—	—	—	—	—	—	—
11	Katmai Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
12	Puale Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
13	Middle Cape	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Sutwik Island	—	—	—	—	—	—	—	—	—	—	—	—	—
15	Chignik Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
16	Semidi Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Marmot Island	—	—	—	—	—	—	—	—	—	—	—	—	—
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	—	—	—	—	—	—	—	—	—	—	—	—	—
28	S. Kalgin	10	14	—	—	—	—	—	35	2	—	—	—	—
29	S. Shelikof Strait	—	—	—	—	—	—	—	—	—	—	—	—	—
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	—	1	—	2	20	—	3	—	1	4	3	2	—

Key:

** = Greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

**Table A.2-11
Summer 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 – Cook Inlet Lease Sales 191 and 199**

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	93	91	89	83	80	86	79	96	90	83	79	83	82
1	Tuxedni Bay	53	41	1	3	4	—	—	70	20	8	2	2	—
2	Chinitna Bay	18	12	1	3	3	—	—	6	13	6	1	2	—
3	Outer Kachemak Bay	5	21	2	8	45	1	5	2	35	25	11	7	2
4	Outer Kamishak Bay	14	17	81	56	41	13	9	3	20	46	44	75	4
5	Inner Kamishak Bay	3	5	39	23	17	8	4	1	6	18	21	37	2
6	Barren Islands	1	—	2	4	16	7	49	—	—	2	8	3	17
7	Cape Douglas	1	1	14	18	17	62	40	—	1	6	33	14	55
8	Shuyak Island	—	—	3	3	2	11	17	—	—	1	6	3	14
9	Hallo/Kukak Bays	—	—	2	3	3	21	19	—	—	1	7	2	24
10	Kupreanof Strait	—	—	1	1	1	4	3	—	—	—	2	1	4
11	Katmai Bay	—	—	—	1	—	5	5	—	—	—	1	—	5
12	Puale Bay	—	—	—	—	—	3	4	—	—	—	1	—	3
13	Middle Cape	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Sutwik Island	—	—	—	—	—	—	—	—	—	—	—	—	—
15	Chignik Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
16	Semidi Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Marmot Island	—	—	—	—	—	—	1	—	—	—	—	—	1
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	1	1	—	—	—	—	—	1	—	—	—	—	—
28	S. Kalgin	13	18	—	1	2	—	—	38	6	3	1	1	—
29	S. Shelikof Strait	—	—	—	—	—	3	4	—	—	—	1	—	3
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	2	2	1	4	23	1	5	1	3	7	5	4	1

Key:

** = Greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-12

Summer 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 – Cook Inlet Lease Sales 191 and 199

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	**	**	**	**	99	**	99	**	**	**	**	**	99
1	Tuxedni Bay	53	41	1	4	5	—	1	70	21	9	3	3	1
2	Chinitna Bay	19	13	1	4	4	—	1	6	14	7	2	2	—
3	Outer Kachemak Bay	5	21	3	9	46	2	6	2	35	26	12	9	3
4	Outer Kamishak Bay	15	18	81	58	44	14	11	3	21	49	45	75	5
5	Inner Kamishak Bay	4	6	40	24	19	8	5	1	7	20	22	38	2
6	Barren Islands	1	1	3	4	16	8	50	—	1	3	8	4	17
7	Cape Douglas	2	2	16	20	20	63	42	1	2	8	36	17	57
8	Shuyak Island	1	1	4	4	3	12	17	—	—	2	7	4	14
9	Hallo/Kukak Bays	1	1	4	5	5	23	22	—	1	2	9	4	26
10	Kupreanof Strait	—	—	1	2	1	5	4	—	—	1	2	2	5
11	Katmai Bay	—	—	1	2	2	7	7	—	—	1	3	1	8
12	Puale Bay	—	—	1	1	1	5	6	—	—	—	2	1	6
13	Middle Cape	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Sutwik Island	—	—	—	—	—	—	—	—	—	—	—	—	—
15	Chignik Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
16	Semidi Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	1	—	—	—	—	—	1
24	Marmot Island	—	—	—	—	—	—	1	—	—	—	—	—	1
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	1	1	—	—	—	—	—	1	—	—	—	—	—
28	S. Kalgin	14	19	1	2	3	—	—	39	7	4	2	2	—
29	S. Shelikof Strait	—	—	—	1	1	4	5	—	—	—	2	—	5
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	2	3	2	4	23	1	5	1	3	8	6	4	2

Key:

** = Greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-13

Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 3 Days – Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
21	Kafliia Bay, Kukak Bay, Kuliak Bay, Missak Bay		—	—	—	—	2	1	—	—	—	—	—	2
22	Devils Cove, Hallo Bay		—	—	—	—	3	1	—	—	—	—	—	2
23	Cape Chiniak, Swikshak Bay		—	—	—	—	3	2	—	—	—	—	—	2
24	Fourpeaked Glacier		—	—	—	—	13	6	—	—	—	1	—	12
25	Spotted Glacier, Sukoi Bay		—	3	4	3	15	5	—	—	—	9	1	7
26	Douglas River		—	8	3	1	4	—	—	—	1	3	6	—
27	Akumwarvik Bay, McNeil Cove, Nordyke Island		—	6	1	—	1	—	—	—	—	—	4	—
28	Amakdedulia Cove, Bruin Bay, Chenik Head		—	4	1	—	—	—	—	—	—	—	3	—
29	Augustine Island		1	13	8	3	—	—	—	1	5	3	10	—
30	Rocky Cove, Tignagvik Point		—	5	2	—	—	—	—	—	1	—	1	—
31	Iliamna Bay, Iniskin Bay, Ursus Cove		1	7	3	—	—	—	—	1	2	—	1	—
32	Chinitna Point, Dry Bay		2	4	4	1	—	—	—	2	2	—	1	—
33	Chinitna Bay	13	6	—	1	—	—	—	2	6	1	—	—	—
34	Iliamna Point	12	7	—	—	—	—	—	11	4	1	—	—	—
35	Chisik Island, Tuxedni Bay,	13	7	—	—	—	—	—	19	1	—	—	—	—
36	Redoubt Point		3	—	—	—	—	—	7	—	—	—	—	—
38	Kalgin Island		2	—	—	—	—	—	4	—	—	—	—	—
43	Clam Gulch, Kasilof,		1	—	—	—	—	—	2	—	—	—	—	—
44	Deep Creek, Ninilchik, Ninilchik River		1	—	—	—	—	—	10	—	—	—	—	—
45	Cape Starichkof, Happy Valley		5	—	—	—	—	—	4	17	1	—	—	—
46	Anchor Point, Anchor River		3	—	—	2	—	—	—	7	2	—	—	—
47	Seldovia		1	—	—	3	—	—	—	2	2	—	—	—
48	Nanwalek, Port Graham		—	—	—	3	—	—	—	—	1	1	—	—
49	Elizabeth, Island, Port Chatham, Koyuktolik Bay		—	—	—	2	—	1	—	—	—	—	—	—
50	Barren Islands, Ushagat Island		—	—	—	—	1	5	—	—	—	1	—	2
51	Amatuli Cove, East and West Amatuli Island		—	—	—	—	—	1	—	—	—	—	—	—
81	Shuyak Island		—	—	—	—	1	2	—	—	—	—	—	1
82	Bluefox Bay, Shuyak Island, Shuyak Strait		—	—	—	—	2	2	—	—	—	—	—	2
83	Foul Bay, Paramanof Bay		—	—	—	—	1	1	—	—	—	—	—	1

Key:

** = Greater than 99.5%

— = less than 0.5%. Rows with all values less than 0.5% are not shown.

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-14

Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 10 Days, Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
18	Alinchak Bay, Cape Kekurnoi, Bear Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
19	Cape Kubugakli, Kashvik Bay, Katmai Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
20	Amalik, Dakavak and Kinak Bay, Takli Island	—	—	—	—	—	1	1	—	—	—	—	—	1
21	Kafliia Bay, Kukak Bay, Kuliak Bay, Missak Bay	—	—	1	1	1	5	5	—	—	—	1	—	7
22	Devils Cove, Hallo Bay	—	—	1	1	1	7	7	—	—	—	2	1	9
23	Cape Chiniak, Swikshak Bay	—	—	1	1	1	8	6	—	—	—	2	1	7
24	Fourpeaked Glacier	—	—	2	3	3	18	12	—	—	1	6	3	18
25	Spotted Glacier, Sukoi Bay	—	—	7	8	8	17	10	—	1	3	15	6	11
26	Douglas River	—	1	12	8	6	4	2	—	1	5	8	11	1
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	1	1	10	6	5	2	1	—	2	6	6	11	1
28	Amakdedulia Cove, Bruin Bay, Chenik Head	1	1	8	5	4	1	1	—	1	4	5	8	—
29	Augustine Island	4	5	17	15	10	1	2	1	6	13	9	17	1
30	Rocky Cove, Tignagvik Point	3	3	8	5	3	—	—	1	4	5	3	4	—
31	Iiamna Bay, Iniskin Bay, Ursus Cove	5	4	9	7	5	—	—	1	5	8	2	4	—
32	Chinitna Point, Dry Bay	10	6	7	8	5	—	1	1	8	9	3	5	—
33	Chinitna Bay	18	12	1	3	3	—	—	5	13	6	1	1	—
34	Iliamna Point	15	12	—	1	2	—	—	15	9	4	1	1	—
35	Chisik Island, Tuxedni Bay	16	12	—	—	1	—	—	26	4	1	—	—	—
36	Redoubt Point	8	7	—	—	—	—	—	12	2	1	—	—	—
37	Drift River, Drift River Terminal	1	1	—	—	—	—	—	1	—	—	—	—	—
38	Kalgin Island	3	5	—	—	—	—	—	8	1	1	—	—	—
39	Seal River, Big River	—	—	—	—	—	—	—	1	—	—	—	—	—
42	Kalifornsky, Kasilof River, Kenai River	—	—	—	—	—	—	—	1	—	—	—	—	—
43	Clam Gulch, Kasilof	1	2	—	—	—	—	—	5	1	—	—	—	—
44	Deep Creek, Ninilchik, Ninilchik River	1	3	—	—	—	—	—	12	1	—	—	—	—
45	Cape Starichkof, Happy Valley	2	6	—	—	1	—	—	5	18	2	—	—	—
46	Anchor Point, Anchor River	1	4	—	1	4	—	—	1	8	4	1	1	—
47	Seldovia	1	2	—	1	5	—	1	—	3	4	2	1	—
48	Nanwalek, Port Graham	1	1	—	1	4	—	1	—	1	3	1	1	—
49	Elizabeth, Island, Port Chatham, Koyuktolik Bay	—	—	—	1	3	—	2	—	—	—	1	1	—
50	Barren Islands, Ushagat Island	—	—	1	1	1	2	7	—	—	1	2	1	5
51	Amatuli Cove, East and West Amatuli Island	—	—	—	—	—	—	2	—	—	—	—	—	1
80	Andreon and Perenosa Bays, Big Fort Island	—	—	—	—	—	—	1	—	—	—	—	—	—
81	Shuyak Island	—	—	1	1	1	3	4	—	—	—	1	1	3
82	Bluefox Bay, Shuyak Island, Shuyak Strait	—	—	2	2	1	6	6	—	—	1	2	2	6
83	Foul Bay, Paramanof Bay	—	—	—	1	—	3	3	—	—	—	1	—	3
84	Malina Bay, Raspberry Island, Raspberry Strait	—	—	—	—	—	1	1	—	—	—	—	—	1
85	Kupreanof Strait, Viekoda Bay	—	—	—	—	—	1	—	—	—	—	—	—	—
86	Uganik Bay Uganik Strait, Cape Ugat	—	—	—	—	—	1	—	—	—	—	—	—	1
87	Cape Kuliuk, Spiridon Bay, Uyak Bay	—	—	—	—	—	1	—	—	—	—	—	—	—

Key:

- ** = greater than 99.5%
- = less than 0.5%. Rows with all values less than 0.5% are not shown.
- ID = identification
- LA = Launch Area
- P = Pipeline

Table A.2-15

Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 30 Days, Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
13	Cape Providence, Chiginagak Bay													
14	Agripina Bay, Ashiik Bay, Cape Kilokak	—	—	—	—	—	1	1	—	—	—	—	—	1
15	Cape Kayakliut, Wide Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
16	Cape Kanatak, Cape Unalishagvak, Portage Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
17	Cape Aklek, Puale Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
18	Alinchak Bay, Cape Kekurnoi, Bear Bay	—	—	—	—	—	1	2	—	—	—	1	—	1
19	Cape Kubugakli, Kashvik Bay, Katmai Bay	—	—	—	—	—	2	2	—	—	—	1	—	2
20	Amalik, Dakavak and Kinak Bay, Takli Island	—	—	—	1	1	2	2	—	—	—	1	—	3
21	Kafli Bay, Kukak Bay, Kuliak Bay, Missak Bay	—	—	1	1	1	6	6	—	—	1	2	1	8
22	Devils Cove, Hallo Bay	—	—	1	2	2	8	8	—	—	1	3	2	10
23	Cape Chiniak, Swikshak Bay	—	—	2	2	2	8	7	—	—	1	3	2	8
24	Fourpeaked Glacier	—	—	2	4	4	18	13	—	—	2	7	4	19
25	Spotted Glacier, Sukoi Bay	1	1	7	9	9	17	10	—	1	3	16	7	11
26	Douglas River	1	1	12	8	7	5	2	—	1	6	8	12	1
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	1	2	11	7	6	2	1	—	2	7	6	12	1
28	Amakdedulia Cove, Bruin Bay, Chenik Head	1	1	8	6	4	1	1	—	2	5	5	9	1
29	Augustine Island	4	6	17	16	12	2	2	1	7	15	10	18	1
30	Rocky Cove, Tignagvik Point	4	4	8	5	4	—	1	1	4	6	3	4	—
31	Iliamna Bay, Iniskin Bay, Ursus Cove	5	5	10	7	6	—	1	1	6	9	3	4	—
32	Chinitna Point, Dry Bay	10	7	8	9	6	—	1	2	9	10	4	6	—
33	Chinitna Bay	19	13	1	4	4	—	1	6	14	7	2	2	—
34	Iliamna Point	15	13	1	2	3	—	1	15	9	4	1	1	—
35	Chisik Island, Tuxedni Bay	16	12	—	1	1	—	—	27	4	2	—	—	—
36	Redoubt Point	9	7	—	—	1	—	—	13	3	1	—	—	—
37	Drift River, Drift River Terminal	1	1	—	—	—	—	—	1	—	—	—	—	—
38	Kalgin Island	3	5	—	1	1	—	—	9	2	1	1	—	—
39	Seal River, Big River								1	—	—	—	—	—
42	Kalifornsky, Kasilof River, Kenai River								1	—	—	—	—	—
43	Clam Gulch, Kasilof	1	2	—	1	1	—	—	5	1	1	—	1	—
44	Deep Creek, Nihilchik, Nihilchik River	1	3	—	—	—	—	—	12	1	1	—	—	—
45	Cape Starichkof, Happy Valley	2	6	—	1	1	—	—	5	18	2	1	—	—
46	Anchor Point, Anchor River	1	4	—	1	4	—	1	1	8	4	2	1	—
47	Seldovia	1	3	1	2	6	—	1	—	3	4	2	1	1
48	Nanwalek, Port Graham	1	1	1	1	4	—	1	—	1	3	2	1	—
49	Elizabeth Island, Port Chatham, Koyuktolik Bay	—	—	—	1	3	—	2	—	—	—	1	1	1
50	Barren Islands, Ushagat Island	—	—	1	1	2	3	8	—	—	1	3	1	5
51	Amatuli Cove, East and West Amatuli Island	—	—	—	—	—	—	2	—	—	—	—	—	1
79	Seal Bay, Tonki Bay	—	—	—	—	—	—	1	—	—	—	—	—	1
80	Andreon and Perenosa Bays, Big Fort Island	—	—	—	—	—	—	1	—	—	—	—	—	1
81	Shuyak Island	—	—	1	1	1	3	5	—	—	—	2	1	4
82	Bluefox Bay, Shuyak Island, Shuyak Strait	—	—	2	2	2	6	6	—	—	1	3	2	7
83	Foul Bay, Paramanof Bay	—	—	—	1	1	3	3	—	—	—	1	1	4
84	Malina Bay, Raspberry Island, Raspberry Strait	—	—	—	—	—	1	1	—	—	—	1	—	1
85	Kupreanof Strait, Viekode Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
86	Uganik Bay Uganik Strait, Cape Ugat	—	—	—	—	—	1	1	—	—	—	—	—	1
87	Cape Kuliuk, Spiridon Bay, Uyak Bay	—	—	—	—	—	1	—	—	—	—	—	—	—

Key:

** = greater than 99.5%

— = less than 0.5%. Rows with all values less than 0.5% are not shown.

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-16

Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 3 Days, Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-17

Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 10 Days, Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-18

Summer Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 30 Days, Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-19

Winter 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, Cook Inlet Lease Sales 191 and 199

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	71	57	75	53	39	65	48	68	56	41	45	56	53
1	Tuxedni Bay	49	25	—	—	—	—	—	66	8	1	—	—	—
2	Chinitna Bay	17	11	—	—	1	—	—	9	10	3	—	—	—
3	Outer Kachemak Bay	3	18	—	4	36	—	2	2	25	17	5	3	—
4	Outer Kamishak Bay	19	21	78	48	30	7	4	4	21	42	29	65	2
5	Inner Kamishak Bay	4	4	41	20	12	6	1	—	4	16	13	34	1
6	Barren Islands	—	—	1	2	14	2	38	—	—	1	5	2	7
7	Cape Douglas	1	1	13	23	19	60	33	—	1	7	37	19	50
8	Shuyak Island	—	—	2	2	1	5	11	—	—	1	2	2	7
9	Hallo/Kukak Bays	—	—	1	2	1	22	19	—	—	—	4	2	25
10	Kupreanof Strait	—	—	1	1	—	4	3	—	—	—	1	1	4
11	Katmai Bay	—	—	—	—	—	2	2	—	—	—	—	—	1
12	Puale Bay	—	—	—	—	—	1	2	—	—	—	—	—	1
13	Middle Cape	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Sutwik Island	—	—	—	—	—	—	—	—	—	—	—	—	—
15	Chignik Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
16	Semidi Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Marmot Island	—	—	—	—	—	—	—	—	—	—	—	—	—
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	—	—	—	—	—	—	—	—	—	—	—	—	—
28	S. Kalgin	5	7	—	—	—	—	—	18	1	—	—	—	—
29	S. Shelikof Strait	—	—	—	—	—	1	1	—	—	—	—	—	—
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	1	3	—	1	16	—	2	1	3	6	2	1	—

Key:

** = greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-20

Winter 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, Cook Inlet Lease Sales 191 and 199

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	97	96	97	95	93	96	93	97	96	94	93	95	94
1	Tuxedni Bay	49	27	—	1	2	—	—	67	10	4	1	1	—
2	Chinitna Bay	18	13	—	1	3	—	—	11	12	5	1	1	—
3	Outer Kachemak Bay	5	20	1	6	37	—	3	4	26	20	7	4	1
4	Outer Kamishak Bay	25	31	79	52	39	8	6	12	35	52	33	68	3
5	Inner Kamishak Bay	7	11	43	24	19	7	3	4	11	24	17	38	2
6	Barren Islands	1	1	2	4	15	3	39	1	1	2	7	3	8
7	Cape Douglas	5	7	18	31	30	64	41	3	6	17	45	27	56
8	Shuyak Island	1	1	4	4	3	7	13	1	1	2	5	4	10
9	Hallo/Kukak Bays	2	2	4	8	8	27	26	1	2	4	13	7	32
10	Kupreanof Strait	1	1	2	4	3	6	7	—	1	2	5	3	8
11	Katmai Bay	1	1	1	2	2	6	8	—	—	1	3	2	7
12	Puale Bay	1	1	2	3	3	8	12	—	1	2	5	3	10
13	Middle Cape	—	—	—	—	—	1	1	—	—	—	—	—	—
14	Sutwik Island	—	—	—	—	—	1	1	—	—	—	—	—	1
15	Chignik Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
16	Semidi Islands	—	—	—	—	—	1	1	—	—	—	—	—	1
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Marmot Island	—	—	—	—	—	—	—	—	—	—	—	—	—
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	—	—	—	—	—	—	—	1	—	—	—	—	—
28	S. Kalgin	6	7	—	—	1	—	—	19	2	1	—	—	—
29	S. Shelikof Strait	1	1	2	4	3	9	12	—	1	2	5	4	10
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	2	4	—	3	17	—	3	1	4	7	3	2	1

Key:

** = greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

**Table A.2-21
Winter 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, Cook Inlet Lease Sales 191 and 199**

ID	Resource Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
	Land	**	**	**	**	**	99	99	**	**	**	99	**	99
1	Tuxedni Bay	49	27	—	1	2	—	—	67	10	4	1	1	—
2	Chinitna Bay	18	13	—	1	3	—	—	11	12	5	1	1	—
3	Outer Kachemak Bay	5	20	1	6	37	—	3	4	26	20	7	4	1
4	Outer Kamishak Bay	26	32	79	53	39	8	6	12	35	53	34	69	4
5	Inner Kamishak Bay	7	11	43	24	19	7	3	4	11	25	17	38	2
6	Barren Islands	1	1	2	4	15	3	39	1	1	2	7	3	8
7	Cape Douglas	5	7	18	31	30	64	41	3	6	17	46	27	56
8	Shuyak Island	1	1	4	4	3	7	13	1	1	2	5	4	10
9	Hallo/Kukak Bays	2	2	4	8	8	27	26	1	2	5	13	7	33
10	Kupreanof Strait	1	1	2	4	4	6	7	—	1	2	5	3	8
11	Katmai Bay	1	1	1	3	3	6	8	1	1	2	3	2	7
12	Puale Bay	1	1	2	4	4	8	12	1	1	3	5	4	10
13	Middle Cape	—	—	—	—	—	1	1	—	—	—	—	—	1
14	Sutwik Island	—	—	—	—	—	1	1	—	—	—	1	—	1
15	Chignik Bay	—	—	—	—	—	—	1	—	—	—	—	—	1
16	Semidi Islands	—	—	—	1	—	1	2	—	—	—	1	—	2
17	Chirikof Island	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Trinity Islands	—	—	—	—	—	1	1	—	—	—	—	—	1
19	Twoheaded Island	—	—	—	—	—	—	—	—	—	—	—	—	—
20	S. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Ugak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
22	Cape Chiniak	—	—	—	—	—	—	—	—	—	—	—	—	—
23	N. Albatross Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
24	Marmot Island	—	—	—	—	—	—	—	—	—	—	—	—	—
25	Portlock Bank	—	—	—	—	—	—	—	—	—	—	—	—	—
26	Pye Islands	—	—	—	—	—	—	—	—	—	—	—	—	—
27	Forelands	—	—	—	—	—	—	—	1	—	—	—	—	—
28	S. Kalgin	6	8	—	—	1	—	—	19	2	1	—	—	—
29	S. Shelikof Strait	1	1	2	4	4	9	12	—	1	3	6	4	10
30	Marmot/Chiniak Bay	—	—	—	—	—	—	—	—	—	—	—	—	—
31	Kachemak Bay/Outer Peninsula	2	4	—	3	17	—	3	1	4	7	3	2	1

Key:

** = greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-22

Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 3 Days, Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
21	Kafliia Bay, Kukak Bay, Kuliak Bay, Missak Bay	—	—	—	—	—	5	5	—	—	—	1	—	7
22	Devils Cove, Hallo Bay	—	—	—	—	—	8	5	—	—	—	1	—	8
23	Cape Chiniak, Swikshak Bay	—	—	—	—	—	5	4	—	—	—	1	—	5
24	Fourpeaked Glacier	—	—	1	3	3	17	10	—	—	—	7	2	15
25	Spotted Glacier, Sukoi Bay	1	—	7	12	9	14	5	—	—	4	16	10	5
26	Douglas River	1	1	16	9	5	5	—	—	1	6	7	16	—
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	—	—	11	4	1	1	—	—	—	2	2	9	—
28	Amakdedulia Cove, Bruin Bay, Chenik Head	1	1	7	3	1	—	—	—	—	1	1	5	—
29	Augustine Island	5	6	15	10	4	—	—	1	6	8	3	7	—
30	Rocky Cove, Tignagvik Point	4	3	8	3	1	—	—	—	3	2	1	1	—
31	Iliamna Bay, Iniskin Bay, Ursus Cove	3	2	5	2	1	—	—	—	2	2	—	1	—
32	Chinitna Point, Dry Bay	7	5	2	2	2	—	—	1	5	3	1	1	—
33	Chinitna Bay	16	11	—	—	1	—	—	7	10	2	—	—	—
34	Iliamna Point	14	9	—	—	—	—	—	19	5	1	—	—	—
35	Chisik Island, Tuxedni Bay,	12	6	—	—	—	—	—	16	1	—	—	—	—
36	Redoubt Point	3	2	—	—	—	—	—	5	—	—	—	—	—
38	Kalgin Island	1	1	—	—	—	—	—	2	—	—	—	—	—
43	Clam Gulch, Kasilof,								1	—	—	—	—	—
44	Deep Creek, Niniichik, Niniichik River	—	1	—	—	—	—	—	7	—	—	—	—	—
45	Cape Starichkof, Happy Valley	1	5	—	—	—	—	—	5	14	1	—	—	—
46	Anchor Point, Anchor River	1	3	—	—	2	—	—	1	6	2	—	—	—
47	Seldovia	—	2	—	—	2	—	—	—	3	2	—	—	—
48	Nanwalek, Port Graham	—	1	—	—	3	—	—	—	1	2	—	—	—
49	Elizabeth, Island, Port Chatham, Koyuktolik Bay	—	—	—	—	1	—	1	—	—	—	—	—	—
50	Barren Islands, Ushagat Island	—	—	—	—	1	1	4	—	—	—	1	—	2
51	Amatuli Cove, East and West Amatuli Island	—	—	—	—	—	—	1	—	—	—	—	—	—
81	Shuyak Island	—	—	—	—	—	1	3	—	—	—	1	—	2
82	Bluefox Bay, Shuyak Island, Shuyak Strait	—	—	1	1	—	4	4	—	—	—	1	1	4
83	Foul Bay, Paramanof Bay	—	—	—	1	—	2	2	—	—	—	—	1	2
84	Malina Bay, Raspberry Island, Raspberry Strait	—	—	—	—	—	1	1	—	—	—	—	—	1
85	Kupreanof Strait, Viekoda Bay	—	—	—	—	—	1	—	—	—	—	—	—	—
86	Uganik Bay Uganik Strait, Cape Ugat	—	—	—	—	—	1	—	—	—	—	—	—	—

Key:

** = greater than 99.5%

— = less than 0.5%

ID = identification

LA = Launch Area

P = Pipeline

Table A.2-23

Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 10 Days, Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
13	Cape Providence, Chiginagak Bay	—	—	—	—	—	—	1	—	—	—	—	—	—
14	Agripina Bay, Ashiik Island, Cape Kilokak	—	—	—	—	—	1	1	—	—	—	—	—	1
15	Cape Kayakliut, Wide Bay	—	—	—	—	—	1	2	—	—	—	1	1	1
16	Cape Kanatak, Cape Unalishagvak, Portage Bay	—	—	—	1	1	1	2	—	—	—	1	1	2
17	Cape Aklek, Puale Bay	—	—	—	—	—	1	1	—	—	—	—	—	1
18	Alinchak Bay, Cape Kekurnoi, Bear Bay	—	—	—	1	1	2	3	—	—	—	1	1	2
19	Cape Kubugakli, Kashvik Bay, Katmai Bay	—	—	—	—	—	2	2	—	—	—	1	—	2
20	Amalik, Dakavak and Kinak Bay, Takli Island	—	—	—	—	—	2	2	—	—	—	1	—	2
21	Kafliia Bay, Kukak Bay, Kuliak Bay, Missak Bay	—	1	1	2	2	8	9	—	1	1	4	2	11
22	Devils Cove, Hallo Bay	1	1	1	3	3	10	9	—	—	2	5	2	12
23	Cape Chiniak, Swikshak Bay	—	—	1	2	2	7	6	—	—	1	3	2	8
24	Fourpeaked Glacier	1	1	3	6	6	19	13	—	1	3	10	5	18
25	Spotted Glacier, Sukoi Bay	2	3	9	14	13	14	6	1	3	8	19	13	6
26	Douglas River	3	4	17	11	9	5	1	2	4	11	9	19	1
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	1	3	13	8	6	1	1	1	3	8	5	12	—
28	Amakdedulia Cove, Bruin Bay, Chenik Head	2	2	8	5	4	1	1	1	3	5	4	8	—
29	Augustine Island	7	9	16	12	8	1	1	3	12	13	5	9	1
30	Rocky Cove, Tignagvik Point	6	6	9	4	3	—	1	2	7	5	2	3	—
31	Iiamna Bay, Iniskin Bay, Ursus Cove	4	4	5	4	3	—	—	1	5	5	1	1	—
32	Chinitna Point, Dry Bay	8	7	2	4	4	—	—	3	7	6	2	2	—
33	Chinitna Bay	18	14	—	1	3	—	—	11	13	5	1	1	—
34	Iliamna Point	16	11	—	1	1	—	—	21	6	2	—	—	—
35	Chisik Island, Tuxedni Bay	13	7	—	—	—	—	—	18	1	—	—	—	—
36	Redoubt Point	4	3	—	—	—	—	—	6	1	—	—	—	—
38	Kalgin Island	1	1	—	—	—	—	—	4	—	—	—	—	—
43	Clam Gulch, Kasilof,	—	1	—	—	—	—	—	2	—	—	—	—	—
44	Deep Creek, Ninilchik, Ninilchik River	1	1	—	—	—	—	—	8	—	—	—	—	—
45	Cape Starichkof, Happy Valley	2	6	—	—	1	—	—	6	14	2	—	—	—
46	Anchor Point, Anchor River	1	3	—	1	2	—	—	1	6	3	1	—	—
47	Seldovia	1	2	—	1	3	—	—	1	3	3	1	1	—
48	Nanwalek, Port Graham	1	2	—	1	4	—	—	—	1	3	1	1	—
49	Elizabeth, Island, Port Chatham, Koyuktolik Bay	—	—	—	—	2	—	1	—	—	—	—	—	—
50	Barren Islands, Ushagat Island	—	—	1	1	2	1	5	—	—	1	3	1	3
51	Amatuli Cove, East and West Amatuli Island	—	—	—	—	—	—	2	—	—	—	—	—	—
80	Andreon and Perenosa Bays, Big Fort Island	—	—	—	—	—	—	—	—	—	—	—	—	—
81	Shuyak Island	—	—	1	1	1	1	3	—	—	1	2	1	2
82	Bluefox Bay, Shuyak Island, Shuyak Strait	1	1	3	2	2	5	6	1	1	1	3	3	6
83	Foul Bay, Paramanof Bay	1	1	1	1	1	3	3	—	—	1	1	1	3
84	Malina Bay, Raspberry Island, Raspberry Strait	—	—	—	1	1	1	2	—	—	1	1	1	2
85	Kupreanof Strait, Viokoda Bay	—	—	—	1	1	1	2	—	—	1	1	1	2
86	Uganik Bay Uganik Strait, Cape Ugat	—	—	1	1	1	2	2	—	—	1	2	1	3
87	Cape Kuliuk, Spiridon Bay, Uyak Bay	—	—	—	1	1	1	1	—	—	—	1	1	1
88	Karluk Lagoon, Northeast Harbor, Karluk	—	—	—	—	—	1	1	—	—	—	—	—	1

Key:

- ** = greater than 99.5%
- = less than 0.5%. Rows with all values less than 0.5% are not shown.
- ID = identification
- LA = Launch Area
- P = Pipeline

Table A.2-24

Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment within 30 Days, Cook Inlet Lease Sales 191 and 199

ID	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
13	Cape Providence, Chiginagak Bay	—	—	—	—	—	—	1	—	—	—	—	—	1
14	Agripina Bay, Ashiik Island, Cape Kilokak	—	—	—	1	1	1	1	—	—	—	1	—	1
15	Cape Kayakliut, Wide Bay	—	—	—	1	1	1	2	—	—	—	1	1	2
16	Cape Kanatak, Cape Unalishagvak, Portage Bay	—	—	—	1	1	2	3	—	—	—	1	1	2
17	Cape Aklek, Puale Bay	—	—	—	1	1	1	2	—	—	1	1	1	2
18	Alinchak Bay, Cape Kekurnoi, Bear Bay	—	—	—	1	1	2	3	—	—	1	1	1	2
19	Cape Kubugakli, Kashvik Bay, Katmai Bay	—	—	—	1	1	2	2	—	—	1	1	—	2
20	Amalik, Dakavak and Kinak Bay, Takli Island	—	—	—	1	1	2	2	—	—	—	1	1	2
21	Kafliia Bay, Kukak Bay, Kuliak Bay, Missak Bay	1	1	1	2	2	8	9	—	1	1	4	2	11
22	Devils Cove, Hallo Bay	1	1	1	3	3	10	9	—	1	2	5	2	12
23	Cape Chiniak, Swikshak Bay	—	1	1	2	2	7	6	—	—	1	3	2	8
24	Fourpeaked Glacier	1	1	3	6	6	19	13	1	1	3	10	5	18
25	Spotted Glacier, Sukoi Bay	2	3	9	14	14	14	7	1	3	8	19	13	6
26	Douglas River	3	4	17	11	9	5	1	2	4	11	9	19	1
27	Akumwarvik Bay, McNeil Cove, Nordyke Island	1	3	13	8	6	1	1	1	4	8	5	12	—
28	Amakdedulia Cove, Bruin Bay, Chenik Head	2	2	9	6	4	1	1	1	3	5	4	8	—
29	Augustine Island	7	9	16	12	8	1	1	3	12	13	5	9	1
30	Rocky Cove, Tignagvik Point	6	7	9	5	3	—	1	3	7	5	2	3	—
31	Iliamna Bay, Iniskin Bay, Ursus Cove	4	4	5	4	3	—	—	1	5	5	1	1	—
32	Chinitna Point, Dry Bay	9	7	2	4	4	—	—	3	7	6	2	2	—
33	Chinitna Bay	18	14	—	1	3	—	—	11	13	5	1	1	—
34	Iliamna Point	16	11	—	1	1	—	—	21	6	2	—	—	—
35	Chisik Island, Tuxedni Bay	13	7	—	—	—	—	—	18	1	—	—	—	—
36	Redoubt Point	4	3	—	—	—	—	—	6	1	—	—	—	—
38	Kalgin Island	1	1	—	—	—	—	—	4	—	—	—	—	—
43	Clam Gulch, Kasilof,	—	1	—	—	—	—	—	2	—	—	—	—	—
44	Deep Creek, Ninilchik, Ninilchik River	1	1	—	—	—	—	—	8	—	—	—	—	—
45	Cape Starichkof, Happy Valley	2	6	—	—	1	—	—	6	14	2	—	—	—
46	Anchor Point, Anchor River	1	3	—	1	2	—	—	1	6	3	1	1	—
47	Seldovia	1	2	—	1	3	—	—	1	3	3	1	1	—
48	Nanwalek, Port Graham	1	2	—	1	4	—	—	—	1	3	1	1	—
49	Elizabeth, Island, Port Chatham, Koyuktolik Bay	—	—	—	—	2	—	1	—	—	—	—	—	—
50	Barren Islands, Ushagat Island	—	1	1	1	2	1	5	—	—	1	3	1	3
51	Amatuli Cove, East and West Amatuli Island	—	—	—	—	—	—	2	—	—	—	—	—	—
81	Shuyak Island	—	—	1	1	1	1	3	—	—	1	2	2	2
82	Bluefox Bay, Shuyak Island, Shuyak Strait	1	1	3	2	2	5	6	1	1	2	3	3	6
83	Foul Bay, Paramanof Bay	1	1	1	1	1	3	3	1	1	1	1	2	3
84	Malina Bay, Raspberry Island, Raspberry Strait	—	—	1	1	1	2	2	—	—	1	1	1	2
85	Kupreanof Strait, Viekoda Bay	—	—	—	1	1	1	2	—	—	1	1	1	2
86	Uganik Bay Uganik Strait, Cape Ugat	—	—	1	1	1	2	2	—	—	1	2	2	3
87	Cape Kuliuk, Spiridon Bay, Uyak Bay	—	—	—	1	1	1	1	—	—	1	1	1	1
88	Karluk Lagoon, Northeast Harbor, Karluk	—	—	—	1	—	1	1	—	—	—	1	1	1

Key:

- ** = greater than 99.5%
- = less than 0.5%. Rows with all values less than 0.5% are not shown.
- ID = identification
- LA = Launch Area
- P = Pipeline

Table A.2-25

Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 3 Days, Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-26

Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 10 Days, Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-27

Winter Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment within 30 Days, Cook Inlet Lease Sales 191 and 199

Boundary Segment	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

LA = Launch Area

P = Pipeline

Table A.2-28

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Group of Land Segment within 3 Days, Cook Inlet Lease Sales 191 and 199

Land Segments	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
1 to 9	Alaska Peninsula NWR	—	—	—	—	—	—	—	—	—	—	—	—	—
10 to 11	Aniakchak National Monument and Preserve	—	—	—	—	—	—	—	—	—	—	—	—	—
12 to 18	Becharof NWR	—	—	—	—	—	—	—	—	—	—	—	—	—
19 to 27	Katmai National Park	—	—	27	19	12	46	22	—	—	6	23	24	33
33 to 36	Lake Clark National Park	45	25	—	1	1	—	—	44	13	3	—	—	—
43 to 46	Kenai Recreation	1	1	—	—	2	—	—	16	21	3	—	—	—
48 to 55	Outer Kenai Peninsula	—	1	—	—	5	—	1	—	1	2	1	—	—
55 to 59	Kenai Fjord National Park	—	—	—	—	—	—	—	—	—	—	—	—	—
50 to 51	Barren Islands (Alaska Maritime NWR)	—	—	—	—	1	1	6	—	—	—	1	—	2
82 to 83	Kodiak NWR	—	—	1	—	—	4	4	—	—	—	1	1	4
84 to 87	Kodiak NWR	—	—	—	—	—	—	—	—	—	—	—	—	—
89 to 92	Kodiak NWR	—	—	—	—	—	—	—	—	—	—	—	—	—

Key:

** = greater than 99.5%

— = less than 0.5%.

LA = Launch Area

NWR = National Wildlife Refuge

P = Pipeline

Table A.2-29

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Group Land Segment within 10 Days, Cook Inlet Lease Sales 191 and 199

Land Segment	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
1 to 9	Alaska Peninsula NWR	—	—	—	—	—	—	—	—	—	—	—	—	—
10 to 11	Aniakchak National Monument and Preserve	—	—	—	—	—	—	—	—	—	—	—	—	—
12 to 18	Becharof NWR	—	—	—	—	—	4	6	—	—	—	1	—	5
19 to 27	Katmai National Park	4	7	4	35	34	66	46	2	7	25	48	44	57
33 to 36	Lake Clark National Park	53	38	1	3	5	—	—	57	25	9	2	2	—
43 to 46	Kenai Recreation	5	12	—	1	4	—	—	20	25	5	1	1	—
48 to 55	Outer Kenai Peninsula	1	1	—	1	6	—	2	—	1	3	2	1	—
55 to 59	Kenai Fjord National Park	—	—	—	—	—	—	—	—	—	—	—	—	—
50 to 51	Barren Islands (Alaska Maritime NWR)	—	—	1	1	2	2	8	—	—	1	2	1	5
82 to 83	Kodiak NWR	—	—	3	3	2	9	9	—	—	2	4	3	9
84 to 87	Kodiak NWR	—	—	—	2	1	5	4	—	—	—	4	1	5
89 to 92	Kodiak NWR	—	—	—	—	—	—	—	—	—	—	—	—	—

Key:

- ** = greater than 99.5%
- = less than 0.5%. Rows with all values less than 0.5% are not shown.
- LA = Launch Area
- NWR = National Wildlife Refuge
- P = Pipeline

Table A.2-30

Annual Conditional Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Contact a Certain Group Land Segment within 30 Days, Cook Inlet Lease Sales 191 and 199

Land Segment	Land Segment Name	LA1	LA2	LA3	LA4	LA5	LA6	LA7	P1	P2	P3	P4	P5	P6
1 to 9	Alaska Peninsula NWR	—	—	—	—	—	—	—	—	—	—	—	—	—
10 to 11	Aniakchak National Monument and Preserve	—	—	—	—	—	—	—	—	—	—	—	—	—
12 to 18	Becharof NWR	—	—	—	2	1	6	9	—	—	—	4	—	6
19 to 27	Katmai National Park	5	9	41	41	38	69	51	3	1—	27	53	48	63
33 to 36	Lake Clark National Park	53	40	1	4	7	—	1	57	26	11	3	3	—
43 to 46	Kenai Recreation	5	13	—	2	4	—	—	2—	25	7	2	1	—
48 to 55	Outer Kenai Peninsula	1	1	—	1	6	—	2	—	1	3	2	1	—
55 to 59	Kenai Fjord National Park	—	—	—	—	—	—	—	—	—	—	—	—	—
50 to 51	Barren Islands (Alaska Maritime NWR)	—	—	1	1	2	2	9	—	—	1	3	1	5
82 to 83	Kodiak NWR	—	1	3	3	3	9	9	—	1	2	4	3	9
84 to 87	Kodiak NWR	—	—	1	4	3	5	4	—	—	—	4	4	6
89 to 92	Kodiak NWR	—	—	—	—	—	—	—	—	—	—	—	—	—

Key:

- ** = greater than 99.5%
- = less than 0.5%. Rows with all values less than 0.5% are not shown.
- LA = Launch Area
- NWR = National Wildlife Refuge
- P = Pipeline

Table A.2-31

Annual Combined Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Occur and Contact Certain Environmental Resource Areas Within 3, 10, or 30 Days, Cook Inlet Lease Sales 191 and 199

ID	Land Segment	Within 3 Days						Within 10 Days						Within 30 Days					
		Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral		Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral		Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral	
		Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean
	Land (Total)	10	0.11	10	0.11	10	0.11	18	0.20	18	0.19	18	0.20	19	0.21	19	0.21	19	0.21
1	Tuxedni Bay	5	0.05	5	0.05	5	0.05	6	0.06	6	0.06	6	0.06	6	0.06	6	0.06	6	0.06
2	Chinitna Bay	1	0.01	1	0.01	1	0.01	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02
3	Outer Kachemak Bay	4	0.04	4	0.04	4	0.04	4	0.04	4	0.04	4	0.04	4	0.04	4	0.04	4	0.04
4	Outer Kamishak Bay	3	0.03	3	0.03	3	0.03	5	0.05	5	0.05	5	0.05	5	0.05	5	0.05	5	0.05
5	Inner Kamishak Bay	1	0.01	1	0.01	1	0.01	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02
6	Barren Islands	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
7	Cape Douglas	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01
8	Shuyak Island	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
9	Hallo/Kukak Bay	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
10	Kupreanof Strait	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
11	Katmai Bay	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
12	Puale Bay	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
13	Middle Cape	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
14	Sutwik Island	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
15	Chignik Bay	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
16	Semidi Islands	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
17	Chirikof Island	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
18	Trinity Island	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
19	Twoheaded Island	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
20	S. Albatross Bay	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
21	Ugak Bay	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
22	Cape Chiniak	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
23	N. Albatross Bay	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
24	Marmot Island	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
25	Portlock Bank	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
26	Pye Islands	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
27	Forelands	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
28	S. Kalgin	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02
29	S. Shelikof Strait	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
30	Marmot/Chiniak Bay	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	0
31	Kachemak Bay/Outer Peninsula	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01

Key: — = less than 0.5%.

Prob = Probability

Table A.2-32

Annual Combined Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Occur and Contact Certain Land Segment within 3,10 or 30 Days, Cook Inlet Lease Sales 191 and 199

Land Segment	Within 3 Days						Within 10 Days						Within 30 Days					
	Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral		Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral		Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral	
	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean
25	—	0	—	0	—	0	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01
26	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01
27	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01
29	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	2	0.02	2	0.02	2	0.02
30	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01
31	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01
32	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01
33	1	0.01	1	0.01	1	0.01	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02
34	1	0.01	1	0.01	1	0.01	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02
35	1	0.01	1	0.01	1	0.01	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02
36	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01
38	—	0	—	0	—	0	—	0	—	0	—	0	1	0.01	1	0.01	1	0.01
44	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01
45	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02
46	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01

Note:

All land segments not shown have less than 0.5% chance of contact.

Key:

— = — = less than 0.5%.

Prob = probability

Table A.2-33

Annual Combined Probabilities (Expressed as Percent Chance) That an Oil Spill Starting at a Particular Location Will Occur and Contact a Certain Boundary Segment within 3,10 or 30 Days, Cook Inlet Lease Sales 191 and 199

Land Segment	Within 3 Days						Within 10 Days						Within 30 Days						
	Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral		Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral		Cook Inlet Proposed Action		Lower Kenai Peninsula Deferral		Barren Islands Deferral		
	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	Prob	Mean	

Note:

All boundary segments have values less than 0.5%; therefore, the data are not shown, and the tables are left blank.

Key:

Prob = probability

APPENDIX B

**PETROLEUM GEOLOGY,
RESOURCE ESTIMATES,
AND
EXPLORATION AND DEVELOPMENT SCENARIOS**

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APPENDIX B: PETROLEUM GEOLOGY, RESOURCE ESTIMATES, AND EXPLORATION AND DEVELOPMENT SCENARIOS

A. PETROLEUM GEOLOGY OF COOK INLET

A.1. Regional Setting

Cook Inlet is part of a large forearc basin that lies between the Aleutian Trench and the active volcanic arc on the Alaska Peninsula (Figure B-1). The southeastern boundary of the basin is the Border Ranges fault, which separates the sedimentary basin from the metamorphic rocks of a large accretionary complex exposed in the Chugach and Kenai Mountains. The northwestern boundary of the basin is the Bruin Bay fault, which separates the basin from igneous rocks of the Alaska-Aleutian Range batholith exposed on the Alaska Peninsula. The basin-bounding faults and most of the subsurface structural features trend northeast-southwest parallel to the axis of the basin. The Augustine-Seldovia arch, which is oriented east-west transverse to the main structural trend, separates the forearc basin into two depocenters. The northern depocenter in upper Cook Inlet contains as much as 7,600 meters (25,000 feet) of Tertiary strata. The southern depocenter in lower Cook Inlet and Shelikof Strait contains a thin Tertiary section over as much as 11,000 meters (36,000 feet) of Mesozoic strata.

A.2. Exploration History

All of the oil and gas fields discovered in the Cook Inlet basin to date are in State waters or onshore (Figure B-2). Richfield discovered the first oil field at Swanson River on the Kenai Peninsula in 1957. Oil production began in 1959 along with a small amount of gas as a by-product. Unocal discovered the first significant gas field at Kenai in 1959, and production began in 1961. Shell Oil discovered the first offshore oil field at Middle Ground Shoal in 1963. Offshore oil production began in 1967. Amoco discovered the first offshore gas field at North Cook Inlet in 1962 and production began in 1969. Forest Oil installed the most recent offshore platform in 2000 at the Redoubt Shoal field. Sixteen offshore platforms are currently active in upper Cook Inlet.

The first well drilled in lower Cook Inlet was the Arco Continental Offshore Stratigraphic Test well in 1977. The first Federal lease sale, Outer Continental Shelf (OCS) Sale CI, was held that same year, and 87 tracts were leased. The second sale, OCS Sale 60, was held in 1981, and 13 tracts were leased. The last lower Cook Inlet lease sale, OCS Sale 149, was held in 1997, and two tracts were leased.

From 1978 through 1985, thirteen exploratory wells were drilled in lower Cook Inlet using drillships, semisubmersibles, and jack-up rigs (Figure B-2). Three of those wells were abandoned at shallow depths because of drilling problems. They were redrilled at approximately the same locations, so 10 prospects were tested in the 13 wells. All of the wells were plugged and abandoned with no discoveries announced. Two wells had significant oil shows in Late Cretaceous strata. Both of those wells, the Marathon Y-0086 well and the Arco Y-0097 well, tested noncommercial oil with very low flow-rates in drill-stem tests. The Chevron Y-0243 well had minor oil shows but was not tested.

Recent exploration involves both oil and gas prospects on the southern Kenai Peninsula. Phillips Alaska, Inc. completed the 1 Hansen well in the Cosmopolitan Unit, which includes the two Federal leases acquired in OCS Lease Sale 149. The 1 Hansen well was directional drilled from an onshore location and was designed to encounter an oil-bearing interval discovered in 1967 in the Pennzoil Starichkof State well. The reservoir rocks are in the Hemlock and lower Tyonek formations. Additional drilling and seismic surveying to evaluate this prospect are being planned as of this writing. If successful, it will be the first production from Federal leases in lower Cook Inlet, although most of the unit lies within State waters.

Marathon Oil Company and Unocal Alaska have recovered gas from the upper Tyonek formation in the 1 Grassim Oskolkoff well on the Niniichik Exploration Unit onshore. Those two companies have proposed building the Kenai-Kachemak Pipeline to connect the Niniichik Unit with the existing pipeline system and to serve new areas on the southern Kenai Peninsula. A renewed interest in finding new gas fields in the area exists because fields in Upper Cook Inlet are being depleted. Exploration in lower Cook Inlet may be pursued to help meet this demand.

A.3. Oil and Gas Potential

The petroleum in the upper Cook Inlet fields occurs in sandstone and conglomerate reservoirs of Tertiary age in northeast-trending anticlines (Figure B-2 and B-3). Oil pools have been discovered in the West Foreland, Hemlock, and lower Tyonek formations of Eocene to Oligocene age. The oil source is generally thought to be from Middle Jurassic siltstone beds of the Tuxedni Group. All of the major oil fields involve Tertiary reservoirs overlying Jurassic rocks. Migration pathways are most likely the unconformity separating the Tertiary and Jurassic rocks and large-scale faults associated with the anticlines. The gas pools contain biogenic methane in sandstone reservoirs within the upper Tyonek, Beluga, and Sterling formations of late Miocene to Pliocene age. The gas sources are coal beds and organic siltstones throughout the Tertiary strata.

The primary problem with wells drilled in lower Cook Inlet to date has been poor reservoir rock potential. The reservoirs that produce in upper Cook Inlet are all within Tertiary strata. The Tertiary section in Federal waters is relatively thin, and potential reservoirs are too shallow over most of the area to be prospective (Figure B-4). Future exploration success in most of lower Cook Inlet will depend on finding adequate reservoir rocks within the Mesozoic stratigraphic section.

The Mesozoic section is mostly marine and includes rocks from Late Triassic through Late Cretaceous age (Figure B-3 and B-4). Late Triassic limestone and chert beds near Puale Bay on the Alaska Peninsula appear to have excellent source-rock potential. The rocks are organic rich with oil-prone kerogen types. Those beds probably underlie the offshore area although the OCS wells are too shallow to encounter them.

The Talkeetna formation of Early Jurassic age is largely volcanic and is considered to be the base of potentially economic strata (or “economic basement”). The Middle Jurassic strata contain some excellent petroleum-source beds in marine siltstones of the Tuxedni Group, but the volcanoclastic sandstones and conglomerates do not have good reservoir-rock properties. The overlying Naknek formation of Late Jurassic age contains very thick sandstone and conglomerate beds, which were encountered in all but two of the wells. However, cementation and the presence of zeolite minerals destroyed the porosity and permeability of those rocks, so reservoir-rock potential is minimal.

Early Cretaceous rocks include marine siltstones, bioclastic limestones, and sandstones of the Herendeen formation. The sandstones have better reservoir-rock potential than those of the underlying Jurassic strata, but the beds are relatively thin.

The Kaguyak formation of Late Cretaceous age may have the best reservoir-rock potential in the Mesozoic section. This formation is 900-1,500 meters (3,000-5,000 feet) thick and contains mostly marine siltstones and fine-grained sandstones. However, coarse sandstone beds are exposed on the Alaska Peninsula in an ancient submarine fan complex. In addition, fan-delta deposits with relatively porous and permeable sandstone beds occur in the upper Kaguyak Formation in an isolated outcrop and in several of the offshore wells. Both submarine fan and fan-delta deposits may contain good reservoir beds in both stratigraphic and structural traps in the sale area. Petroleum-source beds occur in Late Triassic carbonates and Middle Jurassic siltstones offshore, where they are thermally mature for oil generation. Possible migration routes include the numerous faults that penetrate the Mesozoic section.

The sale area north of the Augustine-Seldovia arch contains a thicker Tertiary section than the rest of lower Cook Inlet (Figure B-1). That area, while limited in areal extent, has good reservoir-rock potential in nonmarine sandstone and conglomerate beds. Those rocks are correlative with the producing strata of upper Cook Inlet. Stratigraphic traps may be present, but structural traps are probably rare.

Four petroleum-exploration plays are recognized in the sale area:

1. The Tertiary Oil Play: This play (Figure B-5) is restricted to the northernmost part of the sale area, north of the Augustine-Seldovia arch, and involves mostly stratigraphic traps. Potential source rocks are Upper Triassic carbonates and Middle Jurassic siltstones. The reservoir targets are sandstones and conglomerates in the Hemlock and lower Tyonek Formations of the Eocene and Oligocene age.
2. The Mesozoic Structural Play: This play (Figure B-6) covers most of the sale area and involves anticlines and fault traps. Many of the mapped anticlines were tested unsuccessfully in previous exploratory drilling. Potential source rocks are Upper Triassic carbonates and Middle Jurassic siltstones. The best reservoir rocks are probably sandstones in the Lower Cretaceous Herendeen Formation or the Upper Cretaceous Kaguyak Formation.
3. The Mesozoic Stratigraphic Play: This play (Figure B-7) is probably best developed in the central and southern parts of the sale area. This play involves stratigraphic traps in turbidite sandstones within marine siltstone sections. The turbidites may have developed in submarine fan complexes in the Upper Cretaceous Kaguyak Formation. Potential source rocks are Upper Triassic carbonates and Middle Jurassic siltstones.
4. The Tertiary Dry Gas Play: This play (Figure B-5) overlies the Tertiary Oil Play and is restricted to the same area, north of the Augustine-Seldovia arch. The gas is nonassociated, biogenic methane generated in the Upper Tertiary section. The gas sources are coal beds and organic siltstones interlayered with the sandstone reservoirs. Potential traps include faulted anticlines and stratigraphic traps in fluvial channels and alluvial fans. The reservoir rocks are nonmarine sandstones in the upper Tyonek Formation and the Beluga Formation of Miocene age.

B. OIL AND GAS RESOURCE ASSESSMENT

The potential environmental impacts associated with leasing are directly related to the oil and natural gas volumes likely to be discovered and produced as a result of the leasing program. The Minerals Management Service (MMS) generates two types of resource estimates, both of which predominantly involve undiscovered oil and gas pools. First, the conventionally recoverable (or so-called “geologic”) oil and gas resources are estimated. This assessment is based on all of the undiscovered pools without regard to engineering or economic considerations. The second part of the assessment inputs foreseeable engineering and economic factors to a computer model that simulates the development and production of pools defined by the previous model. This so-called “economic” assessment defines the total volumes of oil and gas available for commercial production in the area. The economic model does not predict precisely when or where individual pools will be discovered, as the discovery and development rates are entirely dependent on industry effort. Industry effort is driven by access to high-potential areas, corporate priorities, and commodity prices.

The play-based assessment provides geographic information about the relative potential of specific areas (such as deferral areas) in the proposed sale area. The economic model provides information regarding the possible size of commercial pools. These modeling results provide a basis for assumptions about future

development activities (called “scenarios”) as a result of the OCS leasing program. The economic assessment also provides an indication of the total supplies available in the area and future income to government. Environmental effects of the leasing program are directly related to the levels of future development.

Considerable uncertainty exists with any assessment of undiscovered oil and gas resources because data are incomplete. Many offshore areas in Alaska are considered “frontier” provinces with very meager drilling and seismic survey coverage. To factor uncertainty into the analysis, the resource assessment models use ranged parameters for inputs and outputs. Values are correlated to probabilities, where lower values are more likely (have higher probabilities), and higher values are less likely (have low probabilities). The probability-based analysis is carried from specific reservoir inputs (for example, thickness) to outputs representing the total oil and gas volumes in a province. Typically, we use the 95% probability (or F95, fractile) to represent the most certain case (19-in-20 chance); the mean probability to represent the average, expected case; and the 5% probability (or F05, fractile) to represent the least likely case (1-in-20 chance).

B.1. Geologic Assessment

The geologic assessment is produced by a statistical computer program (GRASP) that is based on current data for geologic plays. A geologic play is a group of prospects sharing common attributes such as hydrocarbon source, reservoir, and trapping mechanism. Geologic prospects are untested geologic features having the potential for trapping and accumulating oil and gas. Most geologic prospects can be identified by mapping using seismic data; however, complex stratigraphic prospects require three-dimensional seismic data, which may not be available. Pools are prospects that are modeled to hold recoverable oil and gas volumes. Most prospects do not contain oil or gas in significant volumes that can be recovered using conventional technology.

Four geologic plays were evaluated in the Cook Inlet Planning Area and have been described above. The results of the geologic assessment are given as a cumulative probability graph in Figure B-8. Overall oil resource potential ranges from 340 million barrels at a 95% probability (F95) to 1.420 billion barrels at a 5% probability (F05), with a mean expected value of 760 million barrels. Gas resource potential ranges from 660 billion cubic feet at a 95% probability (F95) to 2.49 trillion cubic feet at a 5% probability (F05), with a mean expected value of 1.390 trillion cubic feet (Table B-1).

The relative contribution of each play to the total of the planning area is listed in Table B-1. Oil resources are fairly evenly distributed between the three oil-prone plays, with the largest contribution coming from Play 1 (Tertiary Oil) at 39% of total oil resources. Gas resources are also fairly evenly distributed in the oil-prone plays because it is generally associated/dissolved gas. The nonassociated Tertiary Gas play is estimated to contain 41% of the total gas resources in the Cook Inlet planning area. Reviewing the play area maps shows that three of the four plays have overlapping areas on the eastern side of the Cook Inlet OCS off Anchor Point, suggesting that both oil and gas potential are concentrated in this area.

B.2. Economic Assessment

The economic assessment is produced by a second computer program (PRESTO) that simulates the discovery and development of pools in the GRASP model. Geologic inputs (such as reservoir thickness and pool area) are converted to engineering parameters (such as flow rates and well numbers) in 1000-trial simulation runs. A discounted cash-flow analysis is conducted on each pool, where expenses (such as well and platform costs) are scheduled along with income from the sale of oil and gas production. Pool simulations with positive net present value are counted as commercial successes and added to the running total of other simulated successes for each play in the province. For the next trial simulation, all parameters (volumes, costs, schedules) are randomly sampled again, and the process is repeated. The statistical outcome of the PRESTO run is reported using probability levels tied to prices. Higher commodity prices typically support higher volumes of oil and gas recovery because higher income balances higher costs.

Figures B-9 and B-10 are two sets of price-supply curves: one for economic oil resources and the other for economic gas resources. Total oil resources include both crude oil and condensate liquids associated with gas. Gas resources include both associated/dissolved gas in oil and nonassociated gas pools. Each price-supply curve represents a different probability level. The F95 curves show volumes associated with a 19-in-20 chance of occurrence. The F05 curves show volumes associated with a 1-in-20 chance of occurrence. The most commonly used curves represent the average (or risked-mean) case. Also shown on the price-supply graphs is the corresponding geologic potential associated with these probability levels. As prices increase, the curves show an increase in the available resource volume that approaches the recoverable geologic resource volume (vertical bar) at the highest prices.

Interpretation of the price-supply curves involves assumptions of both price and probability. Using \$20 per barrel as a reference price, there is a 95% probability that 120 million barrels or more are present in the Cook Inlet Program Area (Figure B-9). The mean case at \$20 per barrel is 500 million barrels. At the very unlikely probability level of 5%, approximately 1.1 billion barrels are present in as-yet undiscovered commercial-size pools in the Cook Inlet Program Area. Another conclusion drawn from this oil price-supply graph is that if prices averaged \$16 per barrel or higher, there is a very good chance (19-in-20, or 95%) that commercial oil pools could be developed in the area. Similar conclusions can be drawn from the gas price-supply curves (Figure B-10). However, the reader should be aware that the majority of gas resources are associated with oil, as well as in the engineering assumptions and price correlations, so it is misleading to pick specific price/volume pairs from oil and gas curves independently.

C. EXPLORATION AND DEVELOPMENT SCENARIOS

Scenarios are conceptual views of the future. In this document, we offer scenarios regarding the timing and extent of future petroleum activities in Federal OCS waters of the lower Cook Inlet. The scenarios are based on economic factors, industry trends, and professional judgment. Future activities are based on assumptions regarding resource potential and anticipated production. It is reasonable to assume that industry will only pursue development projects that are profitable (also referred to as economically viable or commercial); therefore, estimates of activities are based on the results of the economic assessment. It is also reasonable to assume that all of the economic resources will not be discovered and developed as a result of a limited leasing and exploration effort. Future oil and gas production will depend on many factors, including access to promising areas, regulatory restrictions, industry funding, and commodity prices.

Following relatively active leasing and exploration in the late 1970's, interest in Federal waters of the lower Cook Inlet fell off sharply for almost two decades. In the most recent lease sale, only two OCS tracts of the 101 tracts offered received bids. The tracts leased were on the flank of a discovery made in State waters in 1967.

Although industry interest has languished for almost two decades, continuous growth of Alaska's most populous area has given rise to concerns that existing oil and gas fields will be unable to meet future energy demands in the Cook Inlet region. Approximately 40% of oil refined in the Cook Inlet is imported from outside sources, mainly North Slope crude tankered from Valdez. Although natural gas exports such as urea (fertilizer) and liquefied natural gas continue, projections indicate serious supply shortages for consumers and industry in less than 10 years unless new reserves are discovered and developed (Anchorage Economic Development Corp., 2001). In particular, natural gas shortages have prompted a new wave of exploration on State and private lands, both onshore and offshore in Cook Inlet. Renewed exploration efforts are aided by new technologies in seismic survey methods (three-dimensional seismic) and drilling (extended reach wells) that can detect and tap smaller and more complex reservoirs.

With these considerations in mind, the current exploration and development scenario assumes that all future oil and gas production from Federal OCS lease sales will be processed and sold to local markets in Alaska. This is a change from previous scenarios, which assumed that natural gas would be entirely converted to liquefied natural gas and then exported to Pacific Rim markets, and some crude oil production would be exported to West Coast markets. The current scenario involves far lower levels of marine transportation than previous scenarios for both oil and gas.

C.1. Cook Inlet Scenario

The level of activities associated with petroleum exploration and development is dependent on the economic resource potential and industry effort. Given the wide range in estimates tied to both price and probability, we need to establish a reasonable production volume for environmental impact analysis. The reference scenarios for the 5-Year Program EIS (USDOJ, MMS, 2002) were based on benchmark prices of \$18.00 and \$30.00 per barrel (in 2000 dollars), corresponding to oil resource volumes of 420 and 500 million barrels. At benchmark gas prices of \$2.11 and \$3.52 per thousand cubic feet, the corresponding gas resource volumes are 560 and 860 billion cubic feet. Under the assumption that three OCS sales could be held in the Cook Inlet OCS during the 2002-2007 leasing program, we assumed that one-third of the resources would be developed in a typical sale. Therefore, a sale that resulted in oil and gas development would produce 140 to 170 million barrels of oil and 190 to 270 billion cubic feet of gas. When the 2002-2007 OCS Program was finalized, only two sales were scheduled in the Cook Inlet.

The range for a typical sale was reduced to a single oil and gas production estimate for several reasons. First, industry interest has been low in the area for almost two decades and it is unlikely that a full-scale effort in leasing and exploration would be launched in the near future. Second, the range of resources for a typical sale was too narrow to produce any meaningful differences in the levels of environmental impact. Third, a pool size of 185 million barrels was the largest oil pool modeled as commercially viable at prices of \$18 per barrel and the average undiscovered commercial pool size is 100 million barrels.

To provide consistency with the previous 5-Year Program EIS analysis, while recognizing the field characteristics of the area and industry interest, the scenario uses 140 million barrels and 190 billion cubic feet for the first OCS development project in the lower Cook Inlet area.

The scenario assumes that exploration (seismic surveys and drilling) will occur after each sale in the two-sale leasing program. The exploration rigs could be semi-submersibles (greater than 200 feet or 60 meterack-up rigs (less than 200 feet or 60 meters), or bottom-founded platforms (less than 100 feet or 30 meters), depending on site-specific conditions. Because of difficulties related to the Cook Inlet geology, it may not be feasible to test Federal OCS tracts from onshore locations (with lateral stepouts of 3 miles or more, 8.4 kilometers). The most likely support base for exploration would be Kenai/Nikiski or alternate locations in the Cook Inlet (Anchorage, Homer). Seismic surveys are likely to be three-dimensional surveys focused on clusters of tracts, not widespread regional surveys. These offshore surveys are likely to occur in the late summer or early fall to minimize conflicts with other public and commercial users in the Cook Inlet.

One commercial discovery is assumed as a result of either sale (not both). This discovery will be developed using a single offshore platform and will produce both oil and gas. Subsea pipelines will connect the offshore field to onshore lines running north on the Kenai Peninsula to existing processing and distribution centers in Kenai. The oil reserves (140 million barrels) will be recovered first and associated/dissolved gas will be reinjected to maximize recovery until oil production rates drop to low levels. The second phase of production will involve recovery of stored (reinjecting) gas and drilling new gas wells to tap nonassociated pools reachable from the platform. A total of 190 billion cubic feet of gas will be produced, but some gas will be consumed for field operations. We assume that field consumption (test flaring, power generation, and other platform uses) will use 0.5 billion cubic feet annually through the production life of the platform leaving 178 billion cubic feet for sales to the local market. The modeled sales production streams for oil and gas are shown in Figure B-11.

A detailed listing of the activities associated with the two-sale leasing program for Cook Inlet is provided in Table B-2 and summarized in Table B-3. The exploration and development activity schedules do not include long delays related to litigation or permitting problems. The economic estimates assume similar lag times between discovery and development without additional costs for delays. Exploration drilling is assumed to begin 2 years after the first lease sale (2004) because there are no rigs available in this area at the present time. We have assumed a relatively aggressive schedule, where first oil production will begin in 2011 followed by gas production (for sales) in 2022. Platform abandonment would occur in a 2-year period in 2033-2034.

The technology used for field development is determined by site-specific conditions, the thickness and areal extent of the reservoirs, and total oil and gas reserves. Water depths in OCS areas of the Cook Inlet range from about 60 feet to nearly 600 feet (18-180 meters). Because we assume that the commercial discovery would be in the northern, shallower portions of lower Cook Inlet, the most likely development platform would be a bottom-founded design, either with legs or a monotower. For deeper water (greater than 200 feet or 60 meters), a floating system (buoy-shaped platforms, ship-shaped platforms, tension-leg platforms, or moored semi-submersibles), perhaps tied to subsea wells, may provide the best development alternative. Because Cook Inlet is far from the areas with available offshore rigs (Gulf of Mexico), it is likely that purpose-built rigs (built in Asia) would be towed into the area to serve as both exploration and (if successful) production platforms. A similar strategy was used recently in the upper Cook Inlet (Forest Oil's Redoubt Shoal prospect) with a rig built in Korea and production modules added later.

The preferred method to transport the oil and gas from the platform would be subsea pipelines to the nearest landfall location, probably on the southern Kenai Peninsula. The subsea pipeline system would probably not have to be trenched; however, designs would consider the strong tidal currents present in Cook Inlet.

An important assumption in the scenario is that OCS tracts would be offered and could be leased throughout lower Cook Inlet in each sale. Although exploration and development activities are likely to be concentrated near existing infrastructure in the northern and eastern portions of Cook Inlet, exploration activities could also occur in more remote areas (i.e., southern and western portions). Discoveries near existing infrastructure tend to be developed sooner, and relatively small fields are economically viable because development costs are lower. Commercial fields in more remote locations must be larger to support higher development and transportation costs.

C.1.a Estimates of Muds and Cuttings

Based on the geologic analysis, exploration and delineation wells will average about 6,000 feet true vertical depth. The average exploration or delineation well will produce approximately 150 tons of drilling fluid wastes (or 33,579 gallons) in addition to 440 dry tons of rock cuttings. We assume that drilling wastes (muds and cuttings) will be disposed of at the drilling sites that are scattered throughout the Program Area. If a discovery is made, development wells will average 7,500 feet drilled depth. Development wells include both producer and injection wells. Normally, one-third of the total wells are injection wells for gas, water, and wastes. The average development well will produce approximately 75 tons of drilling fluid waste (16,790 gallons) and 550 tons of dry rock cuttings. We assume that development drilling wastes will not be dumped at the site. The Environmental Protection Agency confirmed that this approach was appropriate the scenario used to analyze potential effects from the Sale 191 and 199. See Section VII, Document 006, Water Quality, National Pollution Discharge Elimination System). New production platforms in Cook Inlet are expected to inject these drilling fluids or barge them to shore, based on current new-source guidance and Environmental Protection Agency National Pollutant Discharge Elimination System permitting (Environmental Protection Agency, 1999, 2002). For example, discharges of muds, cuttings, and produced waters were last authorized for a new Cook Inlet platform in 1986. The Osprey Production Platform, the first new platform in Cook Inlet since 1986, is not allowed to discharge muds, cuttings, or produced waters under its National Pollutant Discharge Elimination System permit (AK0053309; Environmental Protection Agency 2002) and will instead inject them. Produced water will be reinjected. (The EIS for Sale 149 discussed the effects of the discharge into the marine environment of drilling fluids, muds and cuttings from production wells). Drilling fluids will be injected into disposal wells, and cuttings will be treated, ground and reinjected or, alternatively, barged to an onshore disposal site. A summary of the volumes of drilling wastes is given in Table B-4.

Spent drilling mud discharged offshore could have this typical composition:

Component	Weight (%)
Bentonite	6.5
Lignosulfonate	2.0
Lignite	1.4
Caustic	0.7
Lime	0.3
Barite	75.0
Drilled solids	13.0
Soda ash/Sodium Bicarbonate	0.4
Cellulose Polymer	0.7
Seawater/Freshwater	As needed
Total	100.0

Note:

Based on Environmental Protection Agency, Type 2, Lignosulfonate Mud.

C.1.b Changes in Development Potential from Deferral Options

The petroleum resource assessment of the Cook Inlet OCS is based on geologic and engineering analysis of the entire Planning Area. As previously discussed, all mapped and inferred prospects are grouped into four geologic plays extending over broad areas. The results of the economic modeling have been scaled into the somewhat smaller Cook Inlet Program Area (the Planning Area minus Shelikof Straits). The assessment indicates that all four plays have some potential for commercial oil or gas development, but the majority of the oil resource potential is concentrated in the Tertiary Oil Play located off the southern Kenai Peninsula (see Figure B-5). Economically recoverable oil in the Tertiary Oil Play represents 60% of the total potentially commercial oil resource in the Program Area. Gas resources are more uniformly distributed among the plays, but oil reserves are the key driver for commercial developments.

It is impossible to accurately specify where commercial pools will be discovered. In most underexplored areas, a simple concept often holds true: “Area equals opportunity.” Removing areas from leasing eliminate the opportunity that commercial pools would be discovered in that area. If high-potential areas are excluded, industry could abandon Cook Inlet and pursue other worldwide options.

Merely leasing tracts in an OCS sale does not mean that commercial discoveries would be made on these tracts. Most tracts leased are never drilled, and many discoveries would be too small to support commercial development. Exploration activities for example, seismic surveys, and exploration well drilling, could cause temporary disturbances whereas long-term impacts would occur only if a commercial field is present over several decades. It should be mentioned that offshore oil and gas production has occurred in upper Cook Inlet from 14 platforms installed in 1964-1968 without measurable effects in lower Cook Inlet.

Two deferrals are under consideration as sale alternatives for Sales 191 and 199: the Lower Kenai Peninsula and Barren Islands deferrals. Given the inherent uncertainties for the location of future commercial discoveries, we can subjectively rank subareas based on their economic play potential and historical exploration trends. A probability ranking using risk-weighted resource potential defines an “Opportunity Index” that commercial fields could be leased, drilled, discovered, and developed in a specific deferral area. The Opportunity Index indicates that these two deferral areas have a very low chance (1% each) of commercial production as a result of this two-sale leasing program. In contrast, the northern part of the Program Area (north of Kachemak Bay) contains 75% of the commercial potential. Excessive restrictions in this high-potential area will severely lower the chance that commercial production would occur anywhere in the Cook Inlet OCS.

C.1.c Changes in Development Potential from Incentives

The MMS is considering a reduction in royalties for certain levels of production in Cook Inlet. These reductions would be similar to those for Sale 186 in the Beaufort Sea, the first Alaska OCS Region lease sale to offer a reduction in royalties, and similar to provisions used in lease sales in the Gulf of Mexico since 1996. The MMS also is considering other leasing incentives in the form of reductions in the minimum lease bids and a restructuring of the rental rates for tracts leased in the sale. The intent of these incentives is to increase the number of tracts leased and to encourage early exploration.

The analysis contained in the EIS is based on a hypothetical scenario of future activities that could occur as a result of leasing. The MMS used the results of a recent petroleum resource assessment of the area as the basis for our EIS assumptions about leasing, exploration, and development activities that may occur following the proposed sales. However, the economically recoverable resource potential represents an optimistic view. The computer models MMS uses to estimate resource potential simulate the discovery and development of all prospects (mapped as well as unidentified), whereas industry must also consider economic, regulatory, and technological factors in developing their leasing and exploration strategies. Incentives provide a counter-balance to the delays and extra costs associated with operations in this challenging frontier area.

If oil prices are at low levels, we expect minimal industry interest in leasing and exploration activities and, therefore, significant oil production or long-term effects are unlikely to occur. For the EIS analysis, we assume higher levels of activities supported by higher oil prices or new technologies, and incentives, although the effects of these factors are speculative.

We believe that the hypothetical development scenario discussed in the EIS is more likely to occur with the new incentives than without them. Without the leasing incentives, the development scenario would be less likely to occur and the present situation of little leasing and exploration likely would continue into the future.

The development scenario generated for purposes of environmental analysis is optimistic compared to historical trends. An optimistic development scenario ensures that the environmental analysis covers the potential effects at the high end of possible petroleum activity levels, including those that could occur as a result of any increase in activities as a result of incentives. Without incentives, the proposed OCS sale still could result in leasing and exploration; however, under such conditions we anticipate minimal industry interest in offshore development because of the marginal economic viability of oil discoveries in difficult locations. With incentives, offshore development activities are more likely to approach the levels analyzed in the EIS.

For these reasons, the exploration and development scenario and environmental effects analysis presented in the EIS are a valid representation of the consequences of the current 5-Year OCS Program in the Cook Inlet.

APPENDIX B
TABLES AND FIGURES

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**Table B-1
Oil and Gas Resources in the Cook Inlet Planning Area (Undiscovered Conventionally Recoverable)**

Play Number	Play Name	Oil Resources ¹ (millions of barrels)			Gas Resources ² (billion cubic feet)		
		F95 ³	Mean ⁴	F05 ⁵	F95 ³	Mean ⁴	F05 ⁵
1	Tertiary Oil	0	297	701	0	223	533
2	Mesozoic Stratigraphic	0	195	515	0	242	642
3	Mesozoic Structural	88	266	508	116	360	727
4	Tertiary Gas	negligible	negligible	negligible	0	564	1344
Total		340	758	1,420	660	1,389	2,490

Notes:

Fractiles other than the mean are not additive.

Volumes are rounded to 1 million barrels and 1 billion cubic feet. Lower, nonzero volumes are listed as negligible.

¹Oil estimates include crude oil and gas-condensate.

²Gas estimates include associated/dissolved gas and nonassociated gas pools. The volumes listed are risked aggregations of all pools modeled in each play, considering only the geologic risk of occurrence. A subsequent economic analysis will define what portion of the recoverable resources could be economic to produce if discovered.

³F95 represents a 95% probability (19-in-20 chance) that volumes will equal or exceed these estimates. ⁴Mean represents the average of the probability distribution.

⁵F05 represents a 5% probability (1-in-20 chance) that volumes will equal or exceed these estimates.

Table B-2
Exploration and Development Scenarios for Cook Inlet Lease Sales 191 and 199

Year	Exploration Wells	Delineation Wells	Exploration Drilling Rigs	Production Platforms	Production Wells	Injection Wells	Production Drilling Rigs	Offshore Pipelines (miles)	New Shore Bases	Oil Production (MMbbl)	Gas Production (Bcf)	Field Use (Bcf)	Gas Sales (Bcf)
2004	—	—	—	—	—	—	—	—	—	—	—	—	—
2005	—	—	—	—	—	—	—	—	—	—	—	—	—
2006	1	—	1	—	—	—	—	—	—	—	—	—	—
2007	1	1	1	—	—	—	—	—	—	—	—	—	—
2008	—	2	1	—	—	—	—	—	—	—	—	—	—
2009	1	—	1	—	—	—	—	—	—	—	—	—	—
2010	1	—	1	—	—	—	—	25	0	—	—	—	—
2011	—	—	—	1	6	2	1	—	—	9.1	6.1	0.5	—
2012	—	—	—	—	14	2	1	—	—	18.3	12.4	0.5	—
2013	—	—	—	—	12	4	1	—	—	18.3	12.4	0.5	—
2014	—	—	—	—	10	4	1	—	—	18.3	12.4	0.5	—
2015	—	—	—	—	—	—	—	—	—	15.1	10.2	0.5	—
2016	—	—	—	—	—	—	—	—	—	12.5	8.4	0.5	—
2017	—	—	—	—	—	—	—	—	—	10.3	7.0	0.5	—
2018	—	—	—	—	—	—	—	—	—	8.5	5.7	0.5	—
2019	—	—	—	—	—	—	—	—	—	7.0	4.7	0.5	—
2020	—	—	—	—	—	—	—	—	—	5.8	3.9	0.5	—
2021	—	—	—	—	—	—	—	25	—	4.8	3.2	0.5	—
2022	—	—	—	—	—	—	—	—	—	3.9	2.7	0.5	10.0
2023	—	—	—	—	3	—	—	—	—	3.2	2.2	0.5	13.0
2024	—	—	—	—	3	—	—	—	—	2.6	1.8	0.5	17.9
2025	—	—	—	—	—	—	—	—	—	2.1	1.4	0.5	17.9
2026	—	—	—	—	—	—	—	—	—	—	—	0.5	17.9
2027	—	—	—	—	—	—	—	—	—	—	—	0.5	17.9
2028	—	—	—	—	—	—	—	—	—	—	—	0.5	17.9
2029	—	—	—	—	—	—	—	—	—	—	—	0.5	17.9
2030	—	—	—	—	—	—	—	—	—	—	—	0.5	17.9
2031	—	—	—	—	—	—	—	—	—	—	—	0.5	17.9
2032	—	—	—	—	—	—	—	—	—	—	—	0.5	8.0
2033	—	—	—	—	—	—	—	—	—	—	—	0.5	4.0
2034	—	—	—	—	—	—	—	—	—	—	—	—	—
2035	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	4	3	1	1	48	12	1	50	0	140	94	12	178

Key:

Bcf = billion cubic feet

MMbbl = million barrels

Exploration drilling rigs and production drilling rigs show one rig in the area or being used for each of the years indicated. These values do not sum.

Existing facilities will be used for onshore processing and distribution and support. No new bases are anticipated under the scenario.

Table B-3
Summary of Exploration and Development Activities for Lease Sales 191 and 199

Activity	Cook Inlet
Available Oil (million barrels)	140
Available Gas (billion cubic feet)	190
Years of Activity	2004-2034
Number of Fields	1
Number of Platforms	1
Exploration and Delineation Wells	7
Production and Service Wells	60
New Onshore Pipelines (miles)	75 (oil) 5 (gas)
New Offshore Pipelines (miles)	25 (oil) 25 (gas)
New Landfalls	1
New Processing Facilities	0

**Table B-4
Drilling Wastes Associated with Cook Inlet Lease Sales 191 and 199**

Activity	Cook Inlet
Number of Fields	1
Number of E/D Wells	8
Average E/D Well Depth (feet)	6,000
E/D Cuttings Discharges (dry tons)	3,080 (440 tons/well)
E/D Mud Discharges (dry tons)	1,050 (150 tons/well)
Number of P/I Wells	60
Average P/I Well Depth (feet)	7,500
P/I Cuttings Discharges (dry tons)	Zero (550 tons/well)
P/I Mud Discharges (dry tons)	Zero (75 tons/well)

Key:

E/D = exploration and delineation

P/I = production and injection

Notes:

- All rock cuttings for E/D wells are dumped at the offshore well site.
- All rock cuttings for P/I wells are disposed of in the subsurface or in landfills.
- 80% of drilling muds are recycled for both E/D and P/I wells.
- 20% of drilling muds (waste) for E/D wells are discharged at the offshore well site.
- Drilling waste fluids for production operations will have subsurface disposal.
- If subsurface disposal is not feasible, drilling wastes will be hauled by barges to onshore waste disposal sites.
- Volume of produced formation water is approximately equal to total oil production. All produced water will be reinjected to support recovery mechanisms.

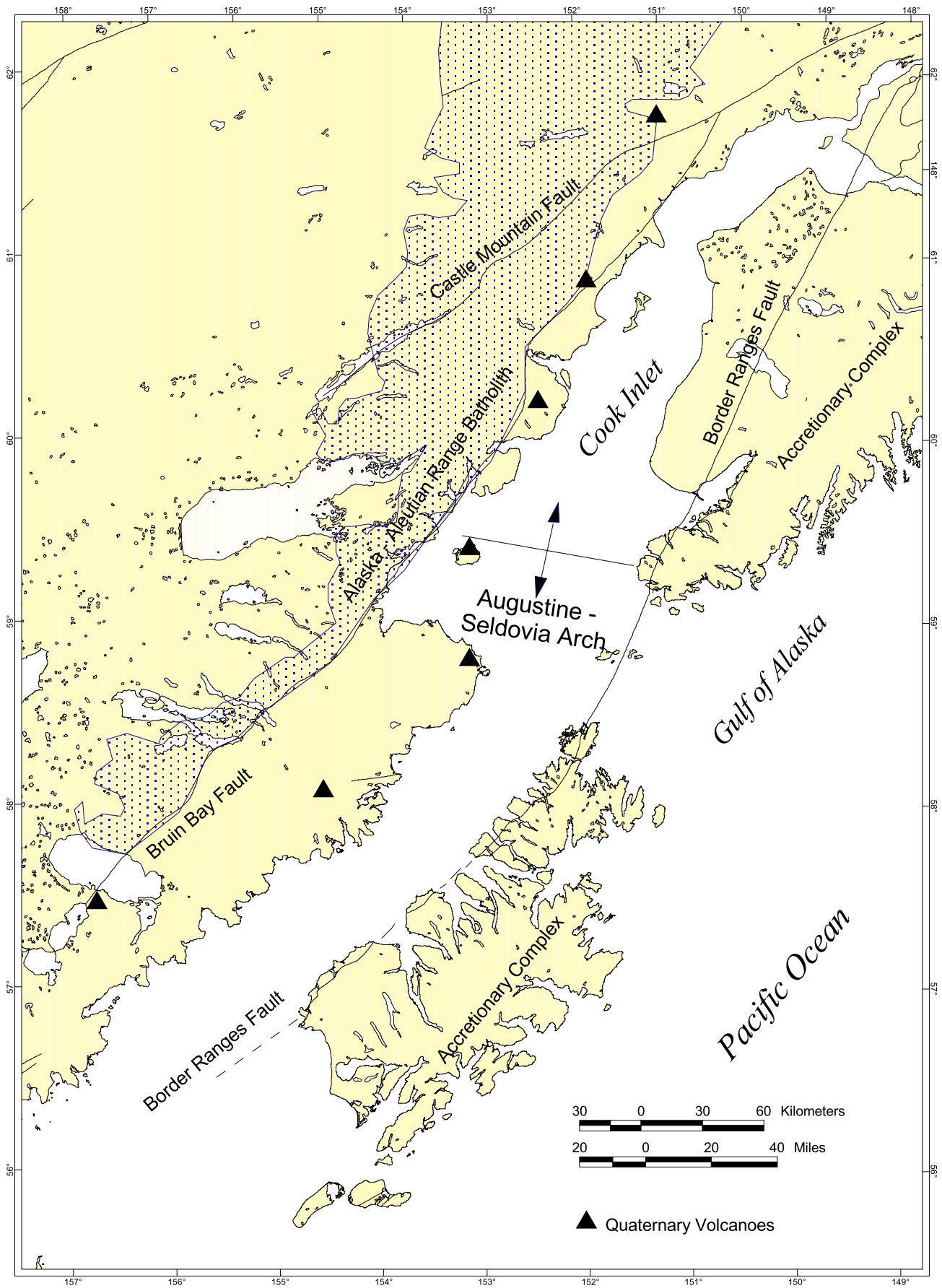


Figure B-1 Cook Inlet Regional Setting

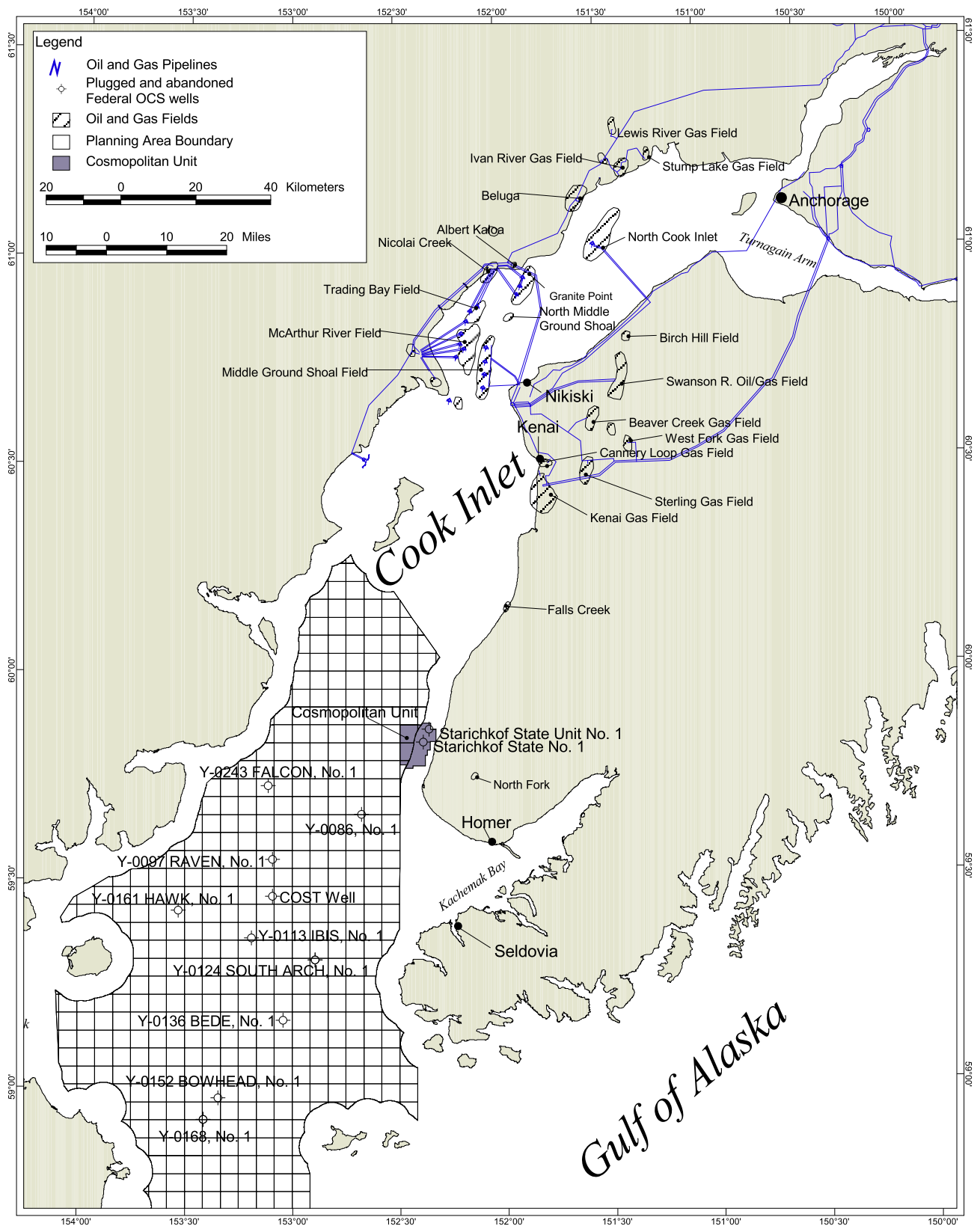
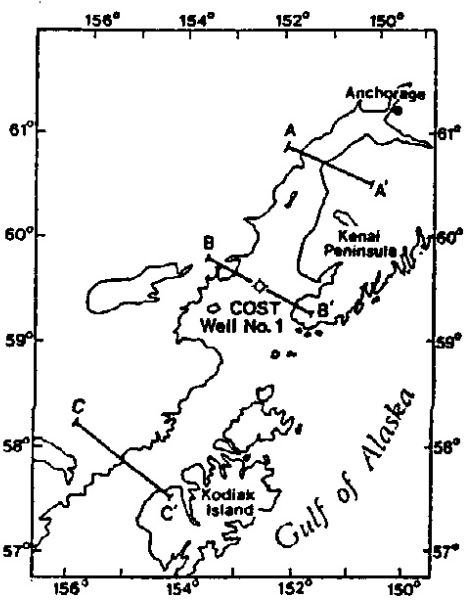
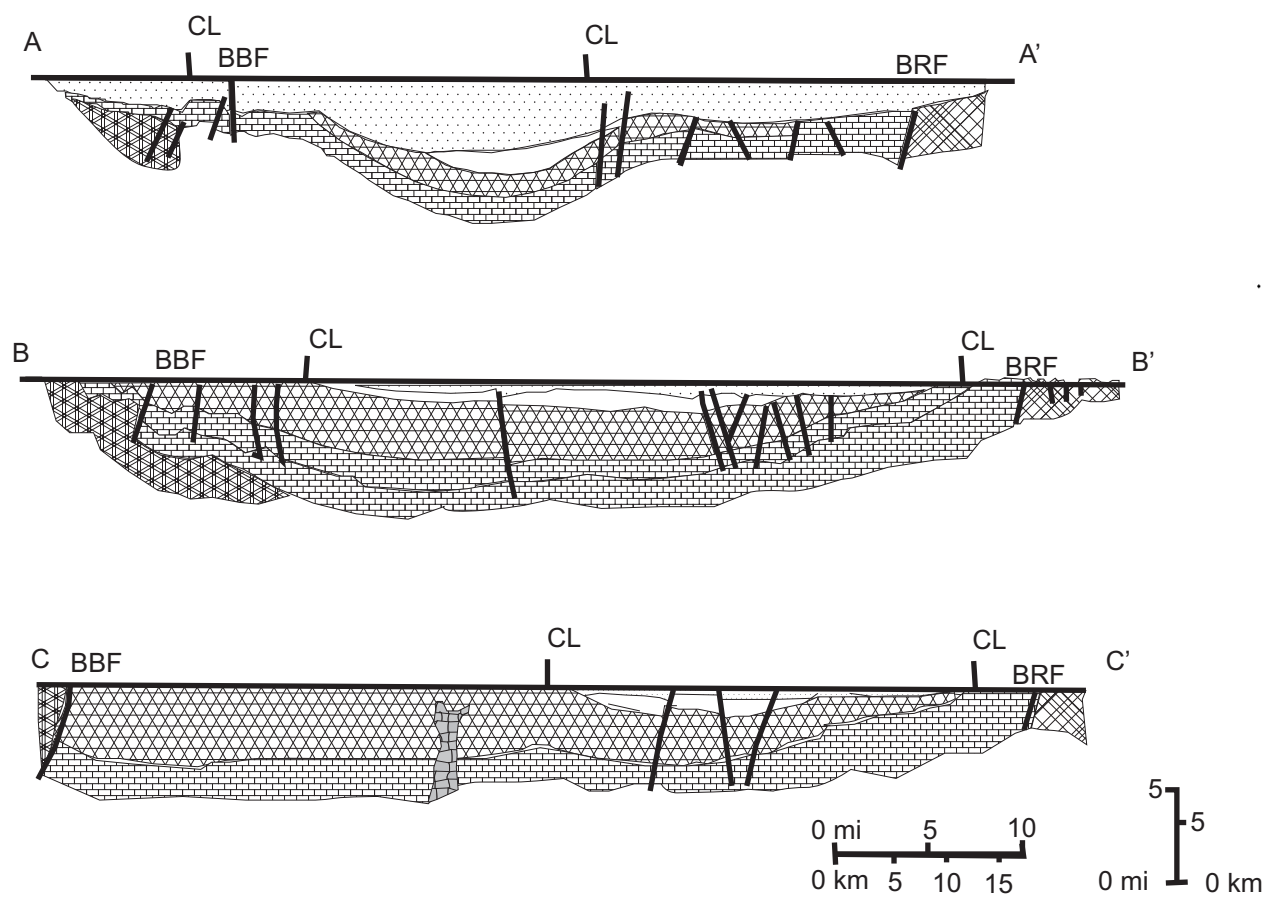


Figure B-2 Oil and Gas Fields in Cook Inlet. Infrastructure is located in State waters in upper Cook Inlet. Previous drilling in Federal waters has resulted in no commercial discoveries.

TERTIARY	EOC.	WEST FORELAND FM.	TUFFACEOUS SILTSTONE & CGL.
	OLIG. MIOC.	HEMLOCK CGL.	SS. & CGL
		TYONEK FM.	NON-MARINE SANDSTONE SILTSTONE COAL
	BELUGA FM.		
CRETACEOUS	EARLY	HERENDEEN FM.	MARINE SILTSTONE & LIMESTONE
	LATE	KAGUYAK FM.	MARINE SILTSTONE & SANDSTONE
JURASSIC	EARLY	TALKEETNA FM.	VOLCANICS
	MIDDLE	CHINITNA FM. & TUXEDNI GROUP	MARINE SILTSTONE
	LATE	NAKNEK FM.	MARINE SANDSTONE & SILTSTONE
TRIASSIC & OLDER		BASEMENT COMPLEX	LIMESTONE, CHERT, GREENSTONE

Figure B-3 Generalized Stratigraphic Column for Lower Cook Inlet












-  Tertiary
-  Cretaceous
-  Middle and Upper Jurassic
-  Lower Jurassic - Triassic
-  Alaska - Aleutian Range batholith
-  Volcanic rock
-  Mesozoic undifferentiated
- BBF Bruin Bay fault
- BRF Border Ranges fault
- CL Coastline
-  Location of cross sections
-  Fault

Figure B-4 Geologic Cross-Sections of Upper Cook Inlet, Lower Cook Inlet, and Shelikof Strait. The relatively thin tertiary section in Federal waters is illustrated.

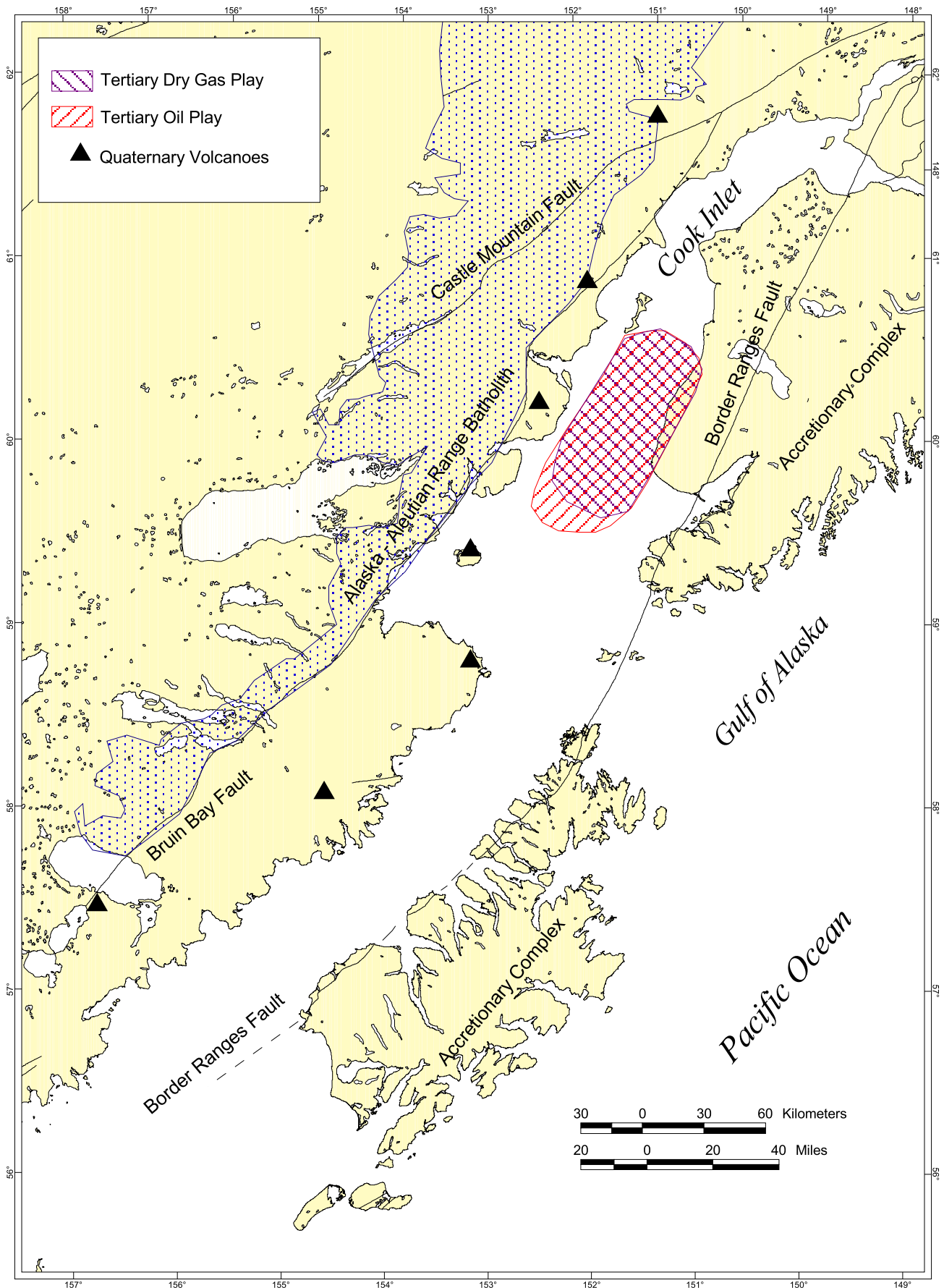


Figure B-5 Lower Cook Inlet Tertiary Plays

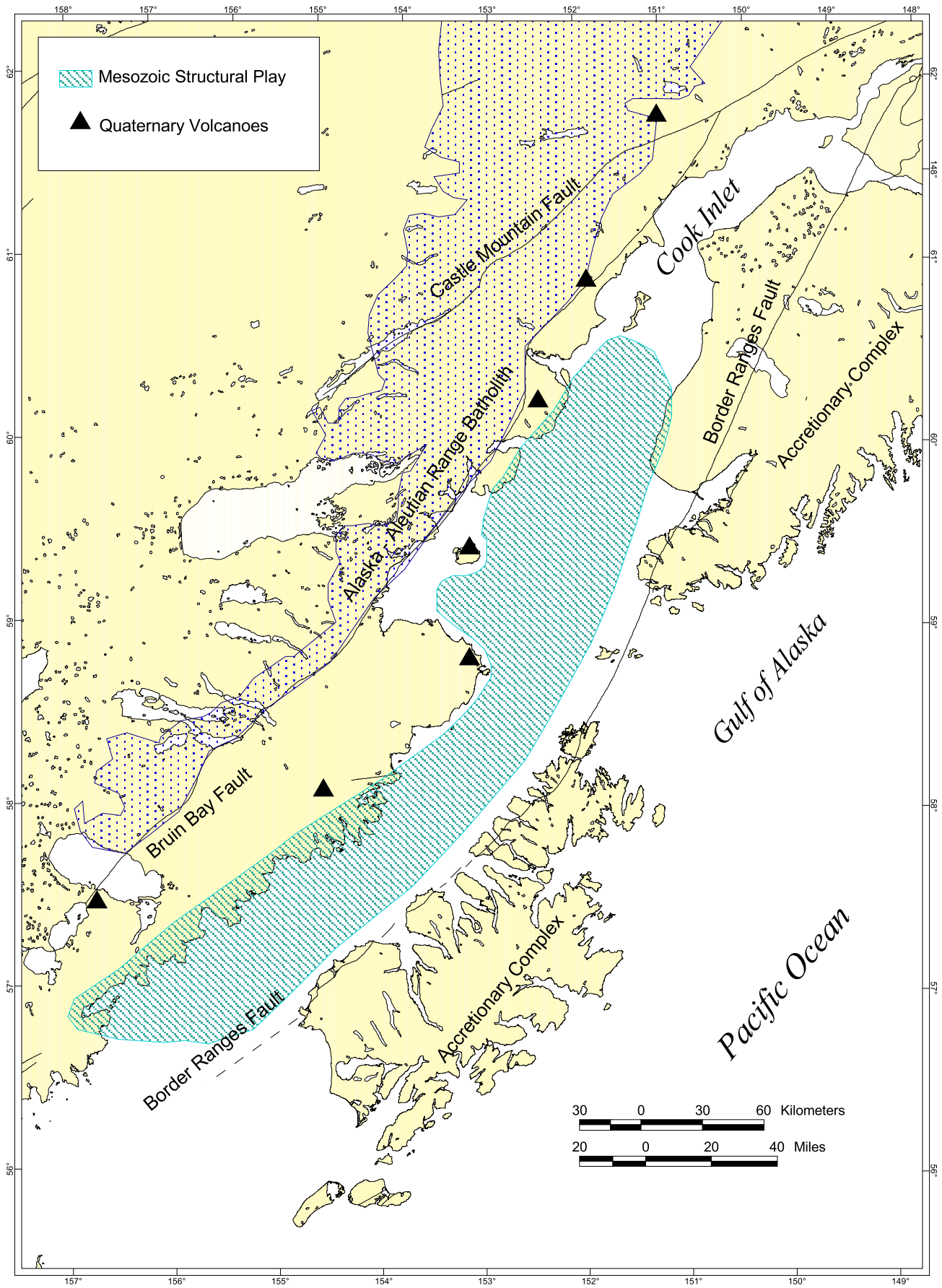


Figure B-6 Lower Cook Inlet Mesozoic Structural Play

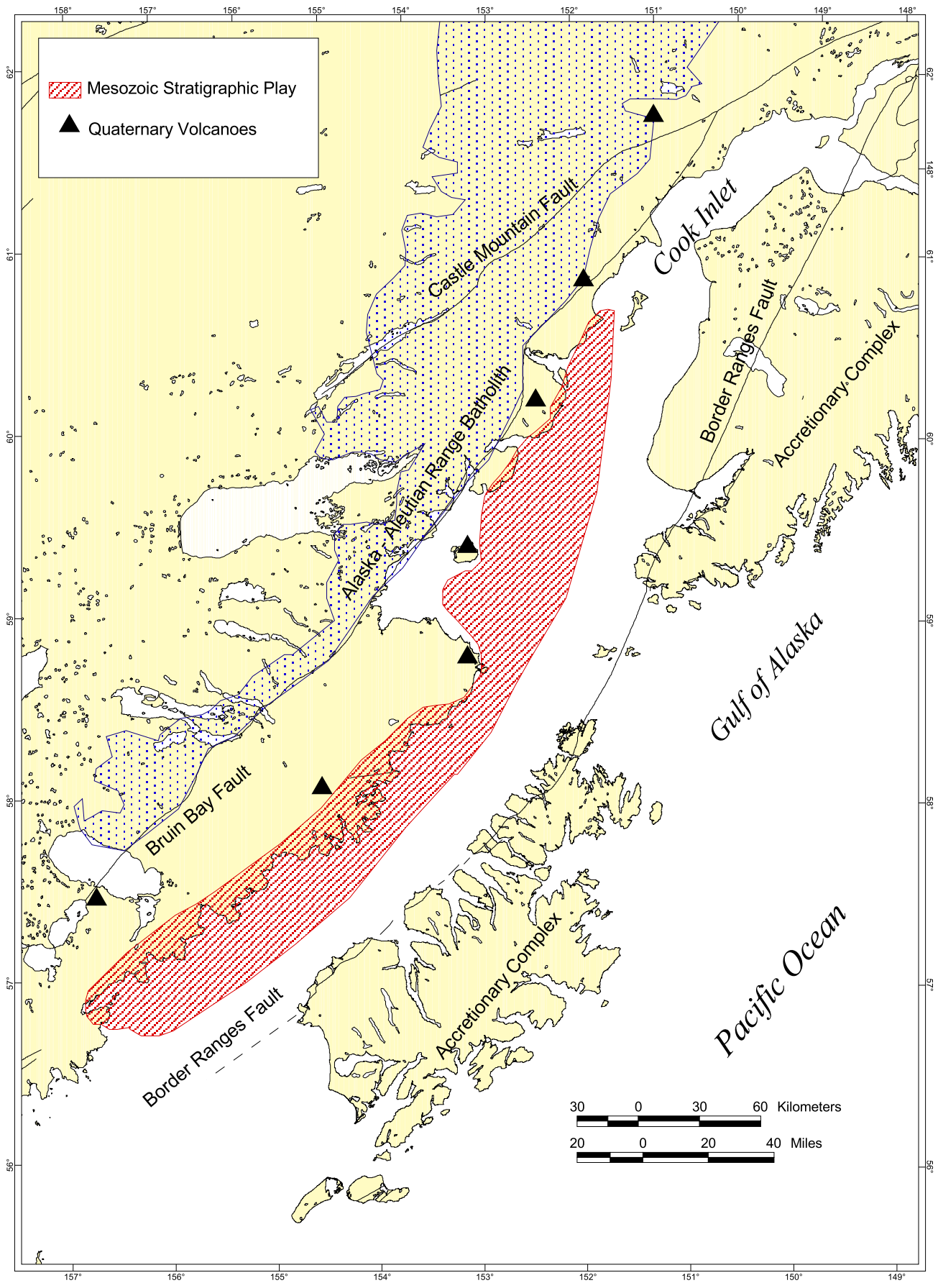


Figure B-7 Lower Cook Inlet Mesozoic Stratigraphic Play

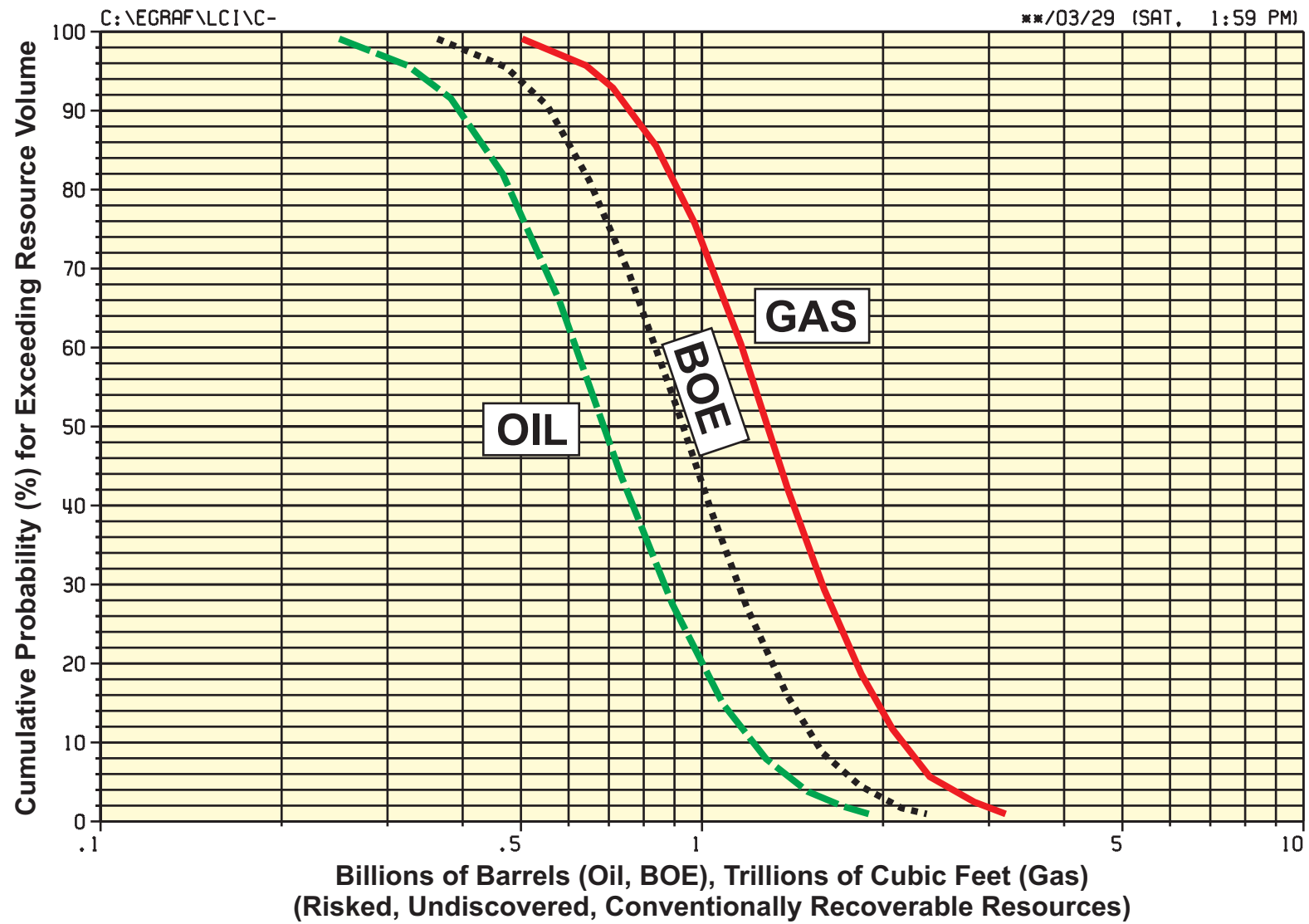


Figure B-8 Lower Cook Inlet OCS Planning Area Aggregation of All Plays as of Year 2000

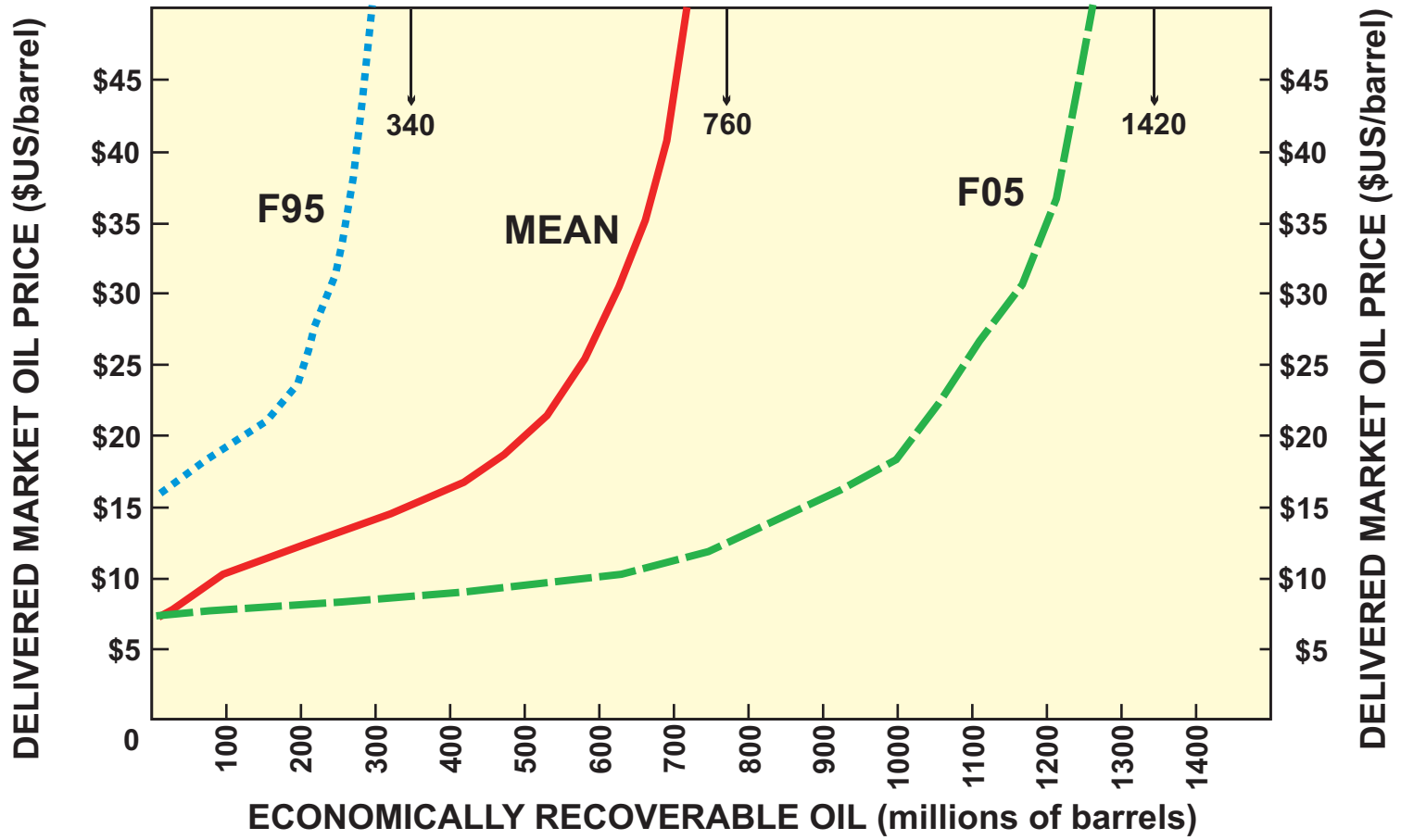


Figure B-9 Economically Recoverable Oil Resources in Lower Cook Inlet OCS Planning Area

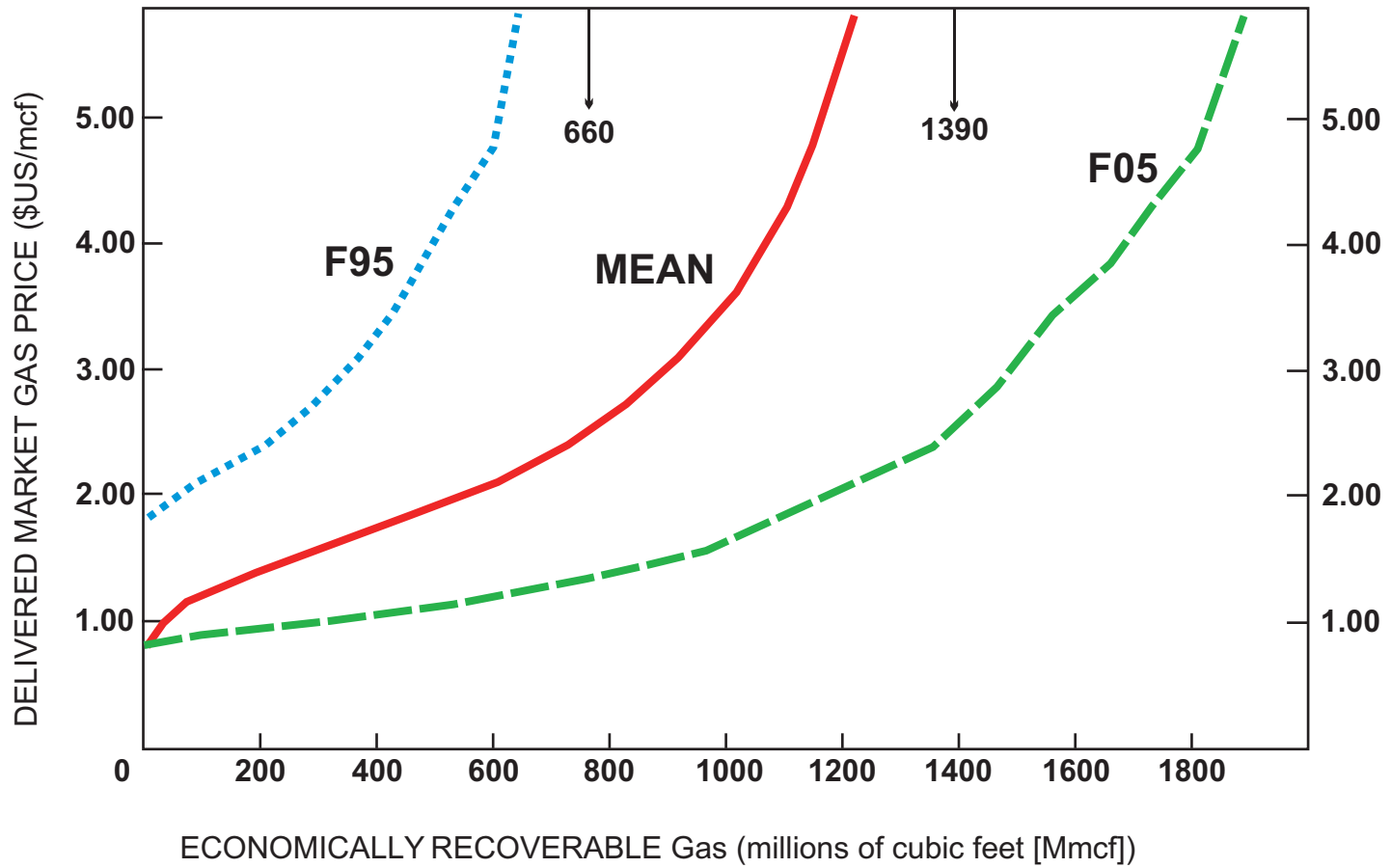


Figure B-10 Economically Recoverable Gas Resources in Lower Cook Inlet OCS Planning Area

Cook Inlet OCS Production

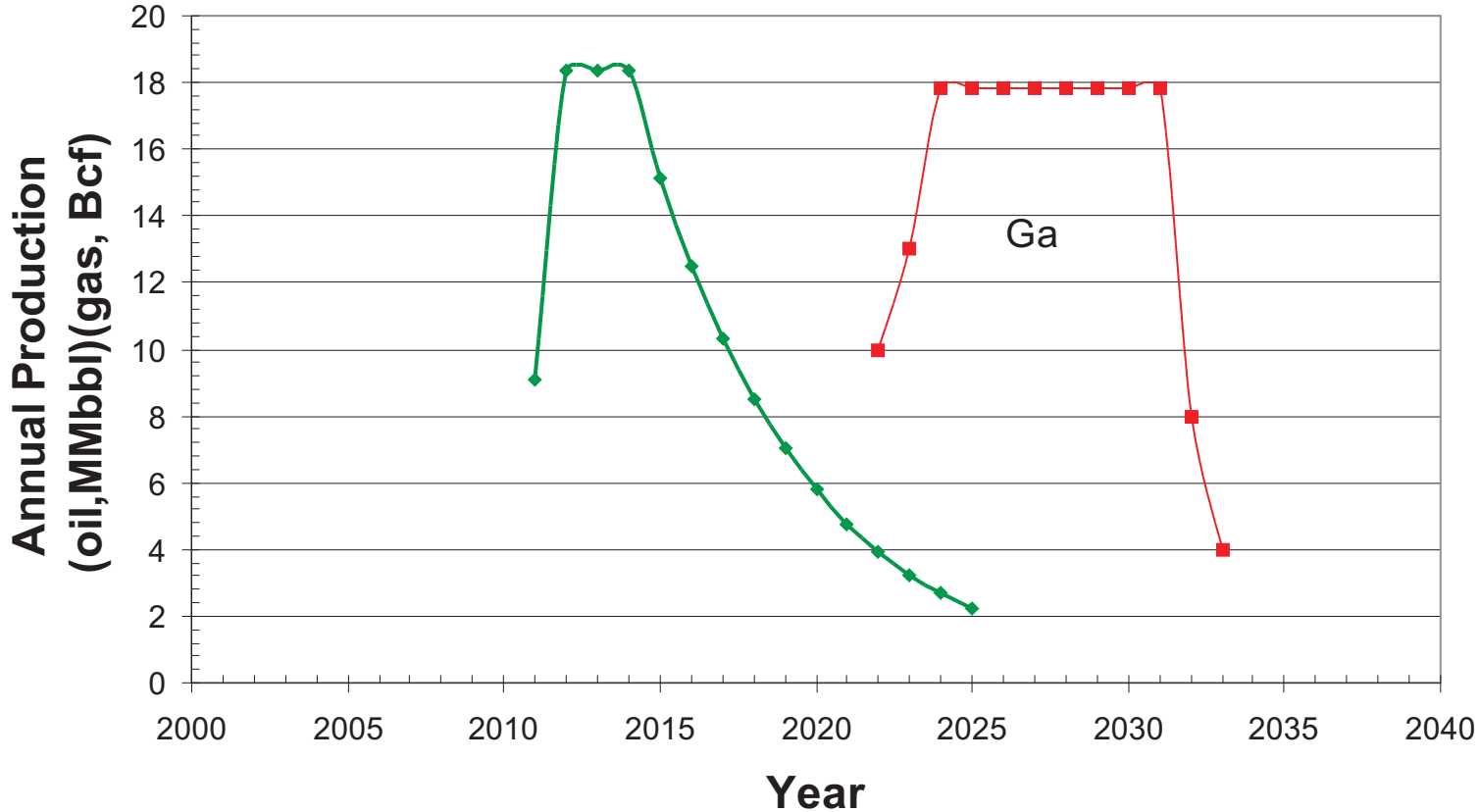


Figure B-11 Cook Inlet OCS Production

APPENDIX C

ENDANGERED SPECIES ACT

SECTION 7

CONSULTATION AND COORDINATION

List of Items in Appendix C

MMS letter dated June 18, 2002 sending list of Endangered Species—Proposed Cook Inlet Multi-Sale Oil and Gas Lease Sale to NMFS

NMFS response letter dated June 23, 2002

MMS memorandum dated June 18, 2002 sending list of Endangered Species—Proposed Cook Inlet Multi-Sale Oil and Gas Lease Sale to USFWS

USFWS memorandum response dated July 8, 2002

MMS letter dated November 12, 2002 requesting formal consultation with NMFS under ESA and forwarding the Draft Environmental Impact Statement for Cook Inlet Planning Area, Oil and Gas Lease Sales 191 and 199.

MMS memorandum dated November 12, 2002 requesting formal consultation with FWS under ESA and forwarding the Draft Environmental Impact Statement for Cook Inlet Planning Area, Oil and Gas Lease Sales 191 and 199.

NMFS letter dated January 6, 2003 acknowledging receipt of the DEIS.

USFWS memorandum dated February 18, 2003 notifying MMS of the USFWS determination that the proposed Cook Inlet OCS lease sale 191 and 199 and subsequent exploration activities are not likely to adversely affect listed species or jeopardize the continued existence of candidate species.

MMS memorandum dated March 5, 2003 to USFWS requesting a concurrence memorandum that clarifies USFEW determination, that informal consultation is adequate to ensure MMS compliance with Section 7 of ESA, and that no further consultation is necessary, concluding Section & consultation between MMS and USFWS.

USFWS memorandum dated March 21, 2003 to MMS confirming their concurrence.

NMFS letter dated March 31, 2003 to MMS transmitting Biological Opinion.

MMS letter dated May 28, 2003 to NMFS outlining response to Biological Opinion's Conservation Recommendation.



United States Department of the Interior



MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
949 East 36th Avenue, Suite 300
Anchorage, Alaska 99508-4363

JUN 15 2002

Mr. James Balsiger
Regional Administrator, Alaska Region
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

Dear Mr. Balsiger:

The Minerals Management Service has initiated the planning process for leasing and exploration associated with the proposed Outer Continental Shelf (OCS) Cook Inlet Oil and Gas Lease Multi-Sale in the Cook Inlet Planning Area. As described in the "Final Environmental Impact Statement for the OCS Oil and Gas Leasing Program: 2002-2007", the proposed multi-sale plan for Cook Inlet provides for two lease sales in the Cook Inlet Planning Area: Sale 191 in 2004; Sale 199 in 2006. The proposed 2002-2007 Cook Inlet Program Area excludes the Shelikof Strait blocks that were included in the 1997-2002 program area and adds blocks near Kachemak Bay (see attached map).

In accordance with the Endangered Species Act (ESA) Section 7 regulations governing interagency cooperation, we are contacting NMFS to clarify what ESA listed, proposed, and candidate species, as well as designated critical habitat, may be in or near the Proposed Program Area and/or that may be affected by the proposed action. At present, we are aware of the following species that are either listed, proposed for listing, or are candidates for listing, under the ESA for which NMFS has management authority and which may be present in areas that could be affected by the proposed sale. Given current information, these are the species that we intend to include in our biological evaluation of the potential effects of the proposed action on ESA listed, proposed, and candidate species as part of the draft Environmental Impact Statement:

<u>Common Name</u>	<u>Scientific Name</u>	<u>ESA Status</u>
Steller sea lion (Western U.S. Stock)	<i>Eumetopias jubatus</i>	Endangered
Steller sea lion (Eastern U.S. Stock)	<i>Eumetopias jubatus</i>	Threatened
Blue whale (Eastern North Pacific Stock)	<i>Balaenoptera musculus</i>	Endangered
Fin whale (Eastern North Pacific Stock)	<i>Balaenoptera physalis</i>	Endangered
Humpback whale (Central and Western North Pacific Stocks)	<i>Megaptera novaeangliae</i>	Endangered
North Pacific Right whale (Eastern North Pacific Stock)	<i>Eubalaena japonica</i> (formerly <i>Eubalaena glacialis</i> , historically <i>Balaena glacialis</i>)	Endangered
Sei whale (Eastern North Pacific Stock)	<i>Balaenoptera borealis</i>	Endangered



Mr. James Balsiger

2

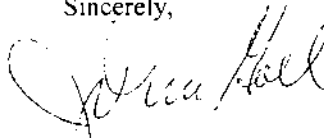
<u>Common Name</u>	<u>Scientific Name</u>	<u>ESA Status</u>
Sperm whale (North Pacific Stock)	<i>Physeter macrocephalus</i>	Endangered
Beluga whale (Cook Inlet Stock)	<i>Delphinapterus leucas</i>	Candidate

We are aware that there is designated critical habitat for Steller sea lions in areas within and near to the proposed Cook Inlet Multi-Sale Program Area. We expect to evaluate the potential effects of the proposed action, and to consult with NMFS, on this critical habitat. It is our understanding that there are no other proposed or designated critical habitats for any other species listed or proposed for listing under the ESA in regions potentially affected by activities associated with the proposed Cook Inlet Multi-Sale. However, should critical habitat be proposed or designated for any other listed species in areas within or adjacent to the Cook Inlet Planning Area, we would expect to consult on such areas and to include them in our analyses.

Please notify us of your concurrence with, or needed revisions to, our list of species and identification of associated critical habitat given above. Please notify us of any new information concerning these species, or other species under your agency's jurisdiction, in relation to the proposed project. To facilitate the review, we have provided a copy of this letter to your Anchorage field office. Upon receipt of your reply, we will begin our biological evaluation of the potential effects of the proposed action on relevant species and critical habitat.

We look forward to working with you and your staff in protecting and conserving endangered and threatened species. If you have any questions concerning this proposed action, please contact Dr. Lisa Rotterman at (907) 271-6604.

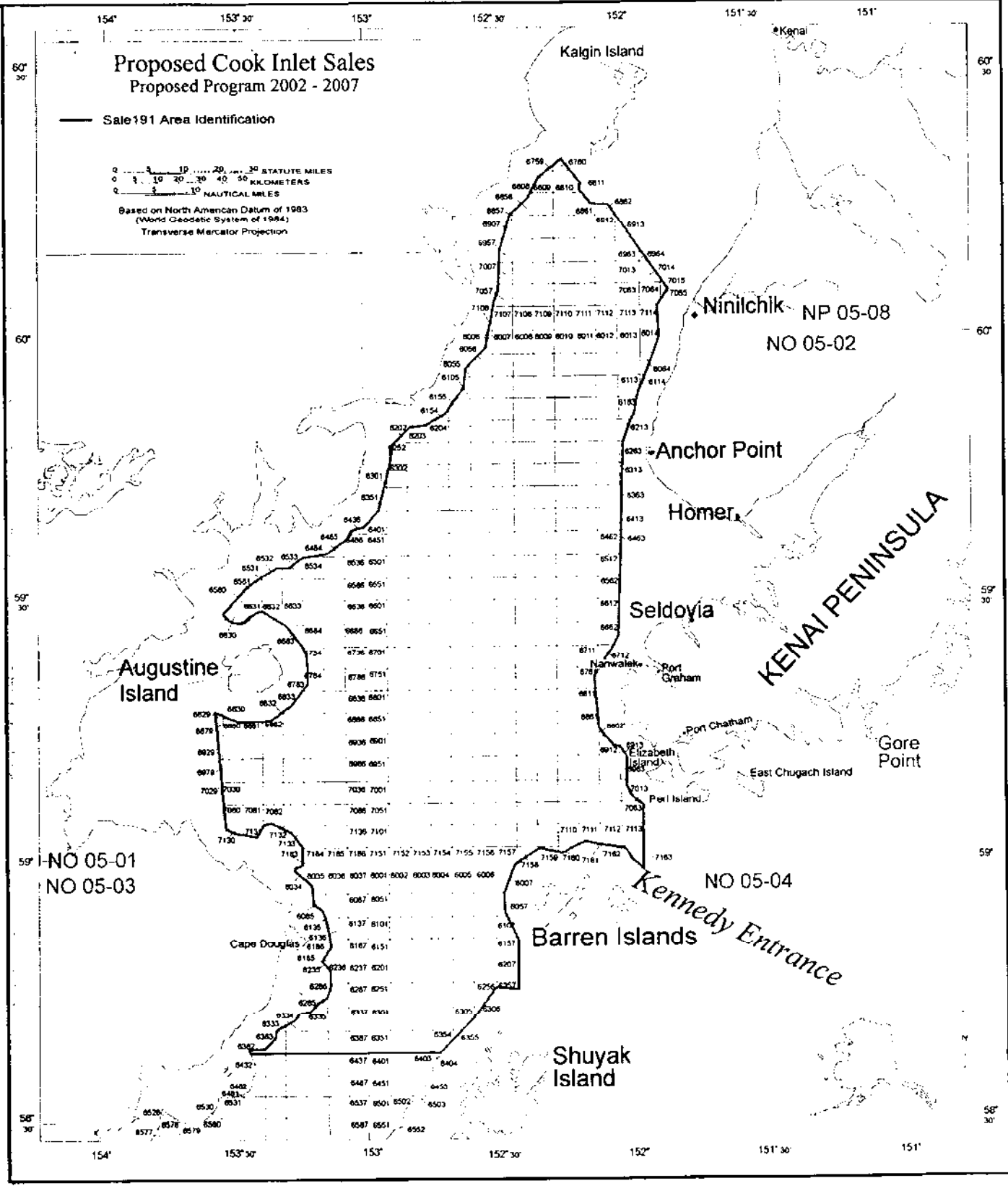
Sincerely,



John Goll
Regional Director

Attachment

cc: NMFS Anchorage Field Office





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service
P.O. Box 21668
Anchorage, Alaska 99802-1668

June 23, 2002

RECEIVED

JUN 2 2002

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Mr. John Goll
Regional Director
Minerals Management Service
949 East 36th Avenue, Suite 300
Anchorage, AK 99508-4363

Re: OCS Lease Sale in Cook Inlet

Dear Mr. Goll:

The National Marine Fisheries Service (NMFS) has reviewed the list of threatened and endangered species, or candidate species, as well as any designated critical habitat, that you forwarded to this office on June 18, 2002, for the oil and gas lease sale for the Cook Inlet Planning Area pursuant to section 7(a)(2) of the Endangered Species Act, as amended (16 U.S.C. 1531 et seq.) (ESA) and its implementing regulations (50 CFR §402.12).

Based on the information you provided, we concur with your list of species that you intend to include in your biological assessment of the potential effects of the proposed action on ESA species as part of the draft Environmental Impact Statement.

If you have any further questions or should there be changes to the scope or area of this proposed action, please contact Mr. Brad Smith, Protected Resources Division, Anchorage Field Office, NMFS. We appreciate your efforts to coordinate this action with our staff.

Sincerely,

James W. Balsiger
Administrator, Alaska Region

cc: Brad Smith





United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
949 East 36th Avenue, Suite 300
Anchorage, Alaska 99508-4363



Official File - Cook
Inlet Multi-Sale

JUN 18 2002

Memorandum

To: Regional Director, U.S. Fish and Wildlife Service, Alaska Regional Office

From: Regional Director *Steel*

Subject: Endangered Species - Proposed Cook Inlet Multi-Sale Oil and Gas Lease Sale

The Minerals Management Service has initiated the planning process for leasing and exploration associated with the proposed Outer Continental Shelf (OCS) Cook Inlet Oil and Gas Lease Multi-Sale in the Cook Inlet Planning Area. As described in the "Final Environmental Impact Statement for the OCS Oil and Gas Leasing Program: 2002-2007," the proposed multi-sale plan for Cook Inlet provides for two lease sales in the Cook Inlet Planning Area: Sale 191 in 2004; Sale 199 in 2006. The proposed 2002-2007 Cook Inlet Program Area excludes the Shelikof Strait blocks that were included in the 1997-2002 program area and adds blocks near Kachemak Bay (see attached map).

In accordance with the Endangered Species Act (ESA) Section 7 regulations governing interagency cooperation, we are contacting FWS to clarify what ESA listed, proposed, and candidate species, as well as designated critical habitat, may be in the Proposed Program Area or in nearby areas. At present, we are aware of the following species that are recently delisted, listed, proposed for listing, or are candidates for listing, under the ESA for which FWS has management authority and which may be present in areas that could be affected by the proposed sale:

<u>Common Name</u>	<u>Scientific Name</u>	<u>ESA Status</u>
Steller's eider (Alaska breeding population)	<i>Polysticta stelleri</i>	Threatened
Short-tailed albatross	<i>Phoebastria albatrus</i> (formerly <i>Diomedea albatrus</i>)	Endangered
Northern sea otter (Southwest Alaska Stock)	<i>Enhydra lutris kenyoni</i>	Candidate (west of Unimak Pass)
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	Delisted 2001
American peregrine falcon	<i>Falco peregrinus anatum</i>	Delisted 1999

Given current information, the species listed above are those that we intend to include in our biological evaluation of the potential effects of the proposed action on ESA listed, proposed, and candidate species as part of the draft Environmental Impact Statement. Additionally, we understand that FWS is writing a proposed rule to list the Southwest Alaska stock of sea otters under the ESA. Our understanding is that FWS will propose to list all sea otters within the Southwest Alaska stock, including sea otters from the north side of Cook Inlet west through to the end of the Aleutians, including sea otters in the Kodiak



Archipelago and along the Alaska Peninsula. We also understand that the FWS has received a petition to list Kittlitz's murrelet under the ESA and that the Service may designate Kittlitz's murrelet as a candidate species within the next 6 months. Because of this information, we also expect to conduct a biological evaluation of the potential for the proposed action to affect Kittlitz's murrelets and to affect the Southwest Alaska stock of sea otters, including those in the range of that stock that are not currently designated as candidates. The evaluation of the potential affect on Kittlitz's murrelet and on that portion of the Southwest Alaska stock of sea otters that is not currently designated as a candidate species will be included with the ESA protected species if, at the time of completion of our biological evaluation, they have actual status under the ESA. If they are not candidates or proposed for listing at that time, we will include the biological evaluation of potential impacts on these animals with analyses undertaken for other non-ESA species.

It is our understanding that there is no designated or proposed critical habitat for any listed or proposed species under the jurisdiction of the U.S. Fish and Wildlife Service in regions potentially affected by activities associated with the proposed OCS Cook Inlet Oil and Gas Lease Multi-Sale. If FWS expects to propose critical habitat for any species in areas that could potentially be affected by the proposed Cook Inlet Oil and Gas Lease Sales, please notify us promptly so that we can begin an evaluation of potential effects of the proposed action on such habitat.

Please notify us of your concurrence with, or needed revisions to, our list of species and identification of associated critical habitat given above. Please notify us of any new information concerning these species or other species under FWS jurisdiction relevant to the proposed project. To facilitate your review, we have provided a copy of this letter to your Ecological Services Anchorage Field Office. Upon receipt of your reply, we will prepare a biological evaluation reviewing potential effects of the proposed action on the aforementioned species.

We look forward to working with you and your staff to ensure the protection and conservation of endangered and threatened species. If you have any questions concerning this proposed action, please contact Dr. Lisa Rotterman (907) 271-6604.

Attachment

cc: Ecological Services Anchorage Field Office

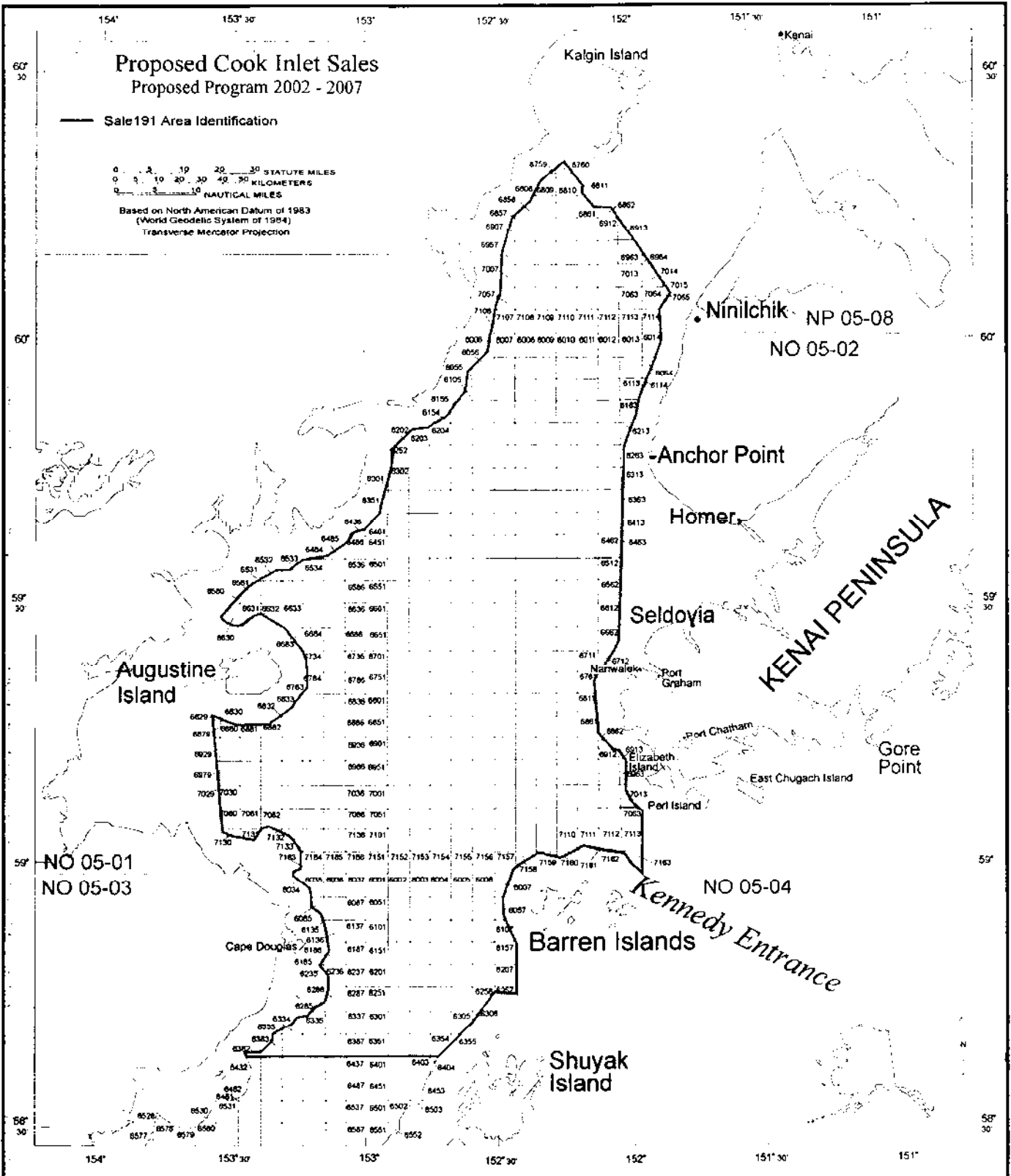


Proposed Cook Inlet Sales Proposed Program 2002 - 2007

— Sale 191 Area Identification

0 5 10 20 30 STATUTE MILES
 0 5 10 20 30 NAUTICAL MILES
 0 5 10 20 30 KILOMETERS

Based on North American Datum of 1983
 (World Geodetic System of 1984)
 Transverse Mercator Projection





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services Anchorage
605 West 4th Avenue, Room 61
Anchorage, Alaska 99501-2249

in reply refer to
WAES

RECEIVED

JUL - 9 2002

July 8, 2002

Dr. Lisa Rotterman
Minerals Management Service
Alaska Outer Continental Shelf Region
949 East 36th Avenue, Suite 300
Anchorage, AK 99508-4363

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Re: Threatened and endangered species list for Cook Inlet (*consultation number 2002-0171*)

Dear Dr. Rotterman,

This responds to your June 26, 2002 request for concurrence with your list of endangered and threatened species and critical habitats pursuant to section 7 of the Endangered Species Act of 1973, (16 U.S.C. 1531 et seq: 87 stat 884, as amended) likely to occur in the vicinity of Cook Inlet and Shelikof Strait. According to your letter, you are developing an EIS for the proposed Outer Continental Shelf Cook Inlet Oil and Gas Lease Multi-Sale.

Your understanding of federally listed or proposed species and/or designated or proposed critical habitat under our jurisdiction appears complete.

This letter relates only to federally listed or proposed species and/or designated or proposed critical habitat under our jurisdiction. It does not address species under the jurisdiction of National Marine Fisheries Service, or other legislation or responsibilities under the Fish and Wildlife Coordination Act, Clean Water Act, National Environmental Policy Act, or Bald and Golden Eagle Protection Act.

We look forward to further cooperation on this project. If you have any questions please contact me at (907) 271-1467. In future correspondences regarding this project please refer to consultation number 2002-0171.

Sincerely,

Ellen Weintraub Lance
Endangered Species Biologist



United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Washington, DC 20240



NOV 12 2002

Memorandum

To: Assistant Director for Endangered Species
U.S. Fish and Wildlife Service

From: Thomas A. Readinger *Thomas A. Readinger*
Associate Director for Offshore Minerals Management

Subject: Endangered Species Act Section 7, Consultation Request for the Proposed Cook Inlet Outer Continental Shelf Lease Sales from 2004 through 2006

The Minerals Management Service has completed the draft Environmental Impact Statement for the proposed multiple oil and gas lease sales in Cook Inlet for the time period 2004-2006. This is the first multiple-sale draft EIS the MMS has prepared for the Cook Inlet area. The proposed Cook Inlet Oil and Gas Lease Sales 191 and 199 are planned for 2004 and 2006, respectively.

Under Section 7(a)(2) of the Endangered Species Act, the MMS requests formal consultation with U.S. Fish and Wildlife Service on leasing and exploration activities associated with these proposed sales. The consultation should address all aspects of activities associated with oil and gas leasing and exploration. We understand that when the FWS issues a biological opinion for the proposed Cook Inlet Oil and Gas Lease Sales 191 and 199, the FWS does not relinquish the opportunity to reconsider and modify that opinion for future proposed sales. Therefore the MMS will prepare an Environmental Assessment for proposed sale 199 and send that EA to FWS for review. We also ask that the FWS biological opinion supersede all existing biological opinions for OCS oil and gas leasing and exploration activities in Cook Inlet.

To facilitate the timely completion of this consultation, we are providing copies of this memorandum and attachment to the FWS Region 7 Office in Anchorage, Alaska and to the Anchorage Ecological Services Field Office in Anchorage, Alaska. We are attaching the draft Cook Inlet EIS for your review and are providing two extra copies of this draft EIS for FWS Region 7 Marine Mammals Management staff, as requested by your Anchorage Ecological Services Field Office Supervisor. The draft EIS contains information on the anticipated composition, procedures, execution, and effects of the proposed Cook Inlet OCS oil and gas lease sales and exploration activities. The draft EIS, which serves as our biological evaluation for the proposed action, satisfies the information requirements specified in 50 CFR §402.12 and §402.14. The draft EIS also contains our Oil Spill Risk Assessment for this region. The OSRA examines the possible occurrence and contact of hypothetical oil spills if leases are issued and commercial quantities of oil are found and produced from the Cook Inlet OCS lease sales.

We request that the consultation be concluded within 90 days of initiation as provided for in 50 CFR §402.14(e). Unless you provide written notice of data deficiencies within 30 days of receiving this request, we will assume the consultation is initiated upon the FWS receiving this request. We also ask for a draft biological opinion and incidental take statement for our review by the end of the 90-day period. This should allow you to deliver a final biological opinion to the MMS within 45 days after concluding the consultation as provided for in 50 CFR §402.14(e). If you require an extension to the regulatory time frames referenced above, please provide a written request as specified in 50 CFR §402.14(e). This aforementioned schedule should allow you to deliver the final biological opinion to MMS, allow us to include it in the final Cook Inlet EIS, and ensure its consideration by the Secretary of the Interior during the decisionmaking process for the proposed Cook Inlet Oil and Gas Lease Sale 191.

If you consider recommending measures to minimize impacts to threatened and endangered species or determine a jeopardy situation may exist for all or any part of the proposed action, we ask that you notify us as early as possible, according to 50 CFR §402.14(g)(5), to allow the MMS and FWS staff time to jointly discuss the findings. We believe that such discussions will facilitate the consultation and ensure effective protection of listed species. These discussions can also ensure that any proposed alternatives are within our authority to control and implement, and are feasible, appropriate, and effective.

If you have any questions on this consultation or require additional information, please contact Ms. Judy Wilson, Minerals Management Service, Mail Stop 4042, 381 Elden Street, Herndon, Virginia 20170-4817 (commercial and FTS telephone: (703) 787-1075), or Dr. Lisa Rotterman, Minerals Management Service, Mail Stop 8300, 949 East 36th Avenue, Suite 300, Anchorage, Alaska 99508-4363 (commercial and FTS telephone: 907-271-6604).

Attachments

cc: (w/attachments)

Regional Director
U.S. Fish and Wildlife Service
Region 7
1011 East Tudor Road
Anchorage, Alaska 99503

Field Office Supervisor
U.S. Fish and Wildlife Service
Anchorage Ecological Services
605 West 4th Avenue, Room 61
Anchorage, Alaska 99501-2249

Supervisor, Fisheries/Ecological Services (without attachments)
U.S. Fish and Wildlife Service
Region 7
1011 East Tudor Road
Anchorage, Alaska 99503

Richard Hannan



United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Washington, DC 20240



Mr. Donald Knowles
Director, Office of Protected Resources
National Oceanic and Atmospheric
Administration Fisheries
1315 East-West Highway
Silver Spring, Maryland 20910

NOV 12 2002

Dear Mr. Knowles,

The Minerals Management Service has completed the draft Environmental Impact Statement for the proposed multiple oil and gas lease sales in Cook Inlet for the time period 2004-2006. This is the first multiple-sale draft EIS the MMS has prepared for the Cook Inlet area. The proposed Cook Inlet Oil and Gas Lease Sales 191 and 199 are planned for 2004 and 2006, respectively.

Under Section 7(a)(2) of the Endangered Species Act, the MMS requests formal consultation with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) on leasing and exploration activities associated with these proposed sales. The consultation should address all aspects of activities associated with oil and gas leasing and exploration. We understand that when NOAA Fisheries issues a biological opinion for the proposed Cook Inlet Oil and Gas Lease Sales 191 and 199, NOAA Fisheries does not relinquish the opportunity to reconsider and modify that opinion for future proposed sales. Therefore, the MMS will prepare an Environmental Assessment for proposed sale 199 and send that EA to NOAA Fisheries for review. We also ask that the NOAA Fisheries biological opinion supercede all existing biological opinions for OCS oil and gas leasing and exploration activities in Cook Inlet.

We submit for your review the draft EIS for Cook Inlet Lease Sales 191 and 199 to assist you in completing this consultation. The draft EIS contains information on the anticipated composition, procedures, execution, and effects of the proposed Cook Inlet oil and gas lease sales and associated exploration. The draft EIS also contains our Oil Spill Risk Assessment for this region. The OSRA examines the possible occurrence and contact of hypothetical oil spills if leases are issued and commercial quantities of oil are found and produced from the Cook Inlet Outer Continental Shelf lease sales. This draft EIS serves as our biological evaluation for the proposed action. We will be happy to provide additional information that you may find necessary for your deliberations.

To facilitate completion of this consultation, we are sending a copy of this letter and enclosures to the NOAA Fisheries Alaska Regional Office in Juneau and the NOAA Fisheries Anchorage Field Office. We request that the consultation be concluded within 90 days of initiation as provided for in 50 CFR §402.14(e). Unless you provide written notice of data deficiencies within 30 days of receiving this request, we will assume the consultation is initiated upon the NOAA Fisheries receiving this request. We also ask for a draft biological opinion and incidental

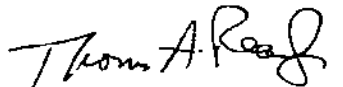


take statement for our review by the end of the 90-day period. This should allow you to deliver a final biological opinion to the MMS within 45 days after concluding the consultation as provided for in 50 CFR §402.14(e). If you require an extension to the regulatory time frames referenced above, please provide a written request as specified in 50 CFR §402.14(e). This aforementioned schedule should allow you to deliver the final biological opinion to MMS, allow us to include it in the final Cook Inlet EIS, and ensure its consideration by the Secretary of the Interior during the decisionmaking process for the proposed Cook Inlet Oil and Gas Lease Sale 191.

If you consider recommending measures to minimize impacts to threatened and endangered species or determine a jeopardy situation may exist for all or any part of the proposed action, we ask that you notify us as early as possible, according to 50 CFR §402.14(g)(5), to allow the MMS and NOAA Fisheries staff time to jointly discuss the findings. We believe that such discussions will facilitate the consultation and ensure effective protection of listed species. These discussions can also ensure that any proposed alternatives are within our authority to control and implement, and are feasible, appropriate, and effective.

If you have any questions on this consultation or require additional information, please contact Ms. Judy Wilson, Minerals Management Service, Mail Stop 4042, 381 Elden Street, Herndon, Virginia 20170-4817 (commercial and FTS telephone: (703) 787-1075), or Dr. Lisa Rotterman, Minerals Management Service, Mail Stop 8300, 949 East 36th Avenue, Suite 300, Anchorage, Alaska 99508-4363 (commercial and FTS telephone: 907-271-6604).

Sincerely,



Thomas A. Readinger
Associate Director for
Offshore Minerals Management

Enclosures

cc: (w/enclosures)

Mr. James Balsiger
Administrator
Alaska Region
National Oceanic and Atmospheric
Administration Fisheries
P.O. Box 21668
Juneau, Alaska 99802-1668

National Oceanic and Atmospheric
Administration Fisheries
Anchorage Field Office
Federal Building
222 West 7th Avenue, Box 43
Anchorage, Alaska 99513-7577



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

January 6, 2003

RECEIVED

JAN 7 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

Mr. John Goll
Regional Director
Minerals Management Service (MMS)
Anchorage, Alaska

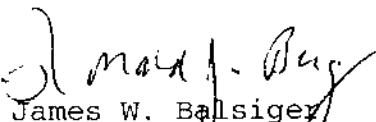
Dear Mr. Goll:

The National Marine Fisheries Service (NMFS) has received the Draft Environmental Impact Statement (DEIS) for the Cook Inlet Planning Area, Oil and Gas Lease Sale Areas 191 and 199. This DEIS incorporates a biological evaluation by MMS of the effects of this action on species listed as threatened and endangered under the Endangered Species Act (ESA), and on critical habitat for Steller sea lions. The ESA section 7 evaluation concluded that several species of listed marine mammals, as well as critical habitat for endangered Steller sea lions, may be adversely affected by oil and gas leasing activities, as well as subsequent development, in Cook Inlet. As a result of this conclusion, MMS requested formal consultation under section 7 of the ESA in a letter dated November 12, 2002.

NMFS will provide to MMS a biological opinion of the proposed action within 135 days of that date, unless extended by mutual agreement. A draft opinion will be provided to your staff at the earliest possible opportunity.

If you have any further questions, please contact Mr. Brad Smith in our Anchorage office at (907) 271-5006. Thank you for your continued interest in conserving threatened and endangered species in Alaska.

Sincerely,


James W. Balsiger
Administrator, Alaska Region





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Anchorage Fish & Wildlife Field Office
605 West 4th Avenue, Room G-61
Anchorage, Alaska 99501-2249

in reply refer to
AFWFO

FEB 18 2003

Memorandum

To: Regional Supervisor, Leasing and Environment
Minerals Management Service, Alaska OCS Region

From: Field Supervisor, Anchorage Fish and Wildlife Field Office

Subject: Section 7 Consultation for Proposed Cook Inlet Outer Continental Shelf Oil and Gas Lease Sales 191 and 199, and Subsequent Exploration Activities

This memorandum is in response to your Regional Director's November 12th, 2002, request for initiation of formal section 7 consultation concerning the proposed Cook Inlet outer continental shelf oil and gas lease sales 191 and 199 and subsequent exploration activities, in accordance with Section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). This request for initiation of consultation was received in our headquarters office on November 20th, 2002. A draft Environmental Impact Statement (EIS) accompanied the request for initiation of formal consultation. On December 12th, 2002, we acknowledged receipt of this letter and indicated that the Draft Environmental Impact Statement contained information sufficient to initiate formal consultation. Thus, formal consultation was initiated on November 20th, 2002.

Upon: 1) meeting with Minerals Management Service (MMS) staff on December 12th, 2002; 2) further review of the Draft EIS; 3) review of our best available data concerning our trust species; and 4) assurance from MMS staff that they would take action to minimize the chance that threatened Steller's eiders (*Polysticta stelleri*) would be unnecessarily disturbed from air traffic associated with exploration activities, we have determined that the proposed Cook Inlet Outer Continental Shelf Oil and Gas Lease Sales 191 and 199, and subsequent exploration activities, are not likely to adversely affect listed species or jeopardize the continued existence of candidate species. We made this determination after considering that Steller's eiders are not known to occur within the proposed action area, and the chance of leasing or exploration activities having an adverse affect upon this species is extremely low. In addition, our surveys indicate that the number of individuals from the southwest Alaska candidate population of Northern Sea Otters (*Enhydra lutris kenyoni*) that have been observed within the action area number approximately one. Thus, we do not believe that this candidate population would be put at risk of jeopardy as a result of this proposed action.

This letter relates only to federally listed or proposed species and/or designated or proposed critical habitat under our jurisdiction. It does not address species under the jurisdiction of the National Marine Fisheries Service, or other legislation or responsibilities under the Fish and Wildlife Coordination Act, Clean Water Act, National Environmental Policy Act, or Bald and Golden Eagle Protection Act.

We thank you for your extraordinary efforts in meeting our joint responsibilities under section 7 of the Endangered Species Act. If you or your staff has any questions regarding initiation of this section 7 consultation or the section 7 consultation process in general, please contact me at (907) 271-2787 or Endangered Species Branch Chief Gregory R. Balogh at (907) 271-2778. In future correspondences regarding this project, please refer to consultation number 2003-061.



United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
949 East 36th Avenue, Suite 300
Anchorage, Alaska 99508-4363



AUTMUN

MAR -5 2003

Memorandum

To: LaVerne Smith
Assistant Regional Director
U.S. Fish and Wildlife Service, Region 7

From: Regional Supervisor, Leasing and Environment *Food R King, Acty.*

Subject: Endangered Species Act Section 7 Consultation for Proposed Cook Inlet Outer Continental Shelf Oil and Gas Lease Sales 191 and 199 and Subsequent Exploration Activities

This memorandum is a response to the February 18, 2003, memorandum from the Anchorage Fish and Wildlife Field Office, Field Supervisor. The Field Office memorandum concerns the Endangered Species Act (ESA) Section 7 interagency consultation on proposed oil and gas lease sales in Cook Inlet. We would like to take the opportunity to convey our understanding of the consultation and request a confirmation from your office. Some background and our specific request follows.

On November 12, 2002, MMS requested formal consultation with the FWS under Section 7 (a)(2) of the Endangered Species Act on leasing and exploration activities associated with the proposed multiple oil and gas lease sales in Cook Inlet for the time period 2004-2006. We provided a draft Environmental Impact Statement (DEIS) with our request for formal consultation. The DEIS contains the information required in a biological assessment. FWS received the consultation request on November 20, 2002. On December 12, 2002, the Field Supervisor of the Anchorage Fish and Wildlife Field Office informed MMS that there was sufficient information within our DEIS to initiate formal consultation, and anticipated delivery of a draft Biological Opinion (minus the incidental take statement) to MMS no later than February 18, 2003. Staff from the Alaska Regional Offices of FWS and both the Alaska Regional Office and headquarters (via teleconference) of MMS met in December 2002 and January 2003 for section 7 consultation meetings.

On February 18, 2003, MMS received the aforementioned memo from your Anchorage Fish and Wildlife Field Office. In the letter, FWS states that "...we have determined that the proposed Cook Inlet Outer Continental Shelf Oil and Gas Lease Sales 191 and 199, and subsequent exploration activities, are not likely to adversely affect listed species or jeopardize the continued existence of candidate species. We made this determination after considering that Steller's eiders are not known to occur within the proposed action area, and the chance of leasing or exploration activities having an adverse affect upon this species is extremely low."

Based upon the wording in this letter, and subsequent discussion with FWS staff, it appears that FWS has concluded that MMS can fulfill its ESA section 7 responsibilities through informal consultation. If our understanding of the intent of your February 18, 2003 memorandum is correct, we request a concurrence memorandum from your Office that clarifies that FWS has determined that: (1) the proposed action (OCS oil and gas lease sales in Cook Inlet and associated exploration activities) is not likely to adversely affect any listed species or designated critical habitat; (2) informal consultation is adequate to ensure MMS compliance with Section 7 of the ESA and to fulfill its ESA consultation responsibilities for this proposed action; and (3) no further consultation on this proposed action is necessary, therefore, the Section 7 consultation between MMS and FWS on the proposed Cook Inlet OCS oil and gas lease sales is concluded.

Thank you for your attention to this ESA consultation. If you have any questions related to this matter, please contact Dr. Lisa Rotterman (907-271-6510) on our staff.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Anchorage Fish & Wildlife Field Office
605 West 4th Avenue, Room G-61
Anchorage, Alaska 99501-2249

in reply refer to
AFWFO

MAR 21 2003

Memorandum

To: Regional Director - Minerals Management Service

From: Field Supervisor, Anchorage Fish and Wildlife Field Office *A. Thompson*

Subject: Section 7 consultation on the effects of the proposed Cook Inlet Outer Continental Shelf Oil and Gas Lease Sales 191 and 199, and subsequent exploration activities on the threatened Steller's eider and candidate northern sea otter population

We are writing in response to your March 4, 2003, request for clarification of your responsibilities pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*, as amended) (Act), as these relate to the project specified above. Your original request for initiation of consultation, accompanied by a draft Environmental Impact Statement (EIS), was received in our headquarters office on November 20th, 2002. On December 12th, 2002, we acknowledged receipt of this letter and indicated that the Draft Environmental Impact Statement contained information sufficient to initiate formal consultation. Thus, formal consultation was initiated on November 20th, 2002.

As you are aware, our memorandum of February 18, 2003, indicated, conversely, that after further consideration, we had concluded that formal consultation would not be necessary for the proposed Cook Inlet OCS Lease Sales 191 and 199 and subsequent exploration activities. This agreement was reached following our meeting with your staff, and their assurance that Minerals Management Service (MMS) would take action to minimize eider disturbance from air traffic associated with exploration activities. As indicated in our earlier memorandum, Steller's eiders (*Polysticta stelleri*) are not known to occur within the proposed action area; therefore, the probability of leasing or exploration activities having an adverse effect upon this species is discountable. In addition, our surveys indicate that only a single individual from the southwest Alaska candidate population of northern sea otters (*Enhydra lutris kenyoni*) has been observed within the action area. Thus, we conclude that this candidate population would not be jeopardized as a result of this proposed action. Candidate species receive no official protection under section 7 of the Act. However, we applaud your foresight in considering potential project effects to this declining population, especially since it could be proposed for listing prior to the completion of the planned project activities.

In summary, this memorandum states our concurrence with your understanding from our February 18, 2003 memorandum, that we have determined that the Cook Inlet Outer Continental Shelf Oil and Gas Lease Sales 191 and 199, and subsequent exploration activities, as currently proposed, are not likely to adversely affect Steller's eiders, or jeopardize the continued existence of the southwest Alaska candidate population of northern sea otters. This concurrence supersedes all previous biological opinions for OCS oil and gas leasing activities in Cook Inlet. Please note that this concurrence does not apply to any development projects that may result from this, or previous Cook Inlet lease sales.

This concludes section 7 Endangered Species Act consultation for the Cook Inlet Outer Continental Shelf Oil and Gas Lease Sales 191 and 199, and subsequent exploration activities, as presently planned. Should project plans change, if additional information on the distribution of listed or proposed species becomes available, or if new species are listed that may be affected by this project, re-initiation of consultation may be required.

This letter relates only to federally listed or proposed species and/or designated or proposed critical habitat under our jurisdiction. It does not address species under the jurisdiction of National Marine Fisheries Service, nor does it abrogate your responsibilities under the Fish and Wildlife Coordination Act, Clean Water Act, National Environmental Policy Act, or Bald and Golden Eagle Protection Act.

We thank you for your efforts in meeting our joint responsibilities under section 7 of the Endangered Species Act. If you or your staff has any questions regarding the section 7 consultation process, please contact me at (907) 271-2787 or Endangered Species Branch Chief Gregory R. Balogh at (907) 271-2778. In future correspondences regarding this project please refer to consultation number 2003-061.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service

P.O. Box 21668

Juneau, Alaska 99802-1668

March 31, 2003

Thomas A. Readinger
Associate Director for Offshore Minerals Management
Minerals Management Service
Washington, D.C. 20240

Dear Mr. Readinger:

Enclosed is the Biological Opinion by the National Marine Fisheries Service (NMFS) for the "Federal Oil and Gas Leasing and Exploration Sales 191 and 199 within the Cook Inlet, Alaska Planning Area" by Minerals Management Service (MMS). The Biological Opinion examines the effects of these sales on endangered and threatened species in accordance with section 7 of the Endangered Species Act. The MMS requested consultation on this action in a letter to NMFS dated November 12, 2002. A Biological Evaluation of leasing and exploration actions in Cook Inlet was also provided by MMS as part of the December 2002, Draft Environmental Impact Statement (DEIS) for this action. NMFS acknowledged receipt of this information in a letter dated January 6, 2003.

This Biological Opinion is based on information provided in the DEIS and other sources of information. A complete administrative record of this consultation is on file at the NMFS office in Anchorage, Alaska.

NMFS concludes that leasing and exploration are not likely to jeopardize the continued existence of the Steller sea lion, or fin and humpback whales, nor result in the adverse modification of critical habitat. In formulating this opinion, NMFS used the best available information, including information provided by MMS and recent research on the effects of oil and gas activities on the listed species. This opinion addresses Sales 191 and 199. However, an Environmental Assessment and/or updated Biological Evaluation will be prepared by MMS prior to Sale 199. NMFS reserves the opportunity to reconsider and possibly modify this opinion during the planning process for Sale 199.

Conservation recommendations are provided with the opinion which are intended to improve our understanding of the impacts of oil and gas activities on listed species, as well as to minimize or mitigate adverse effects.

Sincerely,

James W. Balsiger *for*
Administrator, Alaska Region



ENDANGERED SPECIES ACT: SECTION 7 CONSULTATION

BIOLOGICAL OPINION

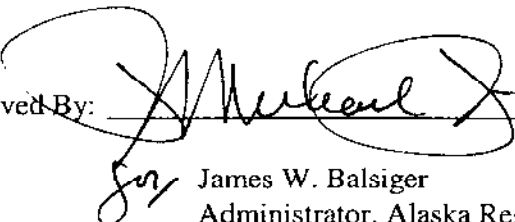
Agency: Minerals Management Service

Activity: Oil and Gas Sales 191 and 199
Cook Inlet, Alaska Planning Area; and
Authorization of Small Takes Under the Marine Mammal
Protection Act

Consultation By: National Marine Fisheries Service
Alaska Region

Date Issued: _____

Approved By: _____


for James W. Balsiger
Administrator, Alaska Region
National Marine Fisheries Service

3/31/03

Date

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1.0 PURPOSE AND CONSULTATION HISTORY

1.1 Introduction

Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.), requires that each Federal agency shall ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species listed under the ESA, or result in the destruction or adverse modification of critical habitat of such species. When the action of a Federal agency may affect a threatened or endangered species, that agency is required to consult with either the National Marine Fisheries Service (NMFS) or the U.S. Fish and Wildlife Service (FWS), depending on the listed species that may be affected. For the actions described in this document, the Action Agencies are the U.S. Department of the Interior, Minerals Management Service (MMS) and the U.S. Department of Commerce, NMFS.

This document constitutes the Biological Opinion (Opinion) by NMFS of the effect on listed species of proposed Oil and Gas Lease Sale 191 within the Cook Inlet, Alaska planning area of the U.S. Outer Continental Shelf (OCS), and of future incidental take authorizations issued by NMFS under section 101(a)(5) of the Marine Mammal Protection Act of 1972 (MMPA). This Opinion evaluates the impacts of leasing and exploration on Steller sea lions, fin whales and humpback whales, and determines whether the described actions may jeopardize their continued existence or adversely modify critical habitat of Steller sea lions. This Opinion incorporates much of the information presented within the Biological Evaluation/DEIS prepared by the Minerals Management Service, as well as pertinent research on matters related to oil exploration. Traditional knowledge and the observations of Native Alaskans were also considered in preparing this opinion, along with information gained through scientific research. This knowledge contributes, along with western science, to a more complete understanding of these issues. A reasonable assessment of potential effects can only be made by considering both these systems of knowledge.

This Opinion addresses the incremental-step of leasing and exploration. Its purpose is to provide an assessment of those actions on the continued existence of endangered Steller sea lion, fin, and humpback whales, as well as to provide measures to conserve these species and mitigate any potential impacts. NMFS believes the subsequent phases of OCS development, production, transportation, and abandonment will require additional consultation. This is due in part to their uncertainty at this time and the many variables associated with individual tract development. However, some information on development and production is presented and assessed in this Opinion in order to provide an adequate evaluation regarding the reasonable likelihood of the entire action violating section 7(a)(2) of the Endangered Species Act, as amended. Should commercially producible quantities of oil be discovered and development and production be proposed, MMS would initiate new formal consultation. Further consultation would also occur if additional species were listed or critical habitat designated, if the proposed action were substantially modified, or if significant new effects-related information were developed.

1.2 Consultation History

NMFS has consulted with MMS on previous lease sales in this region. These included Sales 149 (1995), 88 (1984), 46, 55, and 60 (1980). None of these opinions found the proposed sales were likely to jeopardize the continued existence of listed species, or cause adverse modification of critical habitat.

As required under the ESA, MMS notified NMFS by letter dated June 18, 2002, of those endangered, threatened, and candidate species of which it was aware that could occur in areas within or near the Cook Inlet program area and that could, therefore, be potentially affected by the Proposed Action. NMFS responded by letter dated June 23, 2002, confirming that consultation should occur for the following species under its jurisdiction: blue whales, humpback whales, fin whales, North Pacific right whales, sei whales, sperm whales, and the Steller sea lion (western and eastern) populations. Subsequent assessment within the DEIS determined that three of these species are likely to be adversely affected. NMFS proceeded with formal consultation and preparation of this opinion in consideration of those three species.

Minerals Management Service requested this opinion supercede previous consultations on all prior and existing lease sales in the OCS within Cook Inlet. As noted above, NMFS and MMS have previously consulted on OCS Lease Sales in the Cook Inlet region; all of which overlap with portions of the area proposed for leasing under Sales 191 and 199. Since the location of existing active leases are within the proposed areas for Sales 191 and 199, this opinion supercedes all previous opinions of NMFS and applies to any new leases within that area. This opinion does not apply to areas outside of the area proposed for leasing in the DEIS for Sales 191 and 199.

1.3 Term of this Opinion

This Opinion is valid upon issuance and remains in force until re-initiation may become necessary due to factors described in section 1.1. NMFS will re-initiate consultation if there are significant changes in the type of exploratory activities occurring on the OCS, or if new information indicates these actions are impacting listed species or critical habitat to a degree or in a manner not previously considered.

2.0 DESCRIPTION OF THE PROPOSED ACTION

The discussion in this section is based on the exploration and development scenarios presented in section II.A, section II.B, and Appendix B of this Draft EIS (MMS, 2002). The reader is referred to these documents for detailed discussion of likely exploration scenarios, timing of infrastructure development, assumed resource-recovery rates and quantities, assumed pipeline placement, resource production timeframes, and other information relevant to the development of resources that would occur under the Proposed Action (Alternative I).

2.1 The Proposed Action

MMS proposes to lease 517 whole or partial blocks covering 2.5 million acres (about 1.01 million hectares) of the U.S. OCS for oil and gas exploration, development, and production in the Cook Inlet, Alaska Planning Area. This area is located seaward of the State of Alaska submerged lands boundary and extends from 3 to approximately 30 miles offshore in water depths ranging from approximately 30 to 650 feet. This area, minus leased blocks, would be offered in each of two sales, Sale 191 and Sale 199. A separate decision will be made on holding each sale. The decision for Lease Sale 191 will be made in 2004 and the decision for Lease Sale 199 will be made in 2006. The MMS assumes that exploration will follow each of the sales, but that only a single field would be developed, producing approximately 140 million barrels of crude oil and 190 billion cubic feet of natural gas. Discovery of the field may result from exploration activities of either or both lease sales.

2.2 Action Area

The action area for purposes of this Opinion is defined as the Sale Area for Alternative 1, consisting of 2.5 million acres within lower Cook Inlet, Alaska, extending from approximately 58 degrees, 40 minutes N latitude to 60°16 minutes N latitude. Additionally, the action area will include those waters outside of Cook Inlet that may be impacted by oil spills originating within the Sale Area. This area includes waters of the Gulf of Alaska and Shelikof Strait. The direct and indirect effects of this action on listed species are expected to be confined to the action area.

2.3 Species Covered in this Opinion

In the Draft EIS, MMS determined that the proposed actions may adversely affect the endangered Steller sea lion, humpback whale, and fin whale. Other listed species were determined unlikely to be adversely affected. This determination was made for sperm, North Pacific right, and sei whales; primarily because those species do not typically occur within, near, or "downstream" of the proposed Cook Inlet lease sale area. NMFS concurs with these conclusions. Therefore this opinion will consider whether the proposed action is, or is not, likely to jeopardize the continued existence of Steller sea lions, humpback whales, and fin whales. The Cook Inlet population of beluga whale, *Delphinapterus leucas*, is present in the planning area for Sales 191 and 199, however this species is not listed under the ESA and is not considered in this opinion.

NMFS also recognizes that gray whales (*Eschrichtius robustus*) occur in the action area. Although gray whales were removed from the list of threatened and endangered species in 1994 (59 FR 31094), NMFS has a continuing obligation to monitor the status of this species. This biological opinion will not assess whether oil and gas leasing actions are likely to jeopardize the continued existence of gray whales; however, this opinion will include a general assessment of the effects of the action on gray whales as part of NMFS' continuing responsibility to monitor the status of the species.

2.4 MMPA Small Take Authorization

Section 101(a)(5)(A) of the MMPA directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals if certain findings are made and regulations governing the take are issued. This opinion will also address these authorizations. Such authorization may be accomplished through regulations and issuance of letters of authorization under those regulations, or through issuance of an incidental harassment authorization. These authorizations may be granted only if an activity would have no more than a negligible effect on the species (or stock), would not have an unmitigable adverse impact on the availability of the marine mammal for subsistence uses, and that the permissible method of taking and requirements pertaining to the monitoring and reporting of such taking are set forth to ensure the activity will have the least practicable adverse effect on the species or stock and its habitat.

NMFS anticipates certain activities associated with the proposed action may result in the taking of marine mammals (including endangered species), and that small take authorizations may be sought for those actions. The actions discussed in this opinion will constitute the expected range of actions for which these MMPA authorizations may be requested.

3.0 STATUS OF PROTECTED SPECIES AND ENVIRONMENTAL BASELINE

The following information on the status of the species provides the background necessary to understand the important issues related to this consultation. By regulation, environmental baselines for biological opinions include the past and present impacts of all state, Federal or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process (50 CFR §402.02)

3.1 Steller Sea Lions

The following description is derived from the NMFS 2002 biological opinion of scientific research permits for Steller sea lions (NMFS 2002a), unless otherwise noted.

3.1.1 Species Description and Distribution

The Steller sea lion (*Eumetopias jubatus*) was listed as threatened under the ESA on November 26, 1990. The listing followed a decline in the U.S. population of about 64% over the three decades prior to the listing. In 1997, the species was split into two Distinct Population Segments (DPSs) on the basis of demographic and genetic dissimilarities. The status of the western DPS was changed to endangered, and the status of the eastern DPS was left unchanged (62 FR 30772).

Steller sea lions are the only extant species of the genus *Eumetopias*, and are members of the subfamily Otariinae, family Otariidae, superfamily Otarioidea, order Pinnipedia. Steller sea lions are distributed around the rim of the North Pacific Ocean from the Channel Islands off Southern California to northern Hokkaido, Japan. Their distribution is probably centered in the Gulf of Alaska and the Aleutian Islands. Within their range, land sites used by Steller sea lions are referred to as rookeries and haulouts. Rookeries are used by adult sea lions for pupping, nursing, and mating during the reproductive season (generally from late May to early July). Haulouts are used by all ages classes of both genders but are generally not where sea lions reproduce. The continued use of particular sites may be due to site fidelity, or the tendency of sea lions to return repeatedly to the same site, often the site of their birth. Presumably, these sites were chosen and continue to be used because they protect sea lions from predators, some measure of protection from severe climate or sea surface conditions, and (perhaps most importantly) are in close proximity to prey resources.

Mating occurs on land (or in the surf or intertidal zones), males are able to defend territories and thereby exert at least partial control over access to adult females and mating privileges. The pupping and mating season is relatively short. In May, adult males compete for rookery territories. In late May and early July, adult females arrive at the rookeries, where pregnant females give birth to a single pup. Mating occurs about one to two weeks later. The gestation period is probably about 50 to 51 weeks.

The reproductive cycle includes mating, gestation, parturition, and nursing or post-natal care. The adult female's ability to complete this cycle successfully depends largely on the prey available to her.

3.1.2 Natural Factors Affecting Species

3.1.2.1 Predation on Steller Sea Lions

Killer whales and sharks prey on Steller sea lions. Anecdotal evidence of such predation is available, but the rate of predation and the potential impact on trends of the western population can not be determined with any measure of confidence. Given the reduced abundance of sea lions at multiple sites (rookeries and haulouts), predation by killer whales and other sources of natural mortality may exacerbate the decline in local areas.

3.1.2.1 Disease

Disease and parasitism are also potential causes of population decline, and evidence is available indicating that animals have been exposed to diseases and carry parasites. However, none of the evidence available at this time provides any indication that disease or parasitism caused the decline or are impeding recovery. Disease and parasitism are common in all pinniped populations and have been responsible for major die-offs, but such events are usually relatively short-lived and provide more evidence of morbidity or mortality. The ramifications of disease and parasitism remain a concern, both as primary and secondary problems, but do not appear to be significant impediments to recovery at this time or on the basis of the information currently available.

3.1.3 Potential Effects of Human Activities on Steller Sea Lions

A large number of human activities have contributed to the current status of the eastern and western populations of Steller sea lions. Some of those activities occurred in the past, ended, and no longer appear to affect either sea lion population; other activities ended, but had effects on the structure or composition of Steller sea lion populations that continue to hinder their ability to reverse their decline toward extinction. Still other human activities appeared to affect Steller sea lion populations after their decline and continue to affect them. The following section summarizes the principal phenomena that are known to affect Steller sea lion populations.

3.1.3.1 Commercial harvest

The Bureau of Commercial Fisheries awarded a contract to a commercial fishing company to develop techniques for harvesting sea lions in Alaskan waters in 1959. The two-fold purpose of the contract was to reduce the sea lion herds (because of alleged depredations on salmon and halibut fisheries) and to provide an economical source of protein for fur farms, fish hatcheries, and similar purposes. In 1959, 630 sea lion bulls were killed in an experimental harvest, but the harvest proved to be uneconomical. Another study was contracted by the Bureau of Indian Affairs of the Department of Interior to analyze the feasibility of a commercial sea lion harvest in Alaska. A total of 45,178 pups of both sexes were killed in the eastern Aleutian Islands and Gulf of Alaska between 1963 and

1972. Such harvests could have depressed recruitment in the short term and may have explained declines noted at some sites in the eastern Aleutian Islands or the Gulf of Alaska. These harvests do not appear to explain declines in other regions.

3.1.3.2 Subsistence harvest

The MMPA authorizes the taking of any marine mammal by Alaska Natives for subsistence purposes or for the purpose of creating and selling authentic native articles of handicrafts and clothing, given that it is not done in a wasteful manner. The ESA also contains provisions that allow for the continued subsistence use of listed species. Both the ESA and the MMPA contain provisions that allow regulation of the subsistence harvest of endangered, threatened, or depleted species, if necessary.

The subsistence harvest of Steller sea lions from 1960 to 1990 has been estimated at 150 animals per year, but the estimate was subjective and not based on any referenced data. This estimate is well below the levels observed in the 1990s), which seems inconsistent with the fact that sea lion populations are at their lowest recorded levels. In 1986, a working group organized by Dr. Ken Pitcher suggested that subsistence harvest had a potentially low impact on recent Steller sea lion population declines in Alaska. More recent estimates indicate a mean annual subsistence take of 448 animals from the Western U.S. stock (i.e., the endangered population) from 1992 to 1995. The majority (79%) of sea lions were taken by Aleut hunters in the Aleutian and Pribilof Islands. The great majority (99%) of the statewide subsistence take was from west of 144°W long. (i.e., the range of the western population).

Current subsistence harvests represent a large proportion of the potential biological removal that was calculated for the western stock of the Steller sea lion pursuant to the MMPA. However, subsistence harvests account for only a relatively small portion of the Steller sea lions lost to the population each year.

3.1.3.3 Pollutants

No toxicological studies have been performed on otariids to determine clinical ramifications of increasing contaminant burdens. However, Organochlorines have been associated with levels of health concern in other animals. Mink kit survival was compromised at approximately 8,000 ng/g lipid weight, immunosuppression in harbor seals was detected at average concentrations of 16,488 ±1023 ng/g lipid weight, and premature parturition in California sea lions was observed at burdens of 134,000 ng/g lipid weight.

Steller sea lion samples from the Bering Sea and Gulf of Alaska found that blubber PCBs ranged from 5,700-41,000 ng/g lipid in males, and 570-16,000 ng/g lipid in females. PCB concentration in males was orders of magnitude higher than other Arctic and Alaskan pinnipeds. DDT levels in males ranged from 2.8 to 17 ng/g lipid and in females from 0.19 to 6.5 ng/g lipid. For males and females aged 6 and 8 years of age, DDE levels were 5.4 and 1.8 ug/g lipid wt, respectively. Females

were found to decrease the contaminant burden throughout life, relative to adult males, by dumping contaminants through lactation. Sea lions samples from the Bering Sea, Barren Islands, Prince William Sound, and St. George Island (Pribilof Islands) contained organochlorine levels in the blubber at 23000 +/-37000 ng/g, wet weight. There was large variance because of the large range of 1,800-110,000 ng/g. The high level at 110,000 ng/g was from a 1-2 year old male from the Bering Sea. Finally, the NMFS Northwest Center examined blubber samples from 24 Steller sea lions from southeast Alaska and report PCB levels of 630-9900 ng/g wet weight and DDT levels of 400-8200 ng/g wet weight, respectively. These studies indicate burdens are present in Steller sea lions that could be sufficient to produce health effects.

Concerns exist that the toxicity of contaminants may increase within an individual in negative energy balance, or nutritional limitation, as lipophilic contaminants such as PCBs are released as blubber stores are metabolized. While levels of circulating organochlorines did increase in the blood of harbor seals with high body burdens of organochlorines fasting for 15 days, immunological responses remained within normal ranges suggesting short-term fasting did not add an additional threat. Based on endocrine responses, however, seals with high levels of contaminants were likely to be less likely to adequately respond to stressful situations.

Several studies indicate that organochlorine pollutant residues in the tissues of California sea lions and harbor seals have been associated with reproductive failure. These pollutants have also been reported in association with impaired immune systems. A number of studies have also indicated relatively high concentrations of organochlorine compounds in Steller sea lions in Alaska, although these levels have not yet been associated with any changes in health or vital rates. Steller sea lions were undoubtedly exposed to oil after the Exxon Valdez oil spill, but no significant adverse effects of the oil were confirmed. At the present time, the available information does not support the hypothesis that contaminants are a significant contributor to the decline of sea lions, or an impediment to their recovery.

3.1.3.4 Oil and gas development

Previous biological opinions by NMFS for both the Bering Sea and Aleutian Islands and the Gulf of Alaska analyzed this factor under the heading of "human development". In each case it was noted that human development activities that result in aquatic habitat destruction or the release of contaminants and pathogens (e.g., mineral exploration and extraction, effluent discharges into the marine environment) could directly diminish the health and reproductive success of Steller sea lions or cause them to abandon feeding, breeding, or resting sites. Development and discharge proposals typically undergo ESA section 7 consultation during the Federal permitting process.

On October 15, 1993, NMFS completed a biological opinion on the leasing and exploration activities of the Minerals Management Service in the Cook Inlet/Shelikof Strait region (lease sale Number 149). The opinion concluded that such activities were not likely to jeopardize the continued existence of any listed or proposed species, nor were they likely to destroy or adversely modify critical habitats (NMFS 1993). In 1995, NMFS conducted another section 7 consultation with MMS and concluded

that the lease sale and exploration activities for the proposed oil and gas Lease Sale Number 158, Yakutat were not likely to jeopardize the continued existence of any listed or proposed species, nor were the activities likely to destroy or adversely modify critical habitats.

Oil spills are expected to adversely affect Steller sea lions if they contact individual animals, haulouts, or rookeries when occupied, or large proportions of major prey populations. Potential effects could include: oil exposure, including surface contact and pelage fouling, inhalation of contaminant vapor, and ingestion of oil or oil-contaminated prey. Because the insulation of nonpup sea lions is provided by a thick fat layer rather than pelage whose insulative value could be destroyed by fouling, oil contact is not expected to cause death from hypothermia; however, sensitive tissues (e.g., eyes, nasal passages, mouth, lungs) are likely to be irritated or ulcerated by exposure to oil or hydrocarbon fumes. Oiled individuals probably will experience effects that may interfere with routine activities for a few hours to a few days; movement to clean water areas is expected to relieve most symptoms. Females returning from feeding trips may transfer oil to pups, which probably are more sensitive to oil contact.

The extent to which sea lions avoid areas that have been oiled is not known; individuals observed in Prince William Sound and the Gulf of Alaska after the Exxon Valdez oil spill did not appear to avoid oiled areas. Sea lions were sighted swimming in or near oil slicks, oil was seen near numerous haulout sites, and oil fouled the rookeries at Seal Rocks and Sugarloaf Island. All of the sea lions collected in Prince William Sound in October 1989 had high enough levels of metabolites of aromatic hydrocarbons in the bile to confirm exposure and active metabolism at the tissue level. But as noted above, no evidence indicated damage caused to sea lions from toxic effects of the oil.

Although Alaska is estimated to contain large petroleum resources on its outer continental shelf and in state waters, the only oil produced from Alaska's outer continental shelf to date has come from the Northstar facility in the Beaufort Sea. In the foreseeable future, the kind of extensive oil and gas activities that characterize the outer continental shelf of the central Gulf of Mexico is not likely for the Gulf of Alaska. Little or no oil and gas exploration or production is occurring or likely to occur soon on the Russian outer continental shelf area of the Bering Sea. The National Research Council recently concluded, therefore, that oil and gas activities in the Bering Sea have not significantly affected the Bering Sea ecosystem.

3.1.3.5 Disturbance

Several studies investigating the potential effects of oil and gas exploration and development on the Steller sea lion have noted human disturbance as a potential factor. Disturbance from aircraft and vessel traffic has extremely variable effects on hauled-out sea lions. Sea lion reaction to occasional disturbances ranges from no reaction at all to complete and immediate departure from the haulout area. The type of reaction appears to depend on a variety of factors. When sea lions are frightened off rookeries during the breeding and pupping season, pups may be trampled or even abandoned in extreme cases. Sea lions have temporarily abandoned some areas after repeated disturbance, but in other situations they have continued using areas after repeated and severe harassment. Permanent

abandonment has been observed at areas in the Pribilof Islands that were subjected to repeated disturbance. A major sea lion rookery at Cape Sarichef was abandoned after the construction of a light house at that site, but then has been used again as a haulout after the light house was no longer inhabited by humans. The consequences of such disturbance to the overall population are difficult to measure. Disturbance may have contributed to or exacerbated the decline, although it is not likely to have been a major factor. At present, concern about the effects of disturbance focuses on disturbance as an impediment to the study of sea lions and other potential causes of the decline.

3.1.3.6 Entanglement in Marine Debris

Observations of Steller sea lions entangled in marine debris have been made throughout the Gulf of Alaska and in southeast Alaska, typically incidental to other sea lion studies. Two categories of debris, closed plastic packing bands and net material, accounted for the majority of entanglements. NMFS researchers surveyed numerous rookeries and haulout sites to evaluate the nature and magnitude of entanglement in debris on Steller sea lions in the Aleutian Islands. Of 30,117 animals counted (15,957 adults; 14,160 pups) only 11 adults showed evidence of entanglement with debris, specifically, net or twine, not packing bands or other materials. Entanglement rates of pups and juveniles appear to be even lower than those observed for adults. It is possible that pups were too young during the survey to have encountered debris in the water or that pups and juveniles were unable to swim to shore once entangled and died at sea. Some investigators have assumed that mortalities from entanglement in marine debris were not a major factor in the observed declines of Steller sea lions and estimated that perhaps fewer than 100 animals are killed each year.

3.1.3.7 Incidental Take of Steller Sea Lions in Fisheries

Steller sea lions have been caught incidentally in foreign commercial trawl fisheries in the Gulf of Alaska and Gulf of Alaska since those fisheries developed in the 1950s. From 1960 to 1990, incidental take may have accounted for over 50,000 animals, or almost 40% of his estimated total mortality due to various fishery and subsistence activities.

3.1.3.8 Intentional Take of Steller Sea Lions in Fisheries

Historically, Steller sea lions and other pinnipeds were seen as nuisances to the fishing industry and management agencies because they damaged catch and fishing gear and were thought to compete for fish. Sea lion numbers were reduced through bounty programs, controlled hunts, and indiscriminate shooting. Steller sea lions were also killed for bait in the crab fishery. Government sanctioned control measures and harvests stopped in 1972 with the introduction of the MMPA.

Anecdotal reports of shootings continue and a small number of prosecutions have occurred or are occurring. The full extent of incidental killing is undetermined and therefore should be considered a potential factor in the decline of sea lions at some locations.

3.1.3.9 Research

Steller sea lions have been captured, handled, wounded, and killed for scientific research for almost 50 years. In 1998, an estimated 48,000 Steller sea lions were disturbed by these investigations, 384 pups were captured, tagged, and branded, but no mortalities were reported.

3.1.4 Critical Habitat

Steller sea lion critical habitat is listed at 50 CFR §226.202. All major Steller sea lion rookeries and major haulouts in Alaska, along with associated terrestrial, air, and aquatic zones, are designated as critical habitat. Critical habitat includes the following areas:

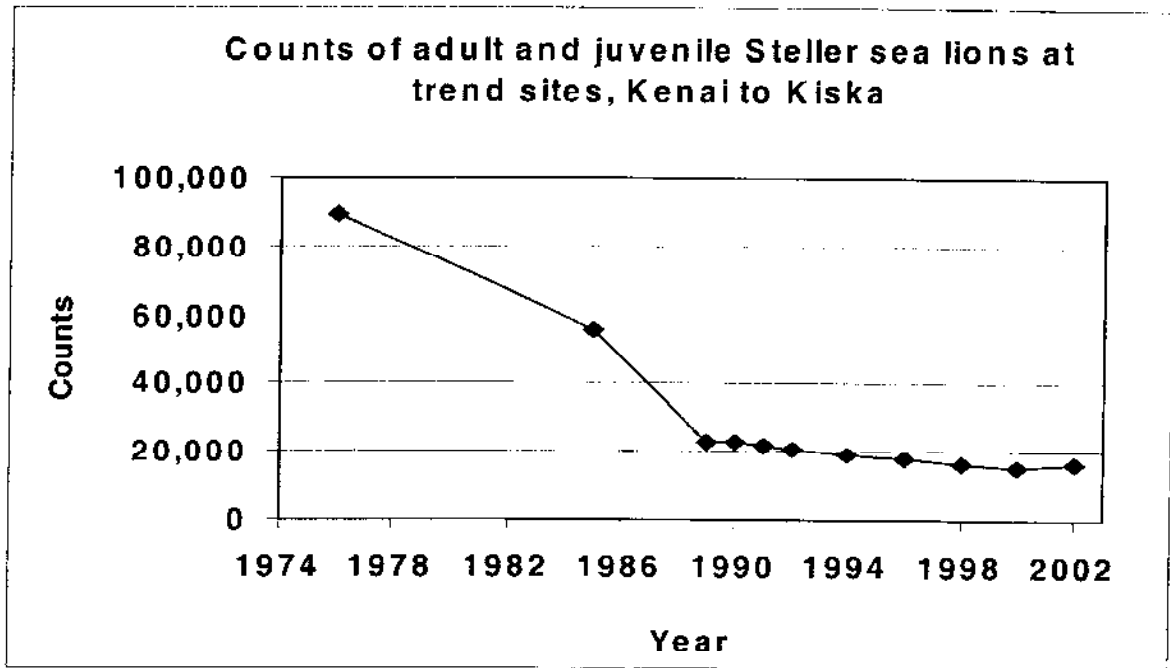
- A terrestrial zone that extends 3,000 feet (0.9 km) landward from the baseline or base point of each major rookery and major haulout
- An air zone that extends 3,000 feet (0.9 km) above the terrestrial zone, measured vertically from sea level
- An aquatic zone that extends 3,000 feet (0.9 km) seaward in State and Federally managed waters from the baseline or basepoint of each major haulout in Alaska that is east of 144° W long.
- An aquatic zone that extends 20 nm (37 km) seaward in State and Federally managed waters from the baseline or basepoint of each major rookery and major haulout in Alaska that is west of 144° W long.

Critical habitat also includes the Shelikof Strait foraging area in the Gulf of Alaska which consists of the area between the Alaska Peninsula and Tugidak, Sitkinak, Aiaktilik, Kodiak, Raspberry, Afognak and Shuyak Islands (connected by the shortest lines): bounded on the west by a line connecting Cape Kumlik (56°38'/157°26'W) and the southwestern tip of Tugidak Island (56°24'/154°41'W) and bounded in the east by a line connecting Cape Douglas (58°51'N/153°15'W) and the northernmost tip of Shuyak Island (58°37'N/152°22'W).

3.1.5 Population Status and Trends

Numbers of Steller sea lions declined dramatically throughout much of the species' range, beginning in the mid- to late 1970s (fig. 1,2). For two decades prior to the decline, the estimated total population was 250,000 to 300,000 animals. The population estimate declined by 50-60% to about 116,000 animals by 1989, and by an additional 15% by 1994. Final results from counts conducted in 1998 are not yet available, but preliminary results for trend sites between the Kenai Peninsula to Kiska Island indicate a decline of about 9% in nonpups since 1996, and 19% in pups since 1994.

Figure 1. Counts of adult and juvenile Steller sea lions in the western DPS (by region) from late 1970s to 2002



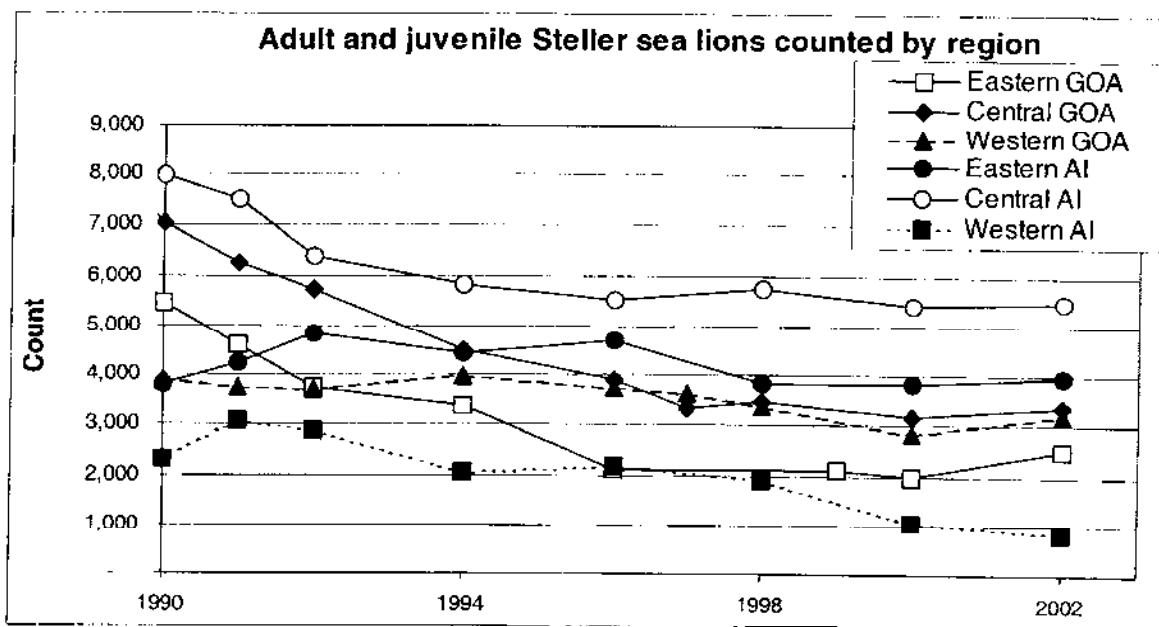


Figure 2. Counts of adult and juvenile Steller sea lions in the Russian part of the western DPS.

Population viability analyses indicate that the next 20 years may be crucial for the Steller sea lion, if the rates of decline observed in 1985 to 1989 or 1994 continue. Within this time frame, it is possible that the number of adult females in the Kenai-to-Kiska region could drop to less than 5000. Extinction rates for rookeries or clusters of rookeries could increase sharply in 40 to 50 years, and extinction for the entire Kenai-to-Kiska region could occur in the next 100-120 years.

3.2 Fin Whale

The following discussion of fin and humpback whales is as presented in NMFS 2001b, unless otherwise noted.

3.2.1 Description and Distribution

Fin whales are distributed widely in the world's oceans. In the northern hemisphere, most migrate seasonally from high Arctic feeding areas in summer to low latitude breeding and calving areas in winter. Other groups may remain year-round in a particular area, depending on food supply. The IWC's Scientific Committee recognizes two management stocks in the North Pacific: (1) the east

China Sea, and (2) the rest of the North Pacific. NMFS considers stock structure in the North Pacific to be equivocal, and recognizes three stocks: (1) Alaska (northeast Pacific), (2) California/Oregon/Washington, and (3) Hawaii.

Fin whales were reported as occurring immediately offshore throughout the North Pacific from central Baja California to Japan and as far north as the Chukchi Sea. Data indicate that some whales remain year-round at high latitudes and other areas such as the Gulf of California, migrating only short distances of 100-200 km (53.9-107.9 nm). In the Gulf of Alaska, fin whales appear to congregate in the waters around Kodiak Island and south of Prince William Sound. In recent years, small numbers of fin whales have been observed south of the Aleutian Islands, in the Gulf of Alaska (including Shelikof Strait), and in the southeastern Bering. Fin whale concentrations in the northern areas of the North Pacific and Bering Sea generally form along frontal boundaries, or mixing zones between coastal and oceanic waters, which themselves correspond roughly to the 200-m isobath. The coastal currents at the entrance to Cook Inlet (i.e., along the southern boundary of the Sale Area) provide a tremendous vehicle for nutrient mixing and year round foraging opportunities for many marine species, and prey presence and distribution is likely the reason for the presence of fin whales in these waters during the winter months (Mizroch et al. 2001)

Acoustic data collected from 1995 to 1999 from hydrophone arrays showed fin whales vocalizing in Alaskan waters during all seasons, with a peak in occurrence in midwinter.

3.2.2 Natural Factors Affecting Species

3.2.2.1 Life History Information

Fin whales become sexually mature between six to ten years of age, depending on density-dependent factors. Reproductive activities for fin whales occur primarily in the winter. Gestation lasts about 12 months and nursing occurs for 6-11 months. The age distribution of fin whales in the North Pacific is unknown. Calving and mating occur in late fall and winter. Specific breeding areas are unknown and mating is assumed to occur in pelagic waters, presumably some time during the winter when whales are in mid-latitudes. Fin whales commonly travel in herds ranging from between 6-12 individuals, to nearly 100 or more.

Foraging areas tend to occur along continental shelves with productive upwellings or thermal fronts. Fin whales tend to avoid tropical waters and pack ice, with the northern limit set by ice and the southern limit by warm water of approximately 15°C (60°F). Fin whales in the North Pacific feed on euphausiids, calanoid copepods, and schooling fish such as herring, pollock, Atka mackerel, and capelin. Euphausiids may be preferred prey, and competition may occur with other baleen whales or other consumers of these prey types. Natural sources and rates of mortality are largely unknown. NMFS has no records of fin whales being killed or injured by commercial fisheries operating in the North Pacific.

3.2.2.2 Diving and Social Behavior

Generally, fin whales make 5-20 shallow dives 13-20 seconds in duration followed by a deep dive of 1.5 to 15 minutes. Recorded dive depths reach 300 m. Dive depths and duration were significantly shorter at night than during the day, presumably in response to the daily vertical migrations of prey schools. An estimate of dive depth based on the acoustical properties of received fin whale calls was 525 m.

Fin whales are often found singly or in pairs, but also commonly form larger groupings greater than 3 individuals, particularly while feeding. Researchers have described group foraging behavior where 2-4 animals swam less than 50m apart in an echelon formation and lunged synchronously, right side down. They found that group composition was not stable: membership and group size changed frequently during feeding events.

3.2.2.3 Vocalizations and Hearing

Underwater sounds of the fin whale are one of the most studied *Balaenoptera* sounds. Fin whales produce a variety of low-frequency sounds in the 10-200 Hz band. The most typical signals are long, patterned sequences of short duration (0.5-2s) infrasonic pulses in the 18-35 Hz range. Estimated source levels are as high as 190 dB re 1 μ Pa. In temperate waters intense bouts of long patterned sounds are very common from fall through spring, but also occur to a lesser extent during the summer in high latitude feeding areas. Short sequences of rapid pulses in the 20-70 Hz band are associated with animals in social groups. Each pulse lasts on the order of one second and contains twenty cycles.

Particularly in the breeding season, fin whales produce series of pulses in a regularly repeating pattern. These bouts of pulsing may last for longer than one day. The seasonality and stereotype of the bouts of patterned sounds suggest that these sounds are male reproductive displays, while individual counter-calling data suggest that the more variable calls are contact calls. Some authors feel there is geographic differences in the frequency, duration and repetition of the pulses. As with other mysticete sounds, the function of vocalizations produced by fin whales is unknown. Hypothesized functions are the same as for the blue whale. Responses to conspecific sounds have been demonstrated in a number of mysticetes, and there is no reason to believe that fin whales do not communicate similarly. The low-frequency sounds produced by fin whales have the potential to travel over long distances, and it is possible that long-distance communication occurs in fin whales. Also, there is speculation that the sounds may function for long-range echolocation of large-scale geographic targets such as seamounts, which might be used for orientation and navigation.

No studies have directly measured the sound sensitivity of fin whales. Presumably fin whales are able to receive sound signals of the same frequency they are producing. In a study of the morphology of the mysticete auditory apparatus, it was hypothesized that large mysticetes have acute infrasonic hearing.

3.2.3 Population Status and Trends

The IWC began management of commercial whaling for fin whales in the North Pacific in 1969. Fin whales were fully protected from commercial whaling in 1976. Fin whales were listed as endangered under the ESA. They are also protected by the Convention on International Trade in Endangered Species of wild flora and fauna and the Marine Mammal Protection Act of 1972. Fin whales are listed as endangered on the IUCN Red List of Threatened Animals. Critical habitat has not been designated for fin whales.

Prior to exploitation by whaling vessels, the North Pacific population consisted of an estimated 42,000-45,000 fin whales. Between 1914 and 1975, over 26,040 fin whales were harvested throughout the North Pacific. Catches in the North Pacific and Bering Sea ranged from 1,000 to 1,500 fin whales annually during the 1950's and 1960's. However, not all Soviet catches were reported. In the early 1970s, the entire North Pacific population had been reduced to between 13,620 and 18,630 fin whales. The current status and trend of the fin whale population in the North Pacific is largely unknown. Based on the available information, it is feasible that the North Pacific population as a whole has failed to increase significantly over the past 20 years, despite an international ban on whaling in the North Pacific. The only contrary evidence comes from investigators conducting seabird surveys around the Pribilof Islands in 1975-1978 and 1987-1989. These investigators observed more fin whales in the second survey and suggested they were more abundant in the survey area. A survey for whales in the central Bering Sea in 1999 tentatively estimated the fin whale population was about 4,951 animals (95% C.I.: 2,833-8,653).

3.2.4 Potential Impacts of Human Activity

As early as the mid-seventeenth century, the Japanese were capturing fin, blue, and other large whales using a fairly primitive open-water netting technique. In 1864, explosive harpoons and steam-powered catcher boats were introduced in Norway, allowing the large-scale exploitation of previously unobtainable whale species. The North Pacific and Antarctic whaling operations soon added this "modern" equipment to their arsenal. After blue whales were depleted in most areas, the smaller fin whale became the focus of whaling operations and more than 700,000 fin whales were landed in the twentieth century.

There are no reports of fishery-related fin whale deaths, although conflicts between fin whales and drift gillnet fisheries may exist. Because of their size, strength, and distribution, it would probably be difficult to assess potential interactions between fin whales and fisheries; for example, fishermen have reported that large blue and fin whales usually swim through their nets without entangling and with very little damage to the net. It is possible that ship strikes affect all fin whale stocks but go unreported because injured or killed animals do not strand. In the North Pacific, one death due to ship collision was reported in 1991.

3.3 Humpback Whale

3.2.1 Species Description and Distribution

NMFS recognizes four stocks of humpback whales in the North Pacific basin, based on genetic and photo-identification studies: two Eastern North Pacific stocks, one Central North Pacific stock and one Western Pacific stock (Angliss et al., 2001).

Humpback whales typically migrate between tropical/sub-tropical and temperate/polar latitudes. Humpback whales feed on krill and small schooling fish on their summer grounds. The whales occupy tropical areas during winter months when they are breeding and calving, and polar areas during the spring, summer, and fall, when they are feeding, primarily on small schooling fish and krill. It is believed that minimal feeding occurs in wintering grounds, such as the Hawaiian Islands. Humpback whales summer throughout the central and western portions of the Gulf of Alaska, including Prince William Sound, around Kodiak Island (including Shelikof Strait and the Barren Islands), and along the southern coastline of the Alaska Peninsula.

Evidence indicates that the Kodiak Island/Shelikof Strait area is an important feeding area for humpback whales and that there may be discrete feeding aggregations of humpback whales in this area. 127 individuals were documented in the area between 1991 and 1994. Only 7 per 164 individuals identified during a recent 3-year photo-identification study from areas near Kodiak (127), the Shumagins (22), southeast of the Shumagins (8), and near Akutan Island (7) have been observed in Prince William Sound or southeast. Four of 127 Kodiak whales and 1 per 8 whales observed offshore were also seen in Prince William Sound. Two per 127 whales observed in Kodiak were observed in Southeast Alaska. No other matches were seen. None of the whales observed in Kodiak were observed also in California. Evidence from this study suggests that there may be a discrete (Angliss and Lodge, 2002) feeding aggregation of humpback in the Kodiak region. Aerial (1985) and vessel (1987) surveys, suggest that there are discrete groups of humpbacks in the Shumagins, but data are insufficient to characterize numbers or structure of humpbacks in this area.

Photo-identification data indicate that the vast majority of the whales that feed in the Gulf of Alaska region migrate to the Hawaiian Islands for the winter. Only three individuals were observed to travel to Mexico, and one traveled to the Bonin Islands area south of Japan. It is unclear what location(s) humpback whales that summer in the Kodiak region typically go to in the winter to calve and to breed. Most of the humpback whales that winter in Japan have been observed in the summer feeding in the eastern North Pacific (in the feeding range of the purported Central North Pacific stock) but have not been observed in the Bering Sea and/or the Aleutian Islands, areas considered to be the historical feeding areas of the stock. However, this lack of sightings may be due to a lack of effort in identifying humpback whales west of Kodiak (Angliss and Lodge, 2002).

3.2.2.1 Life History Information

Humpback whale reproductive activities occur primarily in winter. They become sexually mature at age four to six. Annual pregnancy rates have been estimated at about 0.40-0.42 and female humpback whales are believed to become pregnant every two to three years. Cows will nurse their calves for up to 12 months. The age distribution of the humpback whale population is unknown, but the portion of calves in various populations has been estimated at about 4-12 per cent. The information available does not identify natural causes of death among humpback whales or their number and frequency over time, but potential causes of natural mortality are believed to include parasites, disease, predation (killer whales, false killer whales, and sharks), biotoxins, and entrapment in ice. Humpback whales exhibit a wide range of foraging behaviors, and feed on a range of prey types including small schooling fishes, euphausiids, and other large zooplankton. Fish prey in the North Pacific include herring, anchovy, capelin, pollock, Atka mackerel, eulachon, sand lance, pollack, Pacific cod, saffron cod, arctic cod, juvenile salmon, and rockfish. Invertebrate prey include euphausiids, mysids, amphipods, shrimps, and copepods.

Humpback whales form small unstable groups during the breeding season. During the feeding season they form small groups that occasionally aggregate on concentrations of food. Feeding groups are sometimes stable for long periods of times. There is good evidence of some territoriality on feeding grounds and on wintering ground. On the breeding grounds males sing long complex songs directed towards females, other males or both. The breeding season can best be described as a floating lek or male dominance polygyny.

3.3.2 Life History Information

3.3.2.1 Vocalizations and Hearing

Humpback whales produce a great variety of sounds. During the breeding season males sing long complex songs, with frequencies in the 25-5000 Hz range and intensities as high as 181 dB re 1 μ Pa. The songs appear to have an effective range of approximately six to 12 mi (10 to 20 km). Sounds are produced less frequently on the summer feeding grounds. Feeding groups produce distinctive sounds ranging from 20 Hz to 2 kHz, with median durations of 0.2-0.8 sec and source levels of 175-192 dB re 1 μ Pa. These sounds are attractive and appear to rally animals to the feeding activity.

Humpback whales respond to low frequency sound. Humpback whales have been known to react to low frequency industrial noises at estimated received levels of 115 - 124 dB re 1 μ Pa, and to conspecific calls at received levels as low as 102dB re 1 μ Pa.

3.3.3 Listing Status

The IWC first protected humpback whales in the North Pacific in 1965. Humpback whales were listed as endangered under the ESA in 1973. They are also protected by the Convention on International Trade in Endangered Species of wild flora and fauna and the Marine Mammal Protection Act of 1972. Critical habitat has not been designated for the species.

3.3.4 Population Status and trends

An estimated 394 humpback whales constitute the western North Pacific stock (Angliss, et al. 2001). NMFS identified 127 individual humpback whales in the Kodiak Island region between 1991 and 1994 and estimated there were 651 whales in this region (95% CI:356-1,523). NMFS also estimated that 200 humpback whales regularly feed in Prince William Sound. Subsequently, based on mark-recapture analysis of photo-identification studies, several investigators concluded that the central North Pacific stock consists of at least 4,000 humpback whales (Angliss, et al., 2001). Other than these estimates of the size of the humpback whale population, the available information is not sufficient to determine population trends.

3.3.5 Potential Impacts of Human Activity

Six commercial fisheries within the range of both the western and central North Pacific stocks were monitored between 1990-2000: Bering Sea/Aleutian Island and Gulf of Alaska groundfish trawl, longline, and pot fisheries. One humpback whale was killed in the Bering Sea/Aleutian Island groundfish trawl fishery in 1998 and one in 1999. There are no records of humpback whales killed or injured in the fisheries in which fishers self report (Angliss and Lodge, 2002), but the reliability of such data are unknown. One entanglement is recorded in 1997 for a humpback whale in the Bering Strait (Angliss and Lodge, 2002). However, between 1996 and 2000, five entanglements of humpback whales from the Central North Pacific Stock were reported in Hawaiian waters. In Alaska, 20 humpback whales from this stock were reported entangled in fishing gear (gear types including crab pot, purse seine, shrimp pot, gillnet) and 2 were reported as struck by vessels. The Alaska Scientific Review Group (2001) states that 32 humpback whales were entangled in southeast Alaska in the past 5 years.

Humpback whales have been injured or killed elsewhere along the mainland U.S. and Hawaii. In 1991, a humpback whale was observed entangled in longline gear and released. In 1995, a humpback whale in Maui waters was found trailing numerous lines (not fishery-related) and entangled in mooring lines. No information is available on the number of humpback whales that have been killed or seriously injured by interactions with fishing fleets outside of U.S. waters in the North Pacific Ocean.

Humpback whales seem to respond to moving sound sources, such as whale-watching vessels, fishing vessels, recreational vessels, and low-flying aircraft. Their responses to noise are variable and have been correlated with the size, composition, and behavior of the whales when the noises occurred. Several investigators have suggested that noise may have caused humpback whales to avoid or leave feeding or nursery areas, while others have suggested that humpback whales may become habituated to vessel traffic and its associated noise. Still other researchers suggest that humpback whales may become more vulnerable to vessel strikes once they habituate to vessel traffic. Vessel strikes of humpbacks are not uncommon. Several records of such incidents occur for Alaskan waters; the NMFS's Alaska Region Marine Mammal Stranding database describes eight (8) such strikes between 1996 and 2001.

NMFS published a final rule on May 3, 2001, that established regulations applicable within waters within 200 nautical miles of Alaska that made it unlawful for a person subject to the jurisdiction of the U.S. to approach, by any means within 100 yards (91.4 meters) of a humpback whale. NMFS also implemented a "slow, safe speed" requirement for vessels transiting near humpbacks. Exemptions to the rule were for commercial fishing vessels during the course of fishing operations, for vessels with limited maneuverability, and for State, local, and Federal vessels operating in the course of official duty. This law was enacted to prevent disturbance that could adversely affect humpbacks and to reduce threats from whale watching activities. Likewise, the number of cruise ships entering Glacier Bay has been limited to reduce possible disturbance.

4.0 EFFECTS OF THE PROPOSED ACTIONS

The MMS DEIS describes multiple actions that could result from exploration actions associated with the proposed OCS Cook Inlet oil and gas lease sales. The major actions would include seismic profiling (high energy seismic geophysical survey and shallow hazard survey), exploration and delineation drilling (the MMS projects, for the purposes of the analysis within their DEIS, that two exploration wells would be drilled under Sale 191 leases, and another two wells under the following Sale 199). All such wells would be drilled using a single semi-submersible or jack-up rig. Support and logistic activities would include supply vessels and tugs and air support (1-2 helicopter trips per day). Muds and cuttings from drilling may be re-injected, shipped off-site, or discharged into the Inlet (this action is permitted by the Environmental Protection Agency). Oil spills are not likely during exploration, although MMS assumes that if a single field is discovered and developed, the probability for a spill in excess of 1,000 barrels of oil would be 19%.

The extent and characteristics of the in-air or underwater noise fields that will be generated during exploration is not possible to predict given the uncertainties of industry schedules, possible contributing noise sources, and propagation paths. The most significant potential impacts from underwater noise pertain to exposure to noise when the animal is well below the surface. This is because the noise level from a noise source when measured within a few feet of the surface is significantly lower than the noise level when measured at depths of 16.4 to 33 ft (5 to 10 m). Therefore, estimates of exposure must take into account the depth of the animal and the amount of time an animal spends at different depths (Ellison et al., 1993). For example, a marine mammal at the surface will experience a received noise level approximately 30 dB less than the received level for an animal at the same distance from the noise source, but at a depth of 33 ft (10 m)(Jensen, 1981).

In addition to disturbance, habituation and sensitization also are important when discussing the potential reactions by whales to multiple exposures to a noise stimulus. Habituation refers to the condition in which repeated experiences with a stimulus that has no important consequence for the animal leads to a gradual decrease in response. Sensitization refers to the situation in which the animal shows an increased behavioral response over time to a stimulus associated with something that has an important consequence for the animal. Richardson et al. (1990) provided an example of bowhead whales becoming habituated to the noises from dredging and drilling operations. Conversely, Richardson et al., (1995b) cited Walker (1949) as reporting that the responses of gray whale mother and calf pairs to a hovering helicopter seemed to increase the more the helicopter herded the mother and calf pairs into shallow water.

4.1 Effects of Seismic Surveys

A variety of devices and technologies exist which introduce energy into the water for purposes of geophysical research, bottom profiling, and depth determination. They are often characterized as high-resolution or low-resolution systems.

While these systems may be separately described based upon their physical characteristics, it may be less meaningful to separate the systems for purposes of assessing impact to bowhead whales. Because high-resolution surveys are of lower energy and utilize higher frequencies which are generally do not travel as far as low frequency sound, these activities are less likely to have significant effects on endangered whales. Low-resolution systems such as 2-D and 3-D seismic put much more sound energy into the water and operate at low frequencies which overlap those used by baleen whales. Thus low-resolution systems have more potential to affect whales when used in open water. However, all these systems require a vessel platform (or several vessels) which themselves may impact whales. Additionally, while baleen whales appear to call and hear at low frequencies, they may detect and react to higher frequencies if they are produced at high levels (sound energy). Thus it is possible for a humpback or fin whale to be affected by and react to either system, depending on the nature of the vessel(s), the proximity to the whale, the frequency and energy of the system, and the sensitivity of the whale.

High-resolution systems, which are of much lower energy than low resolution systems, generally are conducted on tracts following a lease sale to evaluate potential shallow hazards to drilling or to other pipeline construction. Some high-resolution seismic surveys, such as those using airguns, emit loud sounds; but the sounds would not be as loud as sounds from deep-seismic surveys. Neither would the sound be likely to propagate as great a distance as sounds from deep seismic surveys. High-energy seismic surveys in Cook Inlet would likely only be feasible between May to mid-September.

Low-resolution surveys emit loud sounds, which are pulsed rather than continuous, and can propagate long distances from their source. Overall source levels of noise pulses from airgun arrays are very high, with peak levels of 240-250 dB re 1 μ Pa at 1 meter. However, most energy is directed downward, and the short duration of each pulse limits the total energy. Received levels within a few kilometers typically exceed 160 dB re 1 μ Pa (Richardson et al., 1995a), depending on water depth, bottom type, ice cover, etc.

4.2 Noise from Drilling

Drilling for oil and gas generally produces low-frequency sounds with strong tonal components. There are few data on the noise from conventional drilling platforms. Recorded noise from an early study of one drilling platform and three combined drilling production platforms found that noise was so weak it was almost not detectable alongside the platform at sea states of three or above. The strongest tones were at very low frequencies near 5 hertz, and received levels of these tones at near-field locations were 119-127 decibels re 1 μ Pa (Richardson et al., 1995).

4.3 Other Sources of Noise and Disturbance

During exploration, noise is also produced by supply vessels and low-flying aircraft, construction work, and dredging. Airborne sounds from aircraft and from high-speed motorboats are especially relevant to Steller sea lions. The transmission of aircraft sound to cetaceans or other marine mammals while they are in the water is influenced by the animal's depth, the altitude, aspect, and

strength of the noise coming from the aircraft, as well as by bottom characteristics and other factors. Generally, the greater the altitude of the aircraft, the lower the sound level received underwater. Dominant tones from helicopters are generally below 500 hertz (Richardson et al., 1995). Ships produce noise due to sounds coming from engines, vibrating and rattling structural components, and, primarily, due to the cavitation of the propeller. Richardson et al. (1995) reported that the noise generated by a large container vessel, bulk carrier, or supertanker can exceed 190 decibels up to 205 decibels in the lowest frequencies. Tugboats and ferries produce noise up to 150-170 decibels at the source. The oil and gas that could ultimately be produced from the proposed lease sales are expected to be used for local consumption. Therefore, no additional tankering noise is predicted.

In the proposed Cook Inlet exploration and development scenario, an average of one to two helicopter flights per day are expected to originate from the Kenai/Nikiski area.

Other potential sources of noise, disturbance, and possible injury to threatened and endangered species during OCS oil and gas exploration include activities associated with abandonment of delineation wells. The casings for delineation wells can be cut mechanically or with explosives during the process of well abandonment. The use of explosives could result in injury or even death to threatened and endangered marine mammals in the area at the time of the explosions. Impacts to threatened and endangered species from well abandonment activities could probably be minimized or avoided if sufficient monitoring for such species occurred prior to the use of any explosives and protocols were implemented to ensure that such explosives were not used if such species were in areas where there was a potential for them to be adversely impacted by the explosives.

4.4 Effects Analysis on Cetaceans

In order to understand the biological significance of the risk of the effects of sound, it is necessary to determine how this risk might affect a population of marine mammals, starting with acoustic criteria. First, the marine mammal must be able to hear low frequency sound. There is no evidence that listed species, particularly the endangered balcen whales which are considered the most sensitive to low frequency sounds, can detect or respond to sounds that have dropped much below the level of ambient noise. Richardson et al. (1995) states that it is unlikely that man-made sounds with received levels slightly less than the background noise level in the corresponding band would cause disturbance even if faintly audible.

Second, the animal must experience a reaction to the low frequency sound that is more than momentary. Third, any effect from low frequency sound must involve a significant behavioral change in a biologically important activity, such as feeding, breeding, or migration, all of which are potentially important for reproductive success of the population.

4.4.1 Project Effects on Fin and Humpback whales (Mysticetes)

Moore and Clarke (2002) characterized the primary impacts of offshore oil and gas development to gray whales as ecological and toxicological. The vectors of such impacts were in-water noise from

seismic and drilling activities, and oil spills. We believe these also represent the primary concerns regarding the impacts of Sale 191 on fin and humpback whales.

Feeding humpback whales, and, less likely, fin whales, in the areas near the Barren Islands and Kennedy and Stevenson Entrances could be adversely affected by noise from seismic exploration in leasing blocks in these areas. If they occurred, these effects would be localized and relatively short-term. Fin whales are vulnerable to the impacts of a large oil spill that enters Shelikof Strait at all seasons of the year. Humpback whales could be adversely affected by oil spilled in Kennedy or Stevenson Entrances, the southern portions of lower Cook Inlet, or the waters between Cook Inlet and Shelikof Strait, and by oil that entered (from one of the aforementioned regions) Kachemak Bay or especially Shelikof Strait during the late spring, autumn, and summer. Ingestion, surface contact with, and especially inhalation of fresh crude oil has been shown to cause serious damage and even death in many species of mammals.

Although there are no direct measurements of auditory thresholds in mysticetes, it generally is believed that they are adapted for hearing at low frequencies (below 1 kHz)(Ketten, 1994), and likely hear best in the frequency range of their calls (Myrberg, 1978; Turl, 1980). Baleen whale vocalizations range from below 10 Hz, to 25 kHz, with principal energy in the 50-300 Hz. Refer to the status of the species discussions for information on each listed species considered here.

4.4.2 Direct Effects

There is concern that manmade noise affects whales by raising background noise levels. Increased noise levels would mask important natural sound to varying degrees depending on the magnitude. High industrial noise levels in offshore waters during periods when whales are present may interfere with communication, cause physiological damage, or alter normal behavior. Marine mammals use calls to communicate and probably listen to natural sounds to obtain information important for detection of open water, navigation, and predator avoidance. Baleen whale hearing has not been studied directly. There are no specific data on sensitivity, frequency or intensity discrimination, or localization (Richardson et al., 1995a). For each species, the frequency range of reasonably acute hearing in baleen whales likely includes the frequency range of their calls. Most baleen whale sounds are concentrated at frequencies less than 1 kilohertz, but sounds up to 8 kilohertz are not uncommon (Richardson et al., 1995a). Based on indirect evidence, at least some baleen whales are quite sensitive to frequencies below 1 kilohertz but can hear sounds up to a considerably higher but unknown frequency. Most of the manmade sounds that elicited reactions by baleen whales were at frequencies below 1 kilohertz (Richardson et al., 1995a). Some or all baleen whales may hear infrasounds, sounds at frequencies well below those detectable by humans. Even if the range of sensitive hearing does not extend below 20-50 Hertz, whales may hear strong infrasounds at considerably lower frequencies. Based on work with other marine mammals, if hearing sensitivity is good at 50 Hertz, strong infrasounds at 5 Hertz might be detected (Richardson et al., 1995a).

There is also the concern that extremely loud noise might cause temporary or permanent hearing impairment of whales (Richardson and Malme, 1993). According to Richardson and Malme (1993),

there is no evidence that noise from routine human activities (aside from explosions) would permanently cause negative effects to a marine mammal's ability to hear calls and other natural sounds. Given their mobility and avoidance reactions, it is unlikely that whales would remain close to a noise source for long. Also, baleen whales themselves often emit calls with source levels near 170-180 dB re 1 μ Pa comparable to those from many industrial operations. It is unknown whether noise pulses from nonexplosive seismic sources, which can be much higher than 170-180 dB re 1 μ Pa, are physically injurious at any distance. The avoidance reactions observed in some whales, such as bowhead and gray whales, to approaching seismic vessels normally would prevent exposure to potentially injurious noise pulses.

4.4.2.1 Changes to Hearing Sensitivity

Few data on the effects of non-explosive sounds on hearing thresholds of marine mammals have been obtained. However, it is generally accepted that received sound levels must far exceed the animal's hearing threshold for there to be any non-serious injury such as a temporary threshold shift (TTS; temporary reduction in hearing sensitivity). Received levels must be even higher for the risk of permanent threshold shift (PTS; permanent reduction in hearing sensitivity) to exist.

While some marine mammals, including whales, may tolerate continuous sound at some level, it is doubtful that many marine mammals would remain for long in areas where received levels of continuous underwater noise are 140 dB re 1 μ Pa or higher at frequencies to which the animals are most sensitive (Richardson et al. 1995). Marine geophysical (seismic) research using large airgun arrays would operate at frequencies used by baleen whales, and avoidance of active seismic vessels has been observed in some species, including bowhead and gray whales.

Air guns would be expected to have a source level exceeding 195 dB re 1 μ Pa at 1 meter. Humpback whales emit vocalizations at 180 dB re 1 μ Pa. Assuming a humpback or fin whale would be at least several hundred meters from the source, the received levels may be similar to those experienced by humpback whales in their day-to-day activities.

4.4.2.2 Auditory Interference or Masking

Masking refers to environmental noise that interferes with the ability of an animal to detect a specific sound signal. The masking occurs when the environmental noise frequencies are similar to the signal that the animal uses or when ambient levels are much higher than the signal. Masking in marine mammals is a function of the animal's hearing sensitivity, ambient noise source level, and animal distance from the source. Masking processes in baleen whales are difficult to study, and little or no data on hearing sensitivity are available for these species. Seismic noise has the potential to interfere with the detection of acoustic signals, such as communication calls, and other environmental sounds that may be important to mysticetes. Masking of their communication could disrupt social interactions or lead to disorientation if sounds were being relied upon to navigate.

Any adverse effects are expected to affect individuals temporarily, during exposure to the masking

properties of the transmission signal. Richardson (1999) found bowhead whales continued their calls in the presence of airgun pulses, concluding that, given the relatively long gaps between short seismic pulses, only a small proportion of the (whale) calls could be masked by airgun pulses.

4.4.2.3 Behavioral Effects

Previous studies of mysticete responses to human-made noise have examined short-term behavioral responses to broadband industrial and recreational vessel noise extending from below 75 Hz to 1000 Hz.

Possible short-term reactions of mysticetes disturbed by human-made noise include interruption of feeding, resting, or social activities, and abrupt diving or swimming away (Finley, 1982; Calkins, 1983). Various studies and reported observations for a number of different mysticete species indicate variability in the responses to sounds of relatively high intensity (Bowles, et al. 1994; Malme et al. 1984; Maybaum, 1989; Mobley et al. 1988; Richardson et al. 1985; Richardson et al. 1995). In most instances, responses are affected by species, age and sex class, social context, habitat, habituation, and sound source characteristics.

There is variability in sensitivity and response to human-made noise between and within marine mammal species and a paucity of information about the consequences of short-term disruptions on marine mammals. Disturbance of marine mammals as a result of human-made noise, if intense enough, can result in interruption (at least briefly) of normal behavioral and social interactions with conspecifics, an increase in energy cost (whether or not feeding was disrupted or a fleeing response was elicited), and displacement to a less preferred habitat. Displacement also can have the benefit of removing the animal from a location where there might be more serious consequences had the animal remained (e.g., by reducing the masking effect of the human-made noise or the physiological stress that might continue if the animal remained close to the noise source).

Although there is little definitive information about the long-term effects of short-term disturbance reactions, isolated disturbance incidents probably have minimal or no lasting effects and the energetic consequences of most single disturbance incidents are likely insignificant. However, recurrent incidents of interrupted feeding, nursing and resting, if sufficiently frequent, can have negative effects on individual animals. The threshold at which the frequency and duration of disturbance that might initiate negative effects are not well known, and would likely depend on the species, area, feeding requirements, and reproductive status of the marine mammals involved. Animals most severely affected would likely be pregnant or lactating females and other animals subject to heavy natural energy drain.

A few marine mammal species exhibit extreme avoidance reactions to very low levels of industrial noise. Bowhead whales avoid airgun arrays by distances (up to 20 km) at which airgun sounds barely exceed background noise levels (LGL, 1998). Bowheads were observed to deflect from a seismic source in the Beaufort Sea at distances of 35 km, with received sound levels of approximately 120 dB re 1 μ Pa (Richardson, 1999). Also, gray whales avoid industrial sounds in

their migratory pathway when received levels reach approximately 120 dB re 1 μ Pa (Malme et al. 1984). Experiments with migrating gray whales found that for animals exposed to industrial sounds placed directly in their migratory path, there was a 50% probability that a whale would avoid the area around the source when the received level was 116-124 dB re 1 μ Pa (Malme et al. 1983; Malme et al. 1984). Similar response levels were measured for bowhead whales (summarized in Richardson et al., 1995; Richardson and Malme 1993). However, when similar noises were played to feeding humpbacks in Alaska, they did not show any response, even at received levels of 116 dB re 1 μ Pa (Malme et al., 1985) and humpback whales on the breeding ground did not stop singing during underwater explosions (Payne and Webb 1971). Many other species tolerate, at least for a few hours, continuous sound received at levels greater than 120 dB re 1 μ Pa (Richardson et al., 1995). Richardson et al. (1995) predicted that most marine mammals with hearing sensitivity below 100 Hz would not remain in areas where received levels of continuous noise remain at or above 140 dB re 1 μ Pa, unless hearing was previously impaired. These results lead to a cautionary rule-of-thumb that whales would show an avoidance response to man-made sounds at received levels greater than 120 dB re 1 μ Pa (Frankel and Clark, unpub. report).

Todd et al. (1996) found that humpback whales on feeding grounds did not alter short-term behavior or distribution in response to explosions with received levels of about 150 dB re 1 μ Pa at 350 Hz. However, at least two individuals were likely killed by the blasts and had extensive mechanical injuries in their ears (Todd et al., 1996). The explosions may also have increased the number of humpback whales entangled in fishing nets (Todd et al., 1996).

Humpback whales may respond the most to moving sound sources (for example, fishing vessel, low-flying aircraft). Long-term displacement of humpbacks from Glacier Bay and parts of Hawaii may have occurred due to vessel noise disturbance. Noise on their wintering grounds from the ATOC and the Navy's Low-Frequency Active Sonar program also are sources of concern for the central North Pacific stock (Angliss and Lodge, 2002). Conversely, a long-term assessment of the effects of research vessels in Cape Cod Bay found no evidence that vessel interactions exerted a long-term negative impact on mysticete species (Moore and Clarke, 2002).

Todd et al. (1996) have suggested that exposure to deleterious levels of sound may be related to rates of entrapment in fishing gear. Entrapment of humpbacks in fishing gear is a common problem off of the coast of Newfoundland and Labrador in the Atlantic (NMFS 2001b). Rates of entrapment between 1980 and 1992 were shown to vary between a low of 26 per year to a high of 200 (Todd et al., 1996). Coinciding with development-related noise (drilling and explosions) in one bay, rates of entrapment rose. Todd et al. (1996) concluded that exposure of the humpbacks to deleterious levels of sound may have influenced entrapment rates.

As for fin whales, the Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) sonar research program (U.S. Navy, 2000. SURTASS LFA Sonar Final Environmental Impact Statement) indicates that these species do not exhibit obvious responses from the LFA source array of 18 projectors (received levels were from 120 to 155 dB re 1 μ Pa). Some cessation of humpback whale song and some apparent avoidance responses were displayed as a result of the LFA sound

transmissions (received levels ranged from 120 to 150 dB re 1 μ Pa). Of the whales that did stop singing, “most” resumed singing within less than an hour of the possible response. Those humpback whales that did not stop singing sang longer songs during the period of LFA transmissions, and returned to baseline conditions after transmissions stopped.

Neither the California nor the Hawaii Marine Mammal Research Program found any overt or obvious short-term changes in the behavior of humpback whales or elephant seals in response to the playback of low frequency sounds associated with the North Pacific Acoustic Laboratory program (NMFS, 2001 b). In 1996, the behavioral responses of humpback whales to the playback of ATOC-like signals (maximum received level of 130 dB re 1 μ Pa) were studied. Humpback whales showed no overt responses to these ATOC playbacks (Frankel and Clark, 1998). By contrast, the single playback of a humpback whale feeding call provoked dramatic changes similar to those seen in previous playback experiments (Mobley et al. 1988). In 1996 and 1998, the behavior of humpback whales was observed from a shore-station on the north coast of Kauai while a low-frequency noise similar to the ATOC source was played (Frankel and Clark 1998) and the Kauai ATOC source was transmitting (Frankel and Clark 2000). Both experiments were conducted using similar methods. Observations of humpback whale movements were made during control (no playback or transmissions) and experiment conditions. Statistical analyses revealed some subtle changes in the behavior of humpback whales in response to the playback of ATOC-like sounds and to the transmissions of the ATOC Kauai source (Frankel and Clark, 1998; 2000). Both studies found that the distance and time between successive whale surfacings (segment length and segment duration) increased slightly with increasing received levels. This result is not what would be predicted if the animals had been stressed by the sound source. Rather, it would be expected that the animals would have remained at the surface longer because of the lower received levels there as longer dive durations would correspond to increased exposure to the sound source. No statistically significant changes were found in any other behaviors. The biological significance of the increase in distance and time between successive surfacings is not known.

The effects of substantial disturbance, which might result from a stationary and continuously noisy human activity near a marine mammal concentration area, could be mitigated in part by the degree to which the marine mammals habituate. Habituation effects can also limit the direct impact of a stimulus, in this instance the received levels. Habituation can be detrimental, however, if it leads to a lack of response to hazardous situations or results in masking. If animals fail to habituate and are excluded from an important concentration area or are subject to ongoing stress while in that area, then there could be long-term effects on the individuals and the population. Studies to date show that humpback whales at least respond with longer dive times to the ATOC source, and no change in distribution or abundance were observed during ATOC transmission.

4.4.3 Effects from Aircraft Traffic

Most offshore aircraft traffic in support of the oil industry involves turbine helicopters flying along straight lines. Underwater sounds from aircraft are transient. According to Richardson et al.

(1995a), the angle at which a line from the aircraft to the receiver intersects the water's surface is important. At angles greater than 13° from the vertical, much of the incident sound is reflected and does not penetrate into the water. Therefore, strong underwater sounds are detectable while the aircraft is within a 26° cone above the receiver. An aircraft usually can be heard in the air well before and after the brief period while it passes overhead and is heard underwater.

Fixed-wing aircraft flying at low altitude often cause hasty dives. Reactions to circling aircraft are sometimes conspicuous if the aircraft is below an altitude of 300 meters (1,000 feet), uncommon at 460 meters (1,500 feet), and generally undetectable at 600 meters (2,000 feet). Reaction frequency diminished with increasing lateral distance and with increasing altitude. The effects from an encounter with aircraft are expected to be brief, and the whales should resume their normal activities within minutes.

Response to helicopters and airplanes varies with social context, distance from the aircraft, and aircraft altitude. Since the underwater noise generated by an aircraft is greatest within the 26 degree cone directly beneath the craft, whales often react to an aircraft as though startled, turning or diving abruptly when the aircraft is overhead. When whales are at the surface, they may detect the sound of an aircraft via air rather than water.

Overall, aircraft over-flights can cause a rapid short-term response. There is no evidence that this type of disturbance causes whales to avoid an area with aircraft activity; however, this specific subject is poorly-studied.

4.4.4 Discharges

Several operational discharges may be expected from oil and gas exploration activities. These include the disposal of drilling muds and cuttings, test fluids, cement slurry, sanitary wastes, bilge waters and deck drainage. These discharges must be authorized by the Environmental Protection Agency (EPA). The discharges are expected to result in minor changes in water quality within the mixing zone where the changes can be measured and, occasionally, outside the mixing zones (e.g., storm and surface water runoff and fire test). Even within the mixing zones, the changes are small. Because of the small sizes of the mixing zones, and the nontoxic nature of most of the pollutants discharged, impacts to threatened and endangered species are expected to be negligible. In addition, monitoring required by the EPA in their discharge permits will verify that water quality changes remain minor. Therefore, whales are not likely to be adversely affected by these discharges.

4.4.5 Effects of Oil Spills

MMS estimates the chance of a large (greater than or equal to 1,000 barrels) oil spill from exploratory activities to be very low. No exploratory drilling blowouts have occurred on the Arctic or the Alaskan OCS. Since 1971, industry has drilled approximately 172 exploration wells in the Pacific, 51 in the Atlantic, 10,524 in the Gulf of Mexico, and 97 in Alaska, for a total of 10,844 wells (Brajaj, Howard, and Monkelein, 1999). From 1971 to 1999, there were 53 blowouts during

exploration drilling (USDOJ, MMS). There have been three (3) blowouts in Cook Inlet, all of them gas (MMS 2002). MMS predicts the probability for a blowout, based upon worldwide data, at 0.01 blowouts per billion barrels produced (MMS 2002).

While the probability of a blowout resulting in a major oil spill during exploration is remote, such an event would be difficult to control, contain, and recover, and be would likely to adversely affect listed species. Additionally, a consideration of the potential effects of an oil spill during construction is necessary to provide perspective on the latter phases of OCS leasing actions. Therefore, NMFS has included a discussion of oil spills within this opinion.

It is difficult to accurately predict the effects of oil on humpback and fin whales (or any cetacean) because of a lack of data on the metabolism of these species and because of inconclusive results of examinations of baleen whales found dead after major oil releases (Bratton et al., 1993; Geraci, 1990). Nevertheless, some generalizations can be made regarding impacts of oil on individual whales based on present knowledge. Oil spills that occurred while humpback and fin whales were present could result in skin contact with the oil, baleen fouling, ingestion of oil, respiratory distress from hydrocarbon vapors, contaminated food sources, and displacement from feeding areas (Geraci, 1990). Actual impacts would depend on the extent and duration of contact, and the characteristics (age) of the oil. Most likely, the effects of oil would be irritation to the respiratory membranes and absorption of hydrocarbons into the bloodstream (Geraci, 1990). If a marine mammal was present in the immediate area of fresh oil, it is possible that it could inhale enough vapors to affect its health. Inhalation of petroleum vapors can cause pneumonia in humans and animals due to large amounts of foreign material (vapors) entering the lungs (Lipscomb et al., 1994). Although pneumonia was not found in sea otters that died after the *Exxon Valdez* oil spill, inhalation of vapors was suspected to have caused interstitial pulmonary emphysema (accumulation of bubbles of air within connective tissues of the lungs). Bratton et al. (1993) reviewed the available literature on potential impacts of hydrocarbons on whales and theorized that impacts on the respiratory system of a bowhead whale confined by ice to a small, oil-contaminated area would be limited to: "... irritation of the mucous membranes, .. irritation of the respiratory tract, and .. absorption of volatile hydrocarbons into the bloodstream through the bronchial tree with rapid excretion by the same route." Geraci (1990) concludes that, depending on the concentration of vapors and duration of exposure, these effects may range from mild irritation to sudden death. Most of these studies acknowledge that volatile fractions of spilled oil would be expected to dissipate rapidly to the environment.

Whales may also contact oil as they surface to breathe, but the effects of oil contacting skin are largely speculative. Experiments in which *Tursiops* were exposed to petroleum products showed transient damage to epidermal cells, and that cetacean skin presents a formidable barrier to the toxic effects of petroleum (Bratton et al., 1993:). Humpback whales may ingest oil encountered on the surface of the sea during feeding, resulting in fouling of their baleen plates. Engelhardt (1987) noted that, "*baleen whales are vulnerable to ingesting oil when their baleen structures are coated,*" . The baleen plates of bowhead whales are fringed with hair-like projections made of keratin (Lambertsen et al., 1989). A laboratory study showed that filtration efficiency of bowhead whale baleen is reduced by 5% to 10% after contact with Prudhoc Bay crude oil (Braithwaite et al., 1983). It

appeared that when baleen was fouled, viscous crude oil caused abnormal spacing of hairs which allowed increased numbers of plankton to slip through the baleen mechanism without being captured (Braithwaite et al., 1983). This loss of baleen filtration efficiency lingered for approximately 30 days. It was uncertain how such reduction would affect the overall health or feeding efficiency of individual whales. In contrast, another study concluded that the most severe effects of baleen fouling are short-lived and interfere with feeding for approximately 1-day after a single exposure of baleen to petroleum (Geraci and St. Aubin, 1983; 1985). The latter study tested baleen from fin, sei, humpback, and gray whales.

Consequences of whales contacting oil have not been well documented. Geraci (1990) reviewed a number of studies pertaining to the physiologic and toxic impacts of oil on whales and concluded there was no evidence that oil contamination had been responsible for the death of a cetacean. Cetaceans observed during the Exxon *Valdez* oil spill in Prince William Sound made no effort to alter their behavior in the presence of oil (Harvey and Dahlheim, 1994; Loughlin, 1994). Following the Exxon *Valdez* oil spill, daily vessel surveys of Prince William Sound were conducted from April 1 through April 9, 1989, to determine the abundance and behavior of cetaceans in response to the oil spill (Harvey and Dahlheim, 1994). During the nine surveys, 80 Dall's porpoise, 18 killer whales, and 2 harbor porpoise were observed. Oil was observed on only one individual, which had oil on the dorsal half of its body and appeared stressed due to its labored breathing pattern. However, many cetaceans were observed swimming in the area of the oil slick. A total of 37 cetaceans were found dead during and after the Exxon *Valdez* oil spill, but cause of death could not be linked to exposure to oil (Loughlin, 1994). Dahlheim and Matkin (1994) reported 14 killer whales missing from a resident Prince William Sound pod over a period coincident with the Exxon *Valdez* oil spill. Matkin (*in: Loughlin, 1994*) notes it is likely nearly all of the resident killer whales in Prince William Sound swam through heavily oiled areas, and that the magnitude of that loss was unprecedented. That study concluded there was a correlation between the loss of these whales and the *Valdez* spill, but could not identify a clear cause and effect relationship. Bratton et al. (1993) concluded that petroleum hydrocarbons appeared to pose no present harm to bowheads, but also noted that this conclusion was less than definitive because of disagreement over the degree of toxicological hazard posed by hydrocarbons.

Toxicity of crude oil decreases with time as the lighter, more harmful, aromatic hydrocarbons such as benzene evaporate. Acute chemical toxicity (lethal effects) of the oil is greatest during the first month following a spill. Sublethal effects may be observed in surviving birds, mammals, and fish for years after the spill. Sublethal and chronic effects include reduced reproductive success, blood chemistry alteration, and weakened immunity to disease and infections (Spies et al., 1996).

Contaminated food sources and displacement from feeding areas also may occur as a result of an oil spill. Rapid recovery of plankton would be expected due to the wide distribution, large numbers, rapid rate of regeneration, and high fecundity of plankton (USDOl, MMS, 1997). However, regeneration may not be rapid as some plankters, such as certain copepod species, may produce only one generation per year and breed for short periods of time.

However, postspill studies on cetaceans, specifically, are inadequate to confidently estimate the likelihood that serious injury to individuals of either of these two species would occur with oil exposure. Small spills are unlikely to have serious adverse effects on threatened or endangered cetaceans.

4.5 Effects on Steller Sea Lions

4.5.1 Airborn Noise and Disturbance to Haulouts/Rookeries

In specific areas such as the Barren Islands and Cape Douglas, the behavior of Steller sea lions could potentially be modified by noise and other disturbance from seismic surveys and the placement of drilling rigs during exploration and development. Aircraft, particularly helicopter disturbance, could potentially disturb sea lions on rookeries and haulouts in the Barren Islands and Cape Douglas. These effects could probably be avoided through flight practices aimed at avoiding such effects.

Calkins and Pitcher (1982) found that disturbance from aircraft and vessel traffic has extremely variable effects on hauled-out sea lions ranging from no reaction at all to complete and immediate departure from the haulout, i.e. a stampede. When sea lions are frightened off rookeries during the breeding and pupping season, pups may be trampled or, in extreme cases, abandoned. Juvenile and adult animals can also be injured during stampedes as animals run over each other or slide or crash into cliff facings or underwater rocks in their haste to escape the researchers. The flight response in pinnipeds has been described as “unrelenting and reckless” such that animals that are chased before capture (or which flee in response to the presence of researchers or low-flying aircraft) are placed in significant jeopardy, not only from the excessive metabolic heat generated from the flight itself, but also from a variety of potentially dangerous situations encountered in their escape attempts (Sweeney 1990). In two separate instances, captive sea lions jumping from elevations of 4-5 feet landed on their chest areas, rupturing the brachiocephalic vein located in the left shoulder area (Sweeney 1990). The hemorrhage resulting from this injury was fatal for one animal and severely debilitating in the other. Jaw fractures, which could impede feeding, are also a common result of the flight response. In the absence of adequate post-activity monitoring, such serious injuries or deaths would not be recorded.

Sea lions have temporarily abandoned haulouts after repeated disturbance (Thorsteinson and Lensink 1962), but in other situations they have continued using areas after repeated and severe harassment. Johnson *et al.* (1989) evaluated the potential vulnerability of various Steller sea lion haulout sites and rookeries to noise and disturbance and also noted a variable effect on sea lions. NMFS (2002) noted permanent abandonment of areas in the Pribilof Islands that were subjected to repeated disturbance. A major sea lion rookery at Cape Sarichef was abandoned after the construction of a light house at that site, but the sea lions used the site as a haulout after the light house was no longer inhabited by humans. The consequences of such disturbance to the overall population are difficult to measure. Disturbance may have contributed to or exacerbated the decline, although Federal, State, and private researchers familiar with the data do not believe disturbance has been a major factor in the decline of Steller sea lions.

The incidence of stampedes in response to aircraft approaches are not known. Researchers report that only a small percentage (less than 1%) of sea lions have been observed to be affected by approaching survey planes.

4.5.2 Effects of seismic (in-water)

Sea lions appear to use vocalizations as part of their social behavior and are able to hear well above and below water; however, there are no data on the response of sea lions to low frequency sounds. However, data from studies of the effects of low frequency sounds on elephant seals (*Mirounga* spp.), which are considered more sensitive to low frequency sounds than other pinnipeds (NMFS 2001b), suggest that elephant seals did not experience short-term changes in behavior in response to low frequency sounds. Richardson et al. (1995) also note the lack of data regarding pinnipeds and seismic, and state that their reactions are not predictable from "scaring device" observations.

4.5.3 Effects of oil spills

It is difficult to predict the potential impact of an oil spill on Steller sea lions. A large oil spill could harm or even kill adults, juveniles, or pups that inhale high concentrations of vapors from fresh oil, especially if they are already in a weakened physiological state. Skin irritation and eye damage could result from prolonged surface contact with oil. Such conditions can increase an individual's physiological stress and increase the likelihood of death of individuals that are highly contaminated or already weakened. Because they rely on their hair for thermal protection, sea lion pups are more vulnerable than are adults to oiling and could die if significantly oiled. Thus, a spill during peak pupping season could cause pup mortality if pups were oiled through contact with the beach or from their mothers. However, available data do not indicate such effects have typically occurred after previous spills, or if they have, that large numbers of individuals were affected.

The Exxon *Valdez* spill was, by many measures, a worst case scenario of an oil spill in terms of the Steller sea lion, in that it was a very large volume spill covering a wide area within the range of the western stock, persisted for long periods of time, reached important haul outs, and occurred during times when these animals were pupping and molting. No rookery habitat was oiled, however. During the initial spill in March 1989, 12 sea lion carcasses were recovered from the beaches of Prince William Sound, and an additional 16 sea lions collected from haulout sites in the vicinity of PWS and the Kenai coast (Loughlin, 1994). The highest levels of PAHs were in sea lions found dead following the oil spill. Sea lions collected seven months after the Exxon *Valdez* oil spill had levels of PAH metabolites in the bile consistent with exposure and metabolism of PAH compounds (Loughlin, 1994). However, since lesions associated with hydrocarbon contamination were not found in histological exams of any sea lion, there was no evidence of oil toxicity damage (Loughlin, 1994). The experience after the *Valdez* oil spill was that oil did not remain on haulouts or tend to remain on adults. Adults do not appear to be extremely susceptible to oil spills. However, long-term impacts on health, survival, or reproduction have not been well studied. The ongoing decline in Steller sea lions made it difficult to sort out potential population-level impacts of the Exxon *Valdez* oil spill. The National Marine Fisheries Service (1995) previously concluded that oil and other

contaminants released into the aquatic environment could adversely affect the health, survival, and reproductive ability of Steller sea lions. A large spill could have adverse effects on individuals from both populations, but it is unlikely that such a spill could have a significant population level effect on the eastern population.

The pelagic waters of Shelikof Strait, an aquatic foraging area component of Steller sea lion critical habitat, could be contacted by an oil spill originating in the program area in Cook Inlet. However, the combined probabilities of a large spill actually occurring and contacting this or other Steller sea lion critical habitats are relatively low. The National Marine Fisheries Service (1995) concluded that any impact of an oil spill or other oil and gas-related activity that had an adverse effect on the production or availability of forage fish within sea lion critical habitats would have adverse impacts on this critical habitat.

4.6 Effects on Critical Habitat

This opinion is to assess whether the proposed action is likely to result in the adverse modification of critical habitat. Adverse modification means any direct or indirect alteration that appreciably diminishes the ecological function of critical habitat for the conservation of a listed species.

There are no critical habitats designated for humpback or fin whales. Critical habitat has been designated for the Steller sea lion, consisting of rookeries and major haul outs. Several Steller sea lion critical habitat sites occur in the sale area or "downstream" of some potential spills from that area. These include the Shelikof Strait foraging area, the Sugarloaf Island rookery, and major haul outs at Nagahut Rocks, Ushagat Island, Sud Island, Latax Rocks, and Shakun Rocks. Other major haul out/critical habitat sites occur along the south shoreline of the Alaska Peninsula: sites which may be impacted by oil spills originating in the Sale Area. The most likely vectors for any such modification would be oil spills which may alter these habitats physically, and acoustic disturbance (most likely due to aircraft).

The probability of these critical habitats becoming oiled has been considered by the MMS. Their spill trajectory analysis modeled spills from various release points in the sale area. Theoretical launch sites L6 and L7 were found to have the most southern extent of oiling, and because the critical habitat sites occur generally south of the Sale Area, would be expected to have the highest probability for contact. Cape Douglas has the highest annual probability for contact; 56% for a spill originating at L6 reaching this area within 3 days; while the Barren Islands would have up to a 44% chance of contact. These probabilities are associated with Alternative I. Adoption of the alternative deferral areas would be expected to reduce these probabilities of contact; the Barren Island Deferral would reduce the chance of contact from a spill originating at L6 by 26-29% within 3, 10 and 30 days (C. Smith¹). Other sea lion critical habitats to the south and west of the Sale Area (downstream effects) have probabilities for contact varying between less than 0.5% to 19 percent. These are

¹Smith, C. 27 February, 2003. MMS Alaska OCS Region. Personal commun.

conditional probabilities (e.g. they assume a spill has occurred) and use the launch point with the highest probability of contacting sea lion sites. They may, then, be seen as conservative estimates, if the spill analysis itself is correct. The MMS estimates the probability for a spill in excess of 1,000 barrels during production to be 19% for their analysis. The combined probability of a spill occurring and also reaching one or more critical habitat sites is small.

Additionally, the physical conditions at these sites make them less likely to become oiled, or for oil to persist. The rookery and haul outs are predominately bedrock sites on shoreline promontories (exposed rocky shores) which do not allow oil to be entrained into beach structure (sands and cobble). Oil is held offshore by waves reflecting off the steep shoreline. Oil persistence will be short, and will be a function of the wave energy. Oil would be removed in days (RPI, 1986). Nonetheless, any oil reaching these sites would be especially troubling. Pups present on rookeries would be at highest risk. Any oiling to the fur of young sea lions could increase their transfer of heat to the environment, increasing metabolic demands. Sea lions metabolic demands are also elevated during molting, and oiling and harassment associated with spill response actions could have adverse effects. There is, in fact, some question as to whether response actions should be directed at these sites, given the aggressive nature of the animals, concerns over loss of mother/pup pairs, the physiology of the sea lion, and the general resistance to oiling of high energy sites. NMFS believes any reasonable measures to prevent these sites from becoming oiled should be adopted by MMS. Towards this end, we are advocating certain deferral areas, as presented in the DEIS, as Conservation Recommendations.

Aerial overflights could diminish the ecological value of these habitats. NMFS believes such impacts would be largely avoidable, and that specific Notices to Lessees from MMS, amplified as Conservation Recommendations within this opinion, should be effective.

5.0 CUMULATIVE EFFECTS

Cumulative effects are defined in 50 CFR 402.02 (Interagency Cooperation on the Endangered Species Act of 1973, as amended): "...those effects of future State or private activities not involving Federal activities that are reasonably certain to occur within the action area of the Federal action subject to consultation." Reasonable foreseeable future federal actions and potential future Federal actions that are unrelated to the proposed action are not considered in the analysis of cumulative effects because they would require separate consultation pursuant to section 7 of the ESA. Cumulative effects are usually viewed as those effects that impact the existing environment and remain to become part of the environment. These effects differ from those that may be attributed to past and ongoing actions within the area since they are considered part of the environmental baseline. Additionally, most structures and major activities on the OCS require Federal authorizations from one or more agencies, such as the MMS, Army Corps of Engineers, and the Environmental Protection Agency. Such projects must consult under the ESA, and are therefore not addressed here as cumulative impacts.

5.1 Cumulative Effects on Steller Sea Lions

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. Past and present impacts of non-federal actions are part of the environmental baseline. The following discussion is derived from NMFS (2001a), unless otherwise noted.

5.1.1 Subsistence Harvest

The subsistence harvest of sea lions by Alaska Natives results in direct takes that are expected to continue into the foreseeable future. These takes represent the highest level of known direct mortality from an anthropogenic source. Recent estimates of this harvest range from a high of 549 in 1992 to a low of 164 in 1997, with a mean of 353. The primary areas of subsistence harvest are the Pribilof Islands, Kodiak Island, and the Aleutian Islands. The overall impact of the subsistence harvest on the western population depends upon the number of animals taken, their sex and age class, and the location where they are taken. As with other sources of mortality, the significance of subsistence harvesting may increase as the western population of sea lions decreases in size unless the harvesting rate is reduced accordingly. The future subsistence harvest may contribute to localized declines of sea lions and/or impede recovery if the harvest is concentrated geographically.

5.1.2 State-managed Commercial Fisheries

State-managed fisheries affect sea lions through both direct and indirect mechanisms. Direct impacts

include sea lions killed inadvertently in trawls, seines, or gill nets, as well as short term nonlethal effects such as disturbance of sea lion haulouts, vessel noise, entanglement in nets, and preclusion from foraging areas due to active fishing vessels and gear. Indirect impacts include the hypothesis that fisheries may compete with sea lions for common prey. In particular, walleye pollock, Pacific salmon, Pacific cod, and Pacific herring are consumed with relatively high frequency by the western population of sea lions. State managed groundfish harvesting can cause dense schools of fish to scatter, reducing sea lion prey density and decreasing the value of foraging habitat. Similarly, short term intensive fishing effort targeted on spawning aggregations of herring and on high densities of salmon at stream or river outlets may decrease the opportunities for sea lions to forage efficiently. As a result, individual sea lions may have to expend more time and energy to consume the same quantity of fish.

The state managed herring and salmon fisheries are short in duration and relatively small in scale. However, despite the smaller scope and scale of these state managed fisheries relative to federally managed fisheries, interactions with state managed fisheries may be a more important factor for Steller sea lions than previously realized. Recent information on sea lion foraging patterns indicates that pups, juveniles, and breeding aged adults spend the majority of their time in areas within 10 nm of shore, suggesting that they may rely heavily on near shore prey. Preferential use of near shore habitat by foraging sea lions implies that they are more susceptible to interactions with state managed fisheries than they appeared to be previously.

NMFS expects the existing state managed fisheries to continue into the foreseeable future. Likewise, NMFS expects the direct and indirect effects of state managed fisheries on Steller sea lions to continue into the foreseeable future. With regard to direct effects, state managed fisheries are likely to continue to account for an annual mortality of approximately 30 Steller sea lions, based on current levels of direct mortality. There are no available estimates of the frequency or severity of nonlethal takes in state managed fisheries, but presumably nonlethal takes will continue at current levels. Regarding indirect effects, NMFS concludes based on available information that state managed fisheries for pollock, cod, herring, and salmon are likely to continue to compete for fish with foraging Steller sea lions. Given the importance of near shore habitats to sea lions, this competition for fish may have consequential effects. Specifically, these interactions may contribute to nutritional stress for sea lions, and may reduce the value of the marine portions of designated sea lion critical habitat. State managed fisheries will continue to reduce the abundance of preferred sea lion prey within these marine foraging areas and may alter the distribution of certain prey resources in ways that reduce the foraging effectiveness of sea lions. Therefore, state managed fisheries (particularly for herring, salmon, and groundfish) may contribute to the continued decline of the western population of Steller sea lions and may reduce the prospects for survival and recovery. However, the causes of the current decline, and the extent that the contributing factors play in the decline are largely unknown.

5.1.3 State-managed Sport Fisheries

Meeting public demand for recreational fishing opportunities in Alaska while at the same time

maintaining and protecting fishery resources has become a significant challenge for ADF&G. Increasing tourism and continued population growth lead to increased pressure on existing sport fisheries and development of new fisheries.

The sport fishery harvests about 1% of the annual Alaska total fish harvests. Sport fishery harvests would be expected to continue in relatively low amounts in the future. The nature of most of the fisheries is slow removal rates and dispersed catch. The most concentrated catches are in the salmon fisheries, however, many of these (such as the Kenai fisheries) take place upriver outside of foraging areas for Steller sea lions. For these reasons, future state managed sport fisheries will not contribute measurably to the total cumulative effects of state, tribal, local, and private actions on Steller sea lions.

5.1.4 Subsistence Harvest of Groundfish

Subsistence hunting and fishing are important to the economies of many families and communities in Alaska. The subsistence fishery harvests about 2% (8,000 mt) of the annual Alaska total fish harvest. Although subsistence harvests are likely to continue into the future, and possibly grow if population increases, the amount taken for consumptive uses will remain very small compared to the commercial catch of fishery resources and will not contribute measurably to the total cumulative effects on Steller sea lions.

5.1.5 Illegal Shooting of Sea Lions

The mortality level from illegal shooting of sea lions has been estimated to be at least 50 animals per year. Despite education and enforcement efforts, NMFS expects this level of mortality to continue for the foreseeable future.

5.1.6 State Oil and Gas Leasing

Oil claims were staked at Katalla approximately 50 miles south of Cordova in 1896. Oil was discovered there in 1902. An on-site refinery near Controller Bay produced oil for over thirty years. The refinery burned down in 1933 and was not replaced. Exploration in Cook Inlet began in 1955 on the Kenai Peninsula in the Swanson River area, and oil was discovered in 1957 which sparked an oil rush in south central Alaska. Today, a number of active fields produce oil in Cook Inlet, all of which is processed at the refinery at Nikiski on the Kenai Peninsula. Estimated oil reserves in Cook Inlet are 72 million barrels of oil. Currently there are additional lease sales planned through 2005 for the Cook Inlet area. Much of the current State oil and gas development in Cook Inlet lies in waters north of the normal range of the Steller sea lion.

5.1.7 Vessel and Aircraft Activity

Disturbance from vessel and aircraft traffic has variable effects on sea lions ranging from no reaction at all to temporary departure from haulouts and rookeries and even abandonment of haulouts and

rookeries. These effects stem primarily from noise emanating from cruise ships, ferries, small boats, and aircraft. The consequences of such disturbance to the overall sea lion population are difficult to measure. Disturbance may have contributed to or exacerbated the decline of Steller sea lions, although it likely has not been a major factor in the decline. NMFS expects disturbance from vessels and aircraft to continue in the future at levels comparable to the present.

5.1.8 Human Population Growth

Alaska has the lowest population density of all of the states in the United States. Although Alaska's population has increased by almost 50 percent in the past 20 years, most of that increase has occurred in Anchorage and Fairbanks.

In general, as the size of human communities increases, there is an accompanying increase in habitat alterations and impacts on landscapes and biota. As areas are modified for the construction of housing, roads, commercial facilities, and other infrastructure, native plants and animals are displaced and waste disposal needs increase.

Our assessment of cumulative effects to Steller sea lions indicates that such effects are relatively small at present, and are managed or monitored through on-going actions by NMFS. The proposed action is not likely to add significantly to these cumulative effects.

5.2 Cumulative Effects on Fin and Humpback Whales

Because humpback and fin whales are highly migratory and occupy vast home ranges, it is difficult to assess cumulative effects to these animals. These species may be impacted by commercial fisheries (incidental take and gear interaction), and NMFS expects commercial and recreational fisheries managed by Hawaii, Alaska, and other Pacific coasts states to continue within the foreseeable future. Due to lack of good data, it is not possible to accurately estimate injury and mortality rates to fisheries interactions. NMFS expects whale watching operations, vessel traffic, aircraft and helicopter tours, and research activities to continue for the foreseeable future, mostly in the winter in Hawaii and summer in Alaska. The best scientific and commercial data available provide little specific information on any long-term effects of these potential sources of disturbance on whale populations. Information on the effects of repeated harassment by research activities, vessel traffic, and whale watchers is also lacking. It appears that the number of humpback whales is not decreasing and there is insufficient information on the trends of fin whales. Therefore, at the present time, continuation of these activities would not appear to add to the cumulative effects to the point at which the conclusions of this opinion would be altered.

5.3 Incremental Step Consultation

This Opinion addresses the incremental step of leasing and exploration in the Cook Inlet OCS planning area. For the Federal agency to proceed with the incremental step, there must be a reasonable likelihood the entire action will not violate section 7 (a)(2) of the ESA (50 CFR

402.14(k)). Therefore, NMFS is providing its views on the subsequent phases of development and production, should commercially-viable discoveries of oil occur.

The MMS provides a scenario for development and production in the DEIS which is similar to that of exploration. It would involve the construction of a single production platform and two 25 mile pipelines to shore: one for oil and one for gas. The pipelines are not expected to require dredging. The oil and gas produced are expected to be refined and consumed in-State, with no export.

Activities during development and production, like those occurring during exploration, will result in noise, altered habitat, and adverse effects on behavior, distribution, and abundance of individuals or populations occurring in or adjacent to the sale area. In addition, cleanup activities associated with any oil spill may result in disturbance.

Oil or other petroleum products released during development or production may cause adverse effects on individuals either through direct contact or indirectly as a result of effects on prey populations or important habitats. Contaminants, other than crude oil, such as drilling muds and cuttings, are not expected to cause significant effects, because they are likely to become rapidly diluted near the point of release. Moreover, the Environmental Protection Agency's discharge permits may require re-injection of muds and cuttings whenever possible, eliminating these discharges.

Noise effects associated with development and production activities on endangered whales would be similar to those described earlier. Whales could exhibit avoidance behavior from noise associated with aircraft traffic, supply vessels, drilling operations or seismic-survey vessels.

Cleanup activities associated with an oil spill are likely to result in disturbance to Steller sea lions and whales. If an oil spill does occur, it is likely that large numbers of personnel, vessels, and aircraft will be present and conducting cleanup operations in the area. Disturbance effects on the sea lions and whales are expected to persist for the duration of cleanup operations during periods when these animals are present in the spill area. The effects of oil spills on these species have been discussed previously in this document.

5.3.1 Incremental Step Conclusion

The effects of OCS production activities have been described. The effects from an encounter with aircraft generally are brief, and the marine mammals should resume their normal activities within minutes. Sea lions and whales exposed to noise-producing activities most likely would experience temporary, nonlethal effects. Some avoidance behavior could persist up to 12-24 hours. Marine geophysical (seismic) exploration is of particular concern with respect to fin and humpback whales, although any impacts are most likely associated with behavioral changes (harassment) rather than injury or death.

Most sea lions and 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 items, baleen fouling, reduction in food resources, or temporary displacement from some feeding areas. A few individuals may be killed as a result of exposure to freshly spilled oil. However, the combined probability of a spill occurring and also contacting sea lion or whale habitat during periods when they are present is considered to be low, and the percentage of the stock or population of these animals so affected is expected to be very small.

The probability of an oil spill increases as more oil fields become active. MMS projects a 19% probability for a spill in excess of 1,000 barrels for the production scenario. While this estimate is significant, the combined probability that a spill would occur, the probability for a spill to occur or persist during periods when sea lions or whales are present, and the probability that oil would move into areas used by these species appears small. Significant adverse effects would only be expected if all of these low-probability events occurred at the same time.

5.4 Summary Effects of the Action

This Biological Opinion has considered the effects of the oil and gas leasing and exploration on the Outer Continental Shelf portion of Cook Inlet, Alaska on ESA-listed species and critical habitat. These actions are likely to affect sea lions and whales due to vessel operations, marine geophysical (seismic) exploration, aircraft traffic, and drilling noises from various structures. The probability of a large oil spill is remote during exploration, but was assessed due to the pronounced effects it might have on these species and the higher probabilities associated with subsequent development and production phases.

Elevated noise levels in the marine environment could alter the hearing ability of marine mammals, causing temporary or permanent threshold shifts. There is, at present, insufficient information on the hearing ability and sensitivities of baleen whales or Steller sea lions to adequately describe this potential. However, information suggests most continuous and impulsive underwater noise levels would be at levels or durations below those expected to injure hearing mechanisms. Nonetheless, marine seismic activities may present concerns with respect to hearing, and should be closely conditioned and monitored to avoid these effects.

5.4.1 Gray Whale Concerns

The Eastern north Pacific stock of the gray whale, *Eschrichtius robustus*, occurs in and near the Sale Area. These whales overwinter in Pacific waters off California and Mexico, and migrate northward each year to the Bering, Chukchi, and Beaufort Seas (Angliss et al., 2001). Previously listed as an endangered species, this stock is now considered to be recovered, and was removed from the Endangered Species list in 1994. The minimum population estimate for this stock is 26,635, and the stock may be increasing at an annual rate exceeding 2 per cent (ibid.). Gray whales reach the Shelikof Strait/lower Cook Inlet region sometime in late March to April. The southward migration may reach these waters during November, and gray whales are often spotted off Kodiak Island well into December. The migration route of the gray whale closely follows the coastline, although this

route splits near the Sale Area; some whales moving along the outside of Kodiak Island and others moving through Shelikof Strait. NMFS has no records of gray whales summering within the Sale Area, nor of any feeding by gray whales in these waters. However, several sources (reported in MMS 2002) have identified gray whales summering and feeding in California, Oregon, and Washington; and it is likely similar behavior occurs in the Gulf of Alaska.

The discussion and assessment of the potential effects of Sale 191 on fin and humpback whales is probably very applicable to the gray whale. All of these are baleen whales and, to some extent, would be expected to display similar reactions to OCS exploration activities and oil spills. Thus, the discussion of impacts/effects to fin and humpback whales in this opinion is broadly representative of gray whales. Because most gray whales would occur outside (south) of the Sale Area, and would be migrating past the area, it is likely they would experience lesser effects of the sale than fin or humpback whales. Gray whales within the Eastern North Pacific stock are exposed to considerable amounts of human activity, including oil and gas operations in California, a myriad of commercial shipping and fishing activities, and various whale watching and research activities. The recovery of the gray whale population in the face of long-term exposure to human activities along the North American coast suggests a strong degree of tolerance to such activities (Moore and Clarke, 2002).

NMFS finds no evidence of likelihood that proposed Sales 191 or 199 would present significant consequence to the conservation of this stock.

6.0 CONCLUSIONS

After reviewing the current status of the Steller sea lion, fin whale, and humpback whale; the environmental baseline for the action area; the biological and physical impacts of oil leasing and exploration; and cumulative effects, it is NMFS's biological opinion that the proposed MMS oil and gas lease sales 191 and 199 in Cook Inlet, Alaska are not likely to jeopardize the continued existence of the fin whale, humpback whale, or Steller sea lion, nor result in the adverse modification of critical habitat.

7.0 INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

This opinion does not include an incidental take statement at this time. Upon issuance of regulations or authorizations under Section 101(a)(5) of the Marine Mammal Protection Act and/or its 1994 Amendments, NMFS will amend this opinion to include an incidental take statement(s).

8.0 CONSERVATION RECCOMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The National Marine Fisheries Service and the Minerals Management Service should implement the following measures for these purposes:

1. MMS should adopt proposed Alternatives III and IV, as presented in the December 2002 DEIS. These alternatives would defer from leasing certain tracts near the Barren Islands and offshore of the lower Kenai Peninsula. The use of the Sale Area by endangered whales and the Steller sea lion increases to the south, and several designated critical habitats exist within these deferral areas. NMFS believes these deferrals would reduce general disturbance to these species, and lessen the risk to critical habitat due to aircraft noise, geophysical seismic operations, and to an extent, oil spills.
2. All aircraft should maintain flight separation distances of 1,500 feet vertical and 0.5 miles horizontal over all Steller sea lion haulouts and rookeries (identified in 50 CFR 226.202).
3. The MMS should initiate or continue research on the distribution and habitat use of the lower Cook Inlet/Shelikof Strait area by humpback and fin whales.
4. The MMS should continue to provide Information to Lessees and Lease Stipulations intended to reduce impacts to the endangered species and marine mammals.
5. Upon learning of the unauthorized take of any endangered species or impacts to critical habitat which occurs as a result of OCS exploratory activity, MMS should immediately notify the assistant Regional Administrator for Protected Resources at (907) 586-7235 of this taking to determine the appropriate and necessary course of action.
6. Multiple seismic operations should not work within the same area of Cook Inlet at the same time. Whenever such work is proposed, NMFS should condition any MMPA small take authorizations in consideration of synergistic or additive effects to listed species. Seismic operations should be prohibited from operating offshore of one another (i.e., to the north or south). This measure does not include high-resolution seismic operations, or seismic work nearshore or in shallow waters which have less potential to harass or harm listed species.

9.0 REINITIATION OF CONSULTATION

This concludes formal consultation on this action. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Biological Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Biological Opinion; or (4) a new species is listed or critical habitat designated that may be affected by this action. In circumstances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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United States Department of the Interior



MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
949 East 36th Avenue, Suite 300
Anchorage, Alaska 99508-4363

MAY 21 2003

James W. Balsiger
Administrator, Alaska Region
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

Dear Mr. Balsiger:

Tom Readinger asked me to respond to and thank you for your letter of March 31, 2003 to the Minerals Management Service providing us with your Biological Opinion for our proposed Federal Oil and Gas Leasing Exploration Sale 191 and 199 for the Cook Inlet Planning Area. Section VIII of the Biological Opinion provided several Conservation Recommendations for our consideration. As you know, the Final Decision on the extent of Lease Sales and other terms and conditions of Sales rests with the Secretary of the Interior. The following is our state of progress to date concerning your recommendations.

Conservation Recommendation No. 1 suggested "MMS should adopt proposed Alternatives III and IV, as presented in the December 2002 DEIS." This recommendation will be forwarded to the Secretary for consideration.

Conservation Recommendation No. 2 suggested "All aircraft should maintain flight separation distances of 1,500 feet vertical and 0.5 miles horizontal over all Steller sea lion haulouts and rookeries (identified in 50 CFR 226.202)." We included this recommended distance information as part of this separation Information to Lessee (ITL) No. 1, Bird and Marine Mammal Protection. Furthermore, this information is typically incorporated into the orientation programs outlined in Stipulation No. 3.

Conservation Recommendation No. 3 suggested "The MMS should initiate or continue research on the distribution and habitat use of the lower Cook Inlet/Shelikof Strait area by humpback and fin whales." As described in the Alaska OCS Region's Alaska Annual Studies Plan, FY 2003, MMS is evaluating two studies: "Distribution and Abundance of Beluga Whales in Cook Inlet During Winter" and "Monitoring Marine Mammals: Lower Cook Inlet". Other research on distribution and habitat use by humpback, fin, beluga and other whales is under consideration. You will soon be receiving the Annual Studies Plan for 2004 and subsequently a request for suggestions for the Annual Studies Plan for 2005.

Conservation Recommendation No. 4 suggested that "The MMS should continue to provide Information to Lessees and Lease Stipulations intended to reduce the impacts to the endangered

species and marine mammals.” Over the past year, we have revised Stipulations and ITLs to reflect the most current information. We appreciate the effort your staff makes to discuss the information with us to help ensure the impacts are reduced.

Conservation Recommendation No. 5 suggested that “Upon learning of the unauthorized take of any endangered species or impacts to critical habitat which occurs as the result of OCS exploratory activity, MMS should immediately notify the assistant Regional Administrator for Protected Resources...” Activities are planned to avoid these impacts, but in the unlikely event one did occur, our notification will be prompt.

Conservation Recommendation No. 6 suggested that “Multiple seismic operations should not work within the same area of Cook Inlet at the same time....” Follow-up conversations between MMS and NMFS staff indicated that, because of the variables that need to be considered, such as species involved, and the timing, water depth, and equipment used in the survey, the best approach to satisfy this recommendation was through informal consultations between our agencies if multiple seismic surveys are proposed. Historically, these consultations occur early in the planning of a seismic survey and any mitigation is incorporated in the survey plan before the permit is approved.

Sincerely,

A handwritten signature in black ink, appearing to read "P. R. Stang". The signature is fluid and cursive, with a long horizontal stroke at the end.

Paul R. Stang
Regional Supervisor,
Leasing and Environment

APPENDIX D

ESSENTIAL FISH HABITAT CONSULTATION AND COORDINATION

List of Items in Appendix D

MMS letter dated November 20, 2002 requesting EFH consultation with NMFS under Magnuson-Stevens Fishery Conservation and Management Act and forwarding the Draft Environmental Impact Statement for Cook Inlet Planning Area, Oil and Gas Lease Sales 191 and 199.

NMFS letter dated December 18, 2002 acknowledging request for consultation and receipt of the DEIS.

MMS letter dated January 10, 2003 to NMFS outlining presentation of EFH information in the DEIS.

NMFS letter dated July 8, 2003 to MMS transmitting EFH programmatic consultation document.

MMS letter dated August 13, 2003 to NMFS outlining response to EFH programmatic consultation document's conservation recommendations.



United States Department of the Interior



MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
949 East 36th Avenue, Suite 300
Anchorage, Alaska 99508-4363

RD CARON

Dr. Jim Balsiger
Regional Administrator
National Marine Fisheries Service
709 West 9th Street
P.O. Box 21668
Juneau, Alaska 99802

NOV 20 2002

Dear Dr. Balsiger:

The Magnuson-Stevens Fishery Conservation and Management Act requires a Federal Agency to consult on any activity that may adversely affect essential fish habitat (EFH). The Minerals Management Service requests a programmatic consultation for EFH identified in the Environmental Assessment (EA) for Amendment 55 for Groundfish of the Gulf of Alaska, Amendment 5 to the Fishery Management Plan for Scallop Fisheries off Alaska and Amendment 5 to the Fishery Management Plan for the Salmon Fisheries in the EEZ off the Coast of Alaska. The proposed actions we are consulting on include activities associated with leasing and exploration for oil and gas from proposed Lease Sales 191 and 199 as well as exploration associated with all other existing leases in the Cook Inlet Planning Area. This programmatic consultation does not encompass the development and production activities.

Implementing regulations at 50 CFR 600.920(a)(ii) provide for consultation to be conducted programmatically when the National Marine Fisheries Service (NMFS) determines that adverse effects on EFH can be addressed for all projects at a program level. Programmatic consultations provide a mechanism to minimize or reduce the need for numerous project-specific consultations.

The Essential Fish Habitat regulations at 50 CFR 600.920(f) enable NMFS to make a finding that an existing consultation or environmental review procedure can be used to satisfy the Magnuson-Stevens Act consultation requirements.

On March 12, 2002, National Marine Fisheries Service issued a Letter of Finding allowing MMS to incorporate EFH consultations into the NEPA process. MMS may submit to NMFS a lease sale or project specific environmental impact statement (EIS) or EA, as appropriate, in lieu of a stand alone EFH assessment.

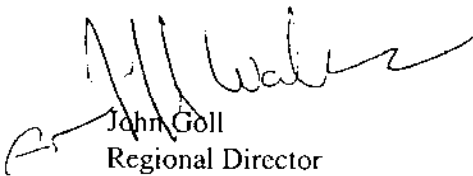
As one of the preferred methods indicated in the EFH Final Regulations published at 67 FR 2243-2383 (Federal Register, January 17, 2002), our EFH Assessment is integrated into the



NEPA document (Draft EIS Cook Inlet Planning Area Oil and Gas Lease Sales 191 and 199) which was sent to your office last week. The document includes descriptions of the nature of the programs subject to this request, an analysis of the effects of consultation-related activities on EFH and federally managed fisheries, views of the MMS regarding those effects, and identification of existing measures to mitigate potential adverse impacts.

This documentation provides the EFH assessment information as required under 50 CFR 600.920(g). If you have any questions or wish to discuss specific issues, please contact Ms. Kate Wedemeyer at 907-271-6424.

Sincerely,



John Goll
Regional Director

cc: Matt Eagleton
Habitat Conservation Division
National Marine Fisheries Service
222 West 7th Street, Box 43
Anchorage, AK 99513-7577

bcc: Official File (Cook Inlet Multisale DEIS)
RS/LE Read File



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

*National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668*

December 18, 2002

John Goll
Regional Director,
Alaska OCS Region
Minerals Management Service
949 East 36th Avenue, Room 308
Anchorage, Alaska 99508-4302

RECEIVED
DEC 27 2002

**REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA**

Dear Mr. Goll:

The National Marine Fisheries Service (NMFS) has received your November 20, 2002 request for a programmatic Essential Fish Habitat (EFH) consultation on activities associated with leasing and exploration from proposed Lease Sales 191 and 199, as well as exploration associated with all other existing leases in the Cook Inlet Planning Area. The request states that in accordance with the procedures outlined in the March 12, 2002 EFH finding between our agencies, MMS intends to use the Draft Environmental Impact Statement (DEIS) for Oil and Gas Lease Sales 191 and 199 for the Cook Inlet Planning Area of the Alaska Outer Continental Shelf (OCS) to fulfill the consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. MMS has also requested that this document serve as the EFH Assessment for the proposed programmatic consultation.

We intend to submit comments on the DEIS under separate cover. Our staff will also coordinate with MMS regarding our concerns under the Marine Mammal Protection Act and the Endangered Species Act.

Programmatic consultations is a mechanism for implementing the EFH consultation requirements efficiently and effectively by including in one consultation many individual actions that may adversely affect EFH. Section 600.920(j) of the EFH regulations describes programmatic consultation as appropriate if sufficient information is available at a programmatic level to develop EFH conservation recommendations that will address all reasonably foreseeable adverse impacts to EFH. A programmatic consultation results in a letter from NMFS to the Federal agency containing programmatic EFH conservation recommendations, as well as identification of any adverse impacts that could not be addressed by the programmatic EFH



conservation recommendations. Any adverse effect that cannot be addressed through programmatic EFH conservation recommendations will have to be addressed through individual consultation (preferably by using existing procedures) or a General Concurrence¹.

The NMFS document containing the EFH conservation recommendations should briefly summarize the EFH Assessment, and may contain the entire EFH Assessment as an attachment. This document may contain other attachments such as a General Concurrence or a finding, if they were developed as a result of the programmatic consultation. The document containing NMFS EFH conservation recommendations for a programmatic consultation should contain: a description of the program; a description of the EFH affected by program activities; a description of the adverse effects on EFH; programmatic EFH conservation recommendations; how the EFH conservation recommendations will address adverse effects; any additional consultation required of the agency, e.g. individual consultation for certain projects; and a concluding section or statement that clarifies that the programmatic consultation satisfies the Magnuson-Stevens Act consultation requirement. The action agency must respond to the EFH conservation recommendations within 30 days as required under the Magnuson-Stevens Act.

The description of the program, affected EFH, and adverse effects on EFH should be addressed by the action agency's programmatic EFH Assessment. The EFH assessment in the DEIS contains the information required under 50 CFR 600.920 (e)(3); however, the sections containing this information have not been identified as the EFH Assessment as required under 50 CFR 600.920 (f)(ii) and are scattered throughout the DEIS. This makes it difficult for NMFS staff to complete the documentation for the programmatic consultation. NMFS requests an opportunity to discuss options for consolidating this information into one document, as well as the possibility of developing a General Concurrence for some of the activities that will occur as a result of the lease sales. Additionally,

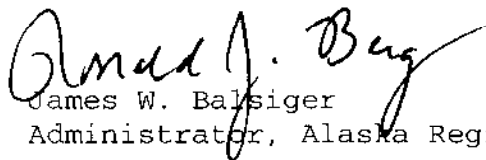
¹ General Concurrences should be used for categories of Federal actions that are similar in nature and similar in their impact on EFH, and that will not cause greater than minimal impacts on EFH, either individually or cumulatively.

consulting on certain activities individually, rather than programmatically, may be more appropriate, due to the areal extent and the vast environmental and geographic differences covered by these lease sales.

Also, pursuant to 50 CFR 600.920 (a)(1), EFH consultation is not required for actions that were completed prior to the approval of EFH designations by the Secretary, e.g., issued permits. Consultation is required for renewals, reviews, or substantial revisions of actions if the renewal, review or revision may adversely affect EFH. NMFS, therefore, would not consult on any existing lease sale in the Cook Inlet Planning area. NMFS may, however, need to consult on any upcoming actions that MMS determines would have an adverse effect on EFH.

NMFS looks forward to discussing this further with MMS and coming to mutual agreement on the appropriate method to fulfill the EFH consultation requirements of the Magnuson-Stevens Act. Please contact Ms. Jeanne L. Hanson of my staff at (907) 271-3029 to arrange a meeting.

Sincerely,

For 
James W. Balsiger
Administrator, Alaska Region

cc: Corps, USFWS, USEPA, ADEC, ADFG, ADGC - Anchorage
Cook Inlet Marine Mammal Council



United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
949 East 36th Avenue, Suite 300
Anchorage, Alaska 99508-4363

JAN 10 2003

James W. Balsiger
Administrator
Alaska Region
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1669

Dear Mr. Balsiger:

We have received your letter of December 18, 2002 regarding the programmatic Essential Fish Habitat (EFH) consultation on activities associated with leasing from proposed Lease Sale 191 and 199 in the Cook Inlet Planning area. As noted in your letter, MMS intends for the Draft Environmental Impact Statement (DEIS) for Lease Sale 191 and 199 to serve as the EFH assessment, and in accordance with the procedures outlined in the March 12, 2002 EFH finding between our agencies, to fulfill the consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act.

The national Letter of Finding between NMFS and MMS allows MMS to choose to use the NEPA process by submitting to NMFS programmatic, lease sale, or project-specific environmental impact statements and environmental assessments, as appropriate, in lieu of a stand alone EFH assessment. Within this draft NEPA document MMS will include the mandatory contents and proposed mitigation, if applicable. The EFH Assessment information will be clearly identified in a separate section or clearly referenced in the draft NEPA document.

Your letter recognizes that

“the EFH assessment in the DEIS contains the information required under 50 CFR 600.920 (e)(3); however, the sections containing this information have not been identified as the EFH Assessment as required under 50 CFR 600.920(f)(ii) and are scattered throughout the DEIS. This makes it difficult for NMFS staff to complete the documentation for the programmatic consultation. NMFS requests an opportunity to discuss options for consolidating this information into one document....”

Within each section and subsection of the DEIS, we have included the required information under the heading **Essential Fish Habitat**. To assist your staff's completion of the review the following EIS pages that contain the information required by 50 CFR 600.920(e)(3), the Mandatory Contents, are located in the DEIS as follows:

- (i) **Description of the action:** Page I-8 to I-10. The proposed action (Alternative I) offers for lease 517 whole or partial blocks in the Cook Inlet OCS Planning Area in two lease sales and includes mitigation measures and information to lessee

clauses. The EIS examines two alternatives for the proposed action, the Lower Kenai Peninsula deferral (Alternative III) and the Barren Islands Deferral (Alternative IV).

Section II describes each of these alternatives, mitigation measures, and information to lessee clauses in greater detail. Section-II (page II-4 to II-6) also presents a hypothetical exploration, development, and production scenario that provides the basis for the analysis of effects from the proposed action and the alternatives.

- (ii) **The potential adverse effects of the action on EFH and the managed species:** Pages III-46 to III-48 identify and describe the essential fish habitat that could potentially be affected by the proposed action. Analysis of the potential adverse effects of the proposed action on essential fish habitat is presented on Pages IV-46 to IV-51. This section relies heavily on your agency's studies, published information and maps and includes views of other recognized experts on the habitat and species in Cook Inlet that may be affected.

The potential adverse effects, as noted on page IV-47, described in this section are from "the list of potential impacts identified by the North Pacific Fisheries Management Council for petroleum production. Not all of the potential threats in this list are relevant to these lease sales. This section addresses habitat alteration, topographic alteration, and portions of organism alteration. Water quality alteration and atmospheric depositions are addressed in the water quality (IV.B.1.a) and air quality (IV.B.1.b) sections of this EIS. Oceanographic alterations, gene pool deterioration, introduction of exotic species, introduction of pathogens/disease, and change in photosynthetic regime are not anticipated effects of this lease sale and will not be addressed further in this analysis."

The DEIS includes analysis of alternatives to the action that could avoid or minimize adverse effects on EFH by eliminating portions of the leasing area. Analysis for the potential effects on EFH from the Lower Kenai Peninsula Deferral (Alternative III) is on page IV-192. Analysis for the potential effects on EFH from the Barren Islands Deferral (Alternative III) is on page IV-201.

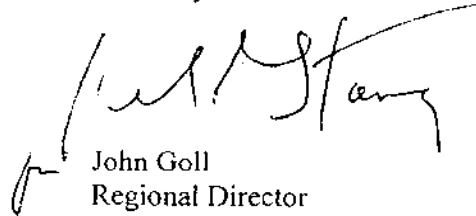
- (iii) **MMS conclusions regarding the effects of the action on EFH,** are presented in Section IV.B.1.c(1), Page IV-47. Essentially, effects from seismic surveys, turbidity, and pipeline construction (both offshore and onshore) are considered low; an unlikely large oil spill (1,500-4,600 barrels) could affect beach and intertidal fish habitats but such habitat degradation would likely be limited to a very small proportion of habitat and the habitat of only small populations or subpopulations would be affected; and, the generally low effects of this lease sale on essential fish habitats are not expected to affect the ecosystem at a level that could be measured.

We propose that this information be added to the Final EIS in the introductory material contained in "The Cook Inlet Multiple-Sale EIS—What It Includes and How It Is Structured, under the heading "Other Uses of this Document" on page v. In future EFH consultation requests we can include each of the mandatory contents for an EFH assessment within this section and indicate where they can be located within the draft NEPA document.

Your letter raised the prospect of using General Concurrences. The national Letter of Finding was negotiated between NMFS and MMS to best fit both agencies' needs through the NEPA process by submitting to NMFS programmatic, lease sale, or project-specific environmental impact statements and environmental assessments. At this time we do not anticipate using the General Concurrence but we are willing to discuss this further if your agency is particularly interested.

As you suggested, we will contact Ms. Jeanne L. Hanson of your staff to discuss the presentation of EFH information in the DEIS.

Sincerely:



John Goll
Regional Director

cc: Kay Briggs
James Lima
Kate Wedemeyer
Paul Stang
Fred King
Jeanne Hanson

Official File (Cook Inlet)
RD Chron
LE Chron
My Documents\EFH Response\KING\kmm\1-8-03

2003 - 2004 OCS
Report

✓ [unclear] -----

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✓ 2005 JCK 1/9/03
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K. K. KAY 1-9-03



UNITED STATES DEPARTMENT OF COMMERCE
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July 8, 2003

RECEIVED

JUL 14 2003

REGIONAL DIRECTOR, ALASKA OCS
Minerals Management Service
ANCHORAGE, ALASKA

John Goll
Regional Director
Alaska OCS Region
Minerals Management Service
949 East 36th Avenue, Room 308
Anchorage, Alaska 99508-4302

Dear Mr. Goll:

The purpose of this letter is to convey the attached Essential Fish Habitat (EFH) Programmatic Consultation document. This document is a result of a request from the Minerals Management Service (MMS) for activities associated with leasing and exploration from proposed lease sales 191 and 199 as well as exploration associated with all other existing leases in the Cook Inlet Planning Area. MMS has completed a Draft Environmental Impact Statement (DEIS) which assesses two lease sales in the Final 2002-2007 five year oil and gas leasing program for the Cook Inlet Outer Continental Shelf (OCS) planning area. In accordance with procedures outlined in the March 12, 2002, EFH finding between our agencies, MMS has provided NMFS with the information for an EFH Assessment in the DEIS.

Under Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), federal agencies are required to consult with the Secretary of Commerce on any action that may adversely affect EFH. NMFS has defined five approaches to meet the EFH consultation requirements: use of existing procedures, general concurrences, programmatic consultations, abbreviated consultations and expanded consultations. Use of programmatic consultations is a process that implements the EFH consultation requirements efficiently and effectively by including many individual actions that may adversely affect EFH in one consultation. NMFS has determined that in accordance with 50 CFR 600.920 (j) of the EFH regulations programmatic consultation is appropriate for lease sales 191 and 199, because sufficient information is available to develop EFH conservation recommendations which will address reasonably foreseeable adverse impacts to EFH.

Lease sale 191 is scheduled for 2004 and lease sale 199 for 2006. The proposed sales include consideration of 517 whole or partial lease blocks in the Cook Inlet planning area, covering about 2.5 million acres. Pursuant to 50 CFR 600.920 (a)(1) EFH consultation is not required for actions that were completed prior to the approval of EFH designations by the Secretary, e.g., previous lease sales. Consultation is required for renewals, reviews, or substantial revisions of actions if the renewal, review or revision may adversely affect EFH. Therefore, the attached programmatic consultation is for the proposed Cook Inlet lease sales 191 and 199 only, and does not cover existing lease sales in the Cook Inlet planning area. However, as discussed between our staffs, NMFS may need to consult on upcoming actions related to those existing leases

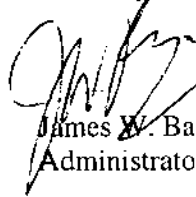


should MMS determine an adverse effect to EFH may occur. The goal of this programmatic consultation is to address as many adverse effects as possible through programmatic EFH conservation recommendations.

Attachment A to this letter contains the programmatic consultation for the Proposed Action. Sections 1-3 is information submitted to NMFS for the EFH consultation from MMS describing the specific activities, the EFH and managed species affected by those activities, and the nature of those effects. MMS has also included information on other fisheries resources which are not federally managed species under the Magnuson-Stevens Act, e.g. Pacific herring, but recognized as important components of the ecosystem. The programmatic consultation also contains NMFS EFH Conservation Recommendations which MMS will consider during the decision processes for lease sales 191 and 199.

Thank you for the opportunity to coordinate on these proposed lease sales. We look forward to your response in writing, as to whether or not you agree with this programmatic consultation as required by Section 305(b)(4)(B) of the Magnuson-Stevens Act. Should you have any additional questions regarding this matter please contact Ms. Jeanne L. Hanson at 271-5006.

Sincerely,



James W. Balsiger
Administrator, Alaska Region

Attachments

cc: North Pacific Fishery Management Council
Karen Abrams - F/HC
F/AKR4 - HCD staff
F/AKR2 - Lori Durall

Attachment A

**PROGRAMMATIC CONSULTATION
COOK INLET PLANNING AREA
OIL AND GAS LEASE SALES 191 AND 199**

1.0 Program Description

The Secretary of the Interior oversees the Outer Continental Shelf (OCS) oil and gas program and is required to balance orderly resource development with protection of the human, biological, and physical environments while simultaneously ensuring that the public receives an equitable return for these resources and that free market competition is maintained. Section 18 of the OCS Lands Act requires receipt of fair market value for OCS oil and gas leases and the rights they convey. The Secretary of the Interior is empowered to grant leases to the highest qualified responsible bidder(s) on the basis of sealed competitive bids and to formulate such regulations as necessary to carry out the provisions of the OCS Lands Act. The Secretary of the Interior has designated the Minerals Management Service (MMS) as the administrative agency responsible for the mineral leasing of submerged OCS lands and for the supervision of offshore operations after leases are issued.

The purpose of the proposed federal action, as addressed in MMS' Draft Environmental Impact Statement (DEIS) is to offer for lease, in two separate sales, areas on the Cook Inlet OCS that might contain economically recoverable oil and gas resources. The DEIS addresses these Federal actions as Cook Inlet Sales 191 and 199, respectively. MMS has formally identified the location and extent of the area of study for the DEIS, to include 517 whole or partial blocks (about 2.5 million acres, or 1.01 million hectares). This area is located seaward of the State of Alaska submerged lands boundary and extends from 3 to approximately 30 miles offshore in water depths ranging from approximately 30 to 650 feet.

The Secretary of the Interior has scheduled Sale 191 in 2004, and Sale 199 in 2006. MMS has prepared a single DEIS for the Proposed Actions for each of the sales. Federal regulations allow for several similar proposals to be analyzed in one Environmental Impact Statement (EIS) (40 Code of Federal Regulations [CFR] 1502.4). Thus, the DEIS analyses a range of activities that could be associated with each of the two sales. This DEIS will be used for decisions on Sale 191. MMS will prepare an Environmental Assessment or supplemental EIS for Sale 199. Formal consultation with the public will be initiated for Sale 199 to obtain input for assisting in

determining whether the information and analyses in the current DEIS are still valid. A sale-specific Information Request will be issued that specifically describes the action for which MMS is requesting input. The sale process for Sale 191 will require a minimum of 2 years to complete. The sale process for Sale 199 will be somewhat shorter.

The DEIS analyzes the potential environmental impacts in each of the sales, including estimated exploration and development and production activities, on the physical, biological, and human environments. For the purposes of analysis, assumedly exploration would result from both lease sales. In the analysis presented in the DEIS, this exploration, from either or both sales, leads to discovery and development of a single field. Section II.B, of the DEIS, the Proposed Action, contains the details of this exploration and development scenario. This section indicates that the activities associated with the two sales, leasing, exploration, development, and production, could take place anywhere in the Cook Inlet Planning Area although the expected location is the central to northern portions of the sales area. Appendix B of the DEIS, presents additional description and analysis that provide the rationale and basis for the resource estimates and the exploration and development scenario. Section IV.B of the DEIS presents a discussion of potential developmental effects for the Proposed Actions and for alternatives. Section V of the DEIS contains the cumulative effects analysis.

2.0 Essential Fish Habitat Affected by the Program Activities

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For interpreting the definition of EFH "waters" includes aquatic areas and their associated physical, chemical, and biological properties used by fish, and may include areas historically used by fish where appropriate. "Substrate" includes sediment, hard bottom, structures underlying the water, and associated biological communities, "necessary" means the habitat required to support a sustainable fishery and a healthy ecosystem and "Spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

Five fishery management plans (FMPs) exist for fisheries in Alaska. They cover groundfish in the Gulf of Alaska, groundfish in the Bering Sea and Aleutian Islands, crab in the Bering Sea and Aleutian Islands, and salmon and scallops Statewide. Those relating to this lease sale include the Gulf of Alaska groundfish and Statewide salmon and scallop management plans. Herring and Pacific halibut technically are not species to be evaluated for essential fish habitat under the Act, because the two species are not FMP species. Herring are managed by the State of Alaska and Pacific halibut are managed under the Northern Pacific Halibut Act. However, because adverse impacts to prey, such as herring or other forage fish species, may degrade the quality or quantity of essential fish habitat, our analysis includes the potential effects of the Proposed Action on herring and other forage fish.

The proposed sale is seaward of the State of Alaska submerged lands boundary in Cook Inlet and extends from 3 to 30 miles offshore from Kalgin Island South near Shuyak Island. The proposed sale excludes Shelikof Strait. Based on the NPFMC EFH descriptions, those FMPs relating to

this lease sale include the Gulf of Alaska groundfish, scallop and statewide salmon management plans (NPFMC 1999).

EFH has been characterized for the following species: Pacific cod, Atka mackerel, walleye pollock, dover sole, arrowtooth flounder, flathead sole, Pacific ocean perch, rex sole, rock sole, sablefish, sculpins, skates, salmon, and weathervane scallops.

This section discusses the federally managed species (NPFMC 1999) found in the Cook Inlet, Kodiak, and South Alaskan Peninsula regions. MMS analysis relies on population-level impacts: whose definition of a population is defined here as a group of organisms of one species, occupying a defined area (the central Gulf of Alaska, which includes the South Alaskan Peninsula, Kodiak Archipelago, Shelikof Strait, Cook Inlet, and Prince William Sound regions) and usually isolated to some degree from other similar groups. A “stock” is defined here as a subpopulation of the area’s population. The descriptions emphasize aspects of the morphology and life history of these species that the Proposed Action might influence.

Maps 3 through 10 and 21 of the DEIS may be of use concerning the distribution of fish accounted for in the following sections.

2.1 Pelagic Finfish

Pelagic fish usually inhabit the water layers above the abyssal zone (waters below 4,000 meters) and beyond the littoral zone (nearshore zone between high and low water marks). Many of these finfish migrate long distances in response to changing environmental conditions for food or reproduction. Some pelagic fish segregate by cohort or life-history stage and use different habitat areas during these different life stages. For example, while some adults may enter Cook Inlet during a particular year (for example, 2004) to spawn after spending years at sea in the North Pacific Ocean, other members of the same population continue to reside at sea and may not enter Cook Inlet for a year or more (for example, 2005, 2006).

Pacific Herring (*Clupea pallasii*)

This comparatively small fish occurs in large schools in the Cook Inlet region in early April and possibly through early fall. The Pacific herring is one of more than 180 species in the herring family *Clupeidae*. Herring are important prey for a wide variety of fish, mammals, and birds. Pacific herring migrate in schools and are found along both shores of the North Pacific Ocean, ranging from San Diego Bay to the Bering Sea and Japan. Herring have a blue-green upper body with silvery sides and lack markings. The body is laterally compressed, and the scales along the underside project in a slightly serrated arrangement. Scales are large and easily removed. These fish may grow to 46 centimeters (18 inches) in length, but a 23-centimeter (9-inch) specimen is considered large.

Pacific herring generally spawn during the spring. In Alaska, spawning first occurs in the southeastern archipelago during mid-March, in Prince William Sound in April and May, and in

the Bering Sea during May and June. Spawning is confined to shallow, vegetated areas in intertidal and subtidal zones. Eggs are adhesive, and survival is better for those eggs that stick to intertidal vegetation than for those that fall to the bottom. Milt released by males drifts among eggs and fertilizes them. Eggs hatch in about 2 weeks, depending on water temperature. Herring are iteroparous, spawning every year after reaching sexual maturity at 3 or 4 years of age. The number of eggs spawned varies with the age of the female, averaging 20,000 annually. Average lifespan for these fish is about 8 years in Southeast Alaska and up to 16 years in the Bering Sea. Egg mortality is high. Young larvae drift and weakly swim with ocean currents and are preyed on extensively by other vertebrate and invertebrate fauna. Following metamorphosis of larvae to the juvenile form, they rear in sheltered bays and inlets and appear to remain segregated from adult populations until they mature. In the Cook Inlet region, herring usually first spawn in their second year and may continue to spawn annually for up to 15 years. Herring spawn extensively along much of the Shelikof coastline of Kodiak Island and the South Alaska Peninsula, areas that might be affected by the Proposed Action. Kamishak Bay is one major spawning area that supports a short-season sac-roe fishery.

Herring inhabit distinctly different habitat areas during different periods of the year. After spawning, most adults leave inshore waters and move seaward to feed primarily on zooplankton such as copepods and other crustaceans. They are seasonal feeders and accumulate fat reserves for periods of relative inactivity. Herring schools often follow a diel vertical migration pattern, spending daylight hours near the bottom and moving upward during the evening to feed (<http://www.state.ak.us/adfg/notebook/fish/herring.htm>).

Pacific sand lance (*Ammodytes hexapterus*)

The Pacific sand lance occurs throughout coastal marine waters of Alaska (Mecklenburg, Mecklenburg, and Thorsteinson, 2002). Their range includes the Bering Sea and eastern North Pacific Ocean. Information reported in the following is from Robards et al. (1999).

Physical characteristics of the sand lance include an elongate and compressed body with diagonal skin folds, a fleshy ridge extending the length of the body on either side of the ventral midline, a single dorsal fin that folds back into a groove, and a projecting lower jaw. The dorsal and anal fins are supported by soft rays only. Sand lance are metallic blue in color dorsally, and silver ventrally. Sand lance generally grow to 20 centimeters (8 inches) or less in length; however, individuals in the Bering Sea grow larger, up to 28 centimeters (11 inches) in length.

Sand lance are abundant in shallow, nearshore areas ranging in depth to 100 meters (55 fathoms), but they are most common at depths less than 50 meters (27 fathoms) and often in as little as 6 meters (3 fathoms). This shallow distribution probably results from their preference for light and accessibility of prey.

Sand lance are a quintessential forage fish, and as a group (there are six species worldwide) are possibly the single most important taxon of forage fish in the Northern Hemisphere. Sand lance are preyed on by numerous species of seabird, marine mammal, and fish, in addition to various

land birds and animals. Population fluctuations and distribution of predators are frequently linked to sand lance abundance. Sand lance also play an important role in the ecosystem as a consumer of zooplankton.

Juvenile and adult sand lance exhibit the rather unusual habit of alternating between lying buried in the substrate and swimming in well-formed schools. They typically are associated with fine gravel and sandy substrates up to and including the intertidal zone. Their use of substrates appears to be highly specific. In the natural environment, substrates used by sand lance have been characterized consistently as well washed, drained, and unpacked and typically contain coarse sands with little or no mud and silt. Sand lance also avoid oil-contaminated sediments. Although wide ranging, their preference for specific shallow substrates results in a patchy distribution of groups. Sand lance bury themselves within the substrates during periods of low light, during estivation (i.e., passing hot periods in torpor) and dormant periods, or occasionally in response to predators.

Most investigators have reported that sand lance are abundant in preferred habitats from spring to late summer and uncommon during the remainder of the year. Sand lance are rarely caught in the water column during the winter months and appear to remain inactive or in hibernation while buried in intertidal and shallow subtidal lands. If disturbed during winter on extreme low tides, however, they can move spontaneously and quickly. Juvenile sand lance are caught occasionally in beach seines during the winter, but they normally are found buried in substrates with adults. Feeding occurs primarily in the water column, although epibenthic invertebrates occasionally appear in the diet. Several researchers have shown that for sand lance, vision is far more important than olfaction in feeding. Feeding habits of sand lance change with age. Larvae feed on phytoplankton, diatoms, and dinoflagellates and, after juveniles reach 10 millimeters (less than 1 inch), they feed on nauplii of copepods in summer and euphausiids in winter. Adult fish prey on macrocopepods, chaetognatha, and fish larvae. Overall, copepods are the predominant prey source for postlarval stages. Other prey reported from diets include crustacea, amphipoda, isopod larvae, mysids, gammarid amphipods, harpacticoid copepods, larvaceans, annelids, polychaetes, juvenile bivalves and gastropods, insect flotsam, fish larvae, and invertebrate and fish eggs.

Sand lance typically reach maturity in their second year, although a few individuals remain immature for longer periods. Spawning occurs in late September and October on fine gravel and sandy beaches, soon after summer water temperatures begin to decline. Sand lance approach intertidal sites where spawning sometimes has taken place for decades. Spawning takes place in dense formations. Female sand lance burrow through the substrate while releasing eggs, which results in the formation of scour pits in intertidal sediments. Females are reported to release 1,468-16,081 eggs. Eggs are deposited in the intertidal zone just below the water line. Larvae hatch at a size of approximately 5 millimeters (less than 1 inch) before the spring plankton bloom.

Eulachon/Candlefish/Hooligan (*Thaleichthys pacificus*)

The eulachon is one of five species of smelt (family Osmeridae) found in Alaska. The name is derived from the Chinook language of the Pacific Northwest Native peoples and has several variations, of which hooligan is the most commonly used in Alaska. The eulachon, a very oily fish, also is known as the candlefish because of its traditional use as a candle when dried and fitted with a wick. The genus name, *Thaleichthys*, is Greek for rich fish, which lends to the eulachon's reputation as having flesh of a high oil content.

The eulachon is a small fish up to 10 inches in total length. The front of the eulachon's dorsal fin begins well behind where its pelvic fin is attached to its body, and its gill covers have circular grooves, which distinguishes it from other Alaska fish. Young eulachon have moderately developed canine-like teeth that they lose as they mature; by spawning time, the eulachon usually has no teeth. Eulachon are generally blue-silver in color turning to gray-brown at spawning time, when the males are easily distinguished from the females by tubercles on the head and on the scales along the lateral line, more musculature development along the lateral line, and longer paired pectoral and pelvic fins.

Eulachon are anadromous, spawning and hatching in freshwater. They grow to maturity in the ocean where, as juveniles and adults, they feed mainly on euphasids, a small shrimplike crustacean sometimes called krill. As the spawning season approaches, eulachon gather in large schools off the mouths of spawning streams and rivers. The upstream migration is closely keyed to the water temperature of the stream. In Southeast Alaska, the migration can occur as early as April; while in central and western Alaska, it generally takes place in May. Eulachon move nearshore in early May and spawn in drainages throughout Cook Inlet. Some streams have two separate but overlapping migrations. Males usually outnumber the females during the spawning migration. Eulachon generally spawn in the lower reaches of the river or stream. After spawning, the majority of the eulachon die. Eggs are broadcast over sandy gravel bottoms where they attach to particles of sand and hatch in 21-40 days, depending on the water temperature. Depending on size, egg complements range from 17,300-39,600 per fish, averaging about 25,000 eggs. Newly hatched young are carried by currents to the sea (Hart, 1973), where they feed mainly on copepod larvae and other plankton. After 3-4 years at sea, they return as adults to spawn.

In Alaska, eulachon are seasonally abundant in most major watershed drainages from the Southeast west to Cook Inlet and become less abundant westward out to the Aleutian Islands and to the Pribilof Islands in the Bering Sea. Some drainages with eulachon migrations include the Unik (Eulachon), Stikine, Taku, Mendenhall, and Chilkat rivers in Southeast; the Situk River near Yakutat; the Copper River Delta area near Cordova; and the Kenai, Susitna, and 20-Mile rivers in Cook Inlet. Eulachon also are present in many smaller streams with varying abundance. In the westward margins of their range, eulachon are displaced by a similar-appearing smelt, the rainbow smelt (*Osmerus mordax* [Mitchill]).

Eulachon are important forage fish. Newly hatched and juvenile eulachon are prey for a variety of larger marine fish, such as salmon. Marine mammals including seals, sea lions, and beluga whales also feed on them in abundance when the eulachon gather off the mouths of their

spawning streams. Spawning eulachon and spent bodies of spawned-out eulachon are eaten by gulls, eagles, and bears and by the white and green sturgeon in the larger rivers of Southeast Alaska, British Columbia, and the Pacific Northwest. The spent bodies of spawned-out eulachon also contribute to the nutrient cycle as they decompose (<http://www.state.ak.us/adfg/notebook/fish/eulachon.htm>).

Capelin (*Mallotus villosus* [Muller])

Capelin are a major forage fish of the Cook Inlet region. A small fish (mature specimens are generally 13-20 centimeters [5-8 inches] long) but like salmon, the capelin is classified within the family *Osmeridae* (along with smelts). Populations of capelin are large and range extensively over Alaskan waters, generally inhabiting pelagic waters. Capelin mainly are filter feeders, thriving on planktonic organisms such as euphausiids and copepods.

Capelin spawn on beaches and in deeper waters and are highly specific regarding spawning conditions. Temperature, tide, and light conditions are primary criteria for successful spawning; most spawning takes place at night or in dull, cloudy weather. On the Pacific coast of Canada, capelin spawn on gravelly beaches in various localities in the Strait of Georgia during late September or October. Capelin also spawn in the southwestern Bering Sea in May, and spawning capelin have been harvested from Bristol Bay at about the same time. Capelin eggs attach to beach and bottom gravels. Depending on temperature, hatching ranges from 15-55 days. Most capelin die after spawning. Currently, capelin have no economic value to Alaska; however, the species is used extensively for food by other fish, marine mammals, and seabirds.

Salmonids

The Cook Inlet region is a migratory corridor and early-life rearing area for all five species of Pacific salmon and for Dolly Varden and steelhead trout. These anadromous fish transit much of the area, including Shelikof Strait, as smolt leaving natal (home) freshwater drainages and again later as returning adult spawners. Juvenile salmonids from Prince William Sound following ocean currents also probably transit much of Shelikof Strait and also may enter Cook Inlet. Salmon in the Cook Inlet, Kodiak, and South Aleutian Peninsula regions afford a high value to the commercial-fishing industry.

Pink Salmon (*Oncorhynchus gorbuscha*)

The pink salmon also is known as the "humpback" or "humpy" because of the pronounced, laterally flattened hump that develops on the backs of adult males before spawning. It is native to Pacific and arctic coastal waters from northern California to the Mackenzie River, Canada; and to the west from the Lena River in Siberia to Korea.

The pink salmon is the smallest of the Pacific salmon found in North America, with an average weight of about 1.5-1.8 kilograms (3.5-4 pounds) and average length of 51-63 centimeters (20-25 inches). An adult fish returning to coastal waters is bright steely blue on top and silvery on the sides with many large black spots on the back and entire tailfin. Its scales are very small and the

flesh is pink. As the fish approaches the spawning streams, the bright appearance of the male is replaced by brown to black above with a white belly; females become olive green with dusky bars or patches above and a light-colored belly. By the time the male enters the spawning stream, it has developed the characteristic hump and hooked jaws. Juvenile pink salmon are silvery, without the dark vertical bars, or parr marks, of the young of other salmon species.

Adult pink salmon enter Alaska spawning streams between late June and mid-October. Different races or runs with differing spawning times frequently occur in adjacent streams or even within the same stream. Most pink salmon spawn within a few miles of the coast, and spawning within the intertidal zone or the mouth of streams is very common. Shallow riffles where flowing water breaks over coarse gravel or cobble-size rock and the downstream ends of pools are favored spawning areas. The female pink salmon carries 1,500-2,000 eggs, depending on her size. She digs a nest, or redd, with her tail and releases her eggs into the nest. They are immediately fertilized by one or more males and then covered by further digging by the female. The process is commonly repeated several times until all the female's eggs have been spent. After spawning, both males and females die usually within two weeks.

Eggs hatch during early to mid-winter. The alevins, or young fry, feed on the attached yolk-sac material early in their development. In late winter or spring, fry swim up out of the gravel and migrate downstream into saltwater. The emergence and emigration of fry is heaviest during hours of darkness and usually lasts several weeks.

Following entry into seawater, juvenile pink salmon move along beaches in dense schools near the surface, feeding on plankton, larval fish, and occasionally on insects. Predation is intense on very small, newly emerged fry, but growth is rapid. By autumn, at an age of about 1 year, juvenile pink salmon are 10-15 centimeters (4-6 inches) long and move into offshore feeding grounds in the Gulf of Alaska and Aleutian Islands waters. High-seas tag and recapture experiments revealed that pink salmon originating from specific coastal areas have characteristic distributions at sea that are overlapping, nonrandom, and nearly identical from year to year. The ranges of Alaska pink salmon at sea and pink salmon from Asia, British Columbia, and Washington overlap. Frequently, in a particular stream, the other odd-year or even-year cycle will predominate although in some streams both odd- and even-year pink salmon are about equally abundant. Cycle dominance occasionally will shift, and the previously weak cycle will become most abundant (<http://www.state.ak.us/adfg/notebook/fish/pink.htm>). Spawning pink salmon reach the Cook Inlet region annually in early July, where they spawn in most streams of this region. Pink salmon also sometimes spawn in the intertidal zone in some streams. Pink salmon rear in the North Pacific Ocean for two winters before returning to the Cook Inlet region to spawn and die. Pink salmon are seasonally distributed over most of this region from spring through early fall annually.

Chum Salmon (*O. keta*)

This species ranges to 100 centimeters (40 inches) in length (McPhail and Lindsey, 1970) and 1-6 kilograms (6.6-13.2 pounds) in weight (Mecklenburg, Mecklenburg, and Thorsteinson, 2002). Chum salmon have the widest distribution of any Pacific salmonid. They range south to the

Sacramento River in California and the island of Kyushu in the Sea of Japan. In the north, they range east in the Arctic Ocean to the Mackenzie River in Canada and west to the Lena River in Siberia. Chum salmon are the most abundant commercially harvested salmon species in Arctic, Northwestern, and Interior Alaska but are of relatively less importance in other areas of the State, where they are known locally as "dog salmon" and are a traditional source of dried fish for winter use.

Ocean-fresh chum salmon are metallic greenish-blue on the dorsal surface (top) with fine black speckles. They are challenging to distinguish from sockeye and coho salmon without examining their gills or caudal fin scale patterns. Chum salmon have fewer but larger gillrakers than other salmon. After nearing freshwater, however, chum salmon change color; particularly noticeable are the vertical bars of green and purple, which lead them to be called by the common name, calico salmon. Males develop the typical hooked snout of Pacific salmon and very large teeth, which partially account for their also being called dog salmon. Females have a dark horizontal band along the lateral line; their green and purple vertical bars are not so obvious.

Chum salmon often spawn in small side channels and other areas of large rivers, where upwelling springs provide excellent conditions for egg survival. They also spawn in many of the same places as pink salmon, that is, small streams and intertidal zones. Some chum salmon in the Yukon River travel more than 2,000 miles to spawn in the Yukon Territory. These have the brightest color and possess the highest oil content of any chum salmon beginning their upstream journey. Chum salmon spawning is typical of Pacific salmon, with eggs deposited in redds located primarily in upwelling spring areas of streams. Female chum may lay as many as 4,000 eggs, but fecundity typically ranges between 2,400 and 3,100 eggs. Chum salmon do not remain in freshwater after emerging as fry in contrast to chinook, coho, and sockeye salmon. Chum salmon are similar to pink salmon in this respect, except that chum fry do not move out into the ocean in the spring as quickly as pink fry. Chum fry feed on small insects in the stream and estuary before forming schools in saltwater, where their diet usually consists of zooplankton. By autumn, they emigrate into the Bering Sea or Gulf of Alaska where they spend one or more of the winters of their 3- to 6-year lives. In southeastern Alaska, most chum salmon mature at 4 years of age although there is considerable variation in age at maturity between streams. There also is a higher percentage of chum salmon in the northern areas of the State. Chum salmon vary in size from about 2-14 kilograms (4-30 pounds) but usually range from 3-8 kilograms (7-18 pounds), with females usually smaller than males (<http://www.state.ak.us/adfg/notebook/fish/chum.htm>). Chum salmon enter the Cook Inlet region beginning in early July, and the spawning runs continue through early August. Chum salmon spawn in many streams throughout the region, with eggs deposited in stream gravels. Fry subsequently move downstream to the ocean where they remain for three to four winters before returning to natal streams to spawn and die.

Coho Salmon (*O. kisutch*)

The last species of Pacific salmon to return to the proposed sale area to spawn, coho salmon enter the region in late July, and runs continue until September. Coho salmon, also called silver salmon, are found in coastal waters of Alaska from Southeast to Point Hope on the Chukchi Sea and in the Yukon River to the Alaska-Yukon border. Coho are extremely adaptable and occur in

nearly all accessible bodies of freshwater, from large transboundary watersheds to small tributaries.

Adults usually weigh approximately 3-5 kilograms (8-12 pounds) and are 61-76 centimeters (24-30 inches) long, but individuals weighing 14 kilograms (31 pounds) have been caught. Adults in seawater or newly arrived in freshwater are bright silver with small black spots on the back and on the upper lobe of the caudal fin. They can be distinguished from chinook salmon (*Oncorhynchus tshawytscha*) by the lack of black spots on the lower lobe of the tail and gray gums; chinook have small black spots on both caudal lobes and have black gums. Spawning adults of both sexes have dark backs and heads with maroon to reddish sides. Males develop a prominent hooked snout with large teeth called a "kype." Juvenile coho salmon have 8-12 parr marks evenly distributed above and below the lateral line, with parr marks narrower than the interspaces. The adipose fin is uniformly pigmented. The anal fin has a long leading edge usually tipped with white, and all fins are frequently tinted with orange.

Coho salmon enter spawning streams from July to November, usually during periods of high runoff. Run timing reflects the migratory obstacles encountered by some specific stocks. In some streams with barrier falls, adults arrive in July when the water is low and the falls are passable. In large rivers, adults must arrive early, as they need several weeks or months to reach headwater spawning grounds. Run timing also is regulated by water temperature at spawning grounds; where temperatures are low and eggs develop slowly, spawners demonstrate early run timing to compensate, and where temperatures are warm, adults are late spawners. Adults hold in pools until ripened and then move onto spawning grounds; spawning generally occurs at night. The female digs a redd and deposits 2,400-4,500 eggs. The male fertilizes eggs with sperm as they are deposited. The eggs develop during the winter and hatch in early spring. Embryos remain in the gravel, consuming their egg yolk for nutrition until emerging in May or June. The emergent fry occupy shallow aquatic margins and, as they grow, establish territories that they defend from other salmonids. They live in ponds, lakes, and pools in streams and rivers, usually among submerged woody debris, quiet areas free of current, from which they dart out to seize drifting insects.

During autumn, juvenile coho salmon may travel miles before locating off-channel habitat where they pass the winter free of floods. Some fish leave freshwater in the spring and rear in brackish estuarine ponds and then move back into freshwater in autumn. They spend one to three winters in streams and may spend up to five winters in lakes before emigrating to the sea as smolt. Their time at sea varies. Some males (called jacks) mature and return after only 6 months at sea at a length of about 30 centimeters (12 inches), while most fish stay 18 months at sea before returning to freshwater watersheds as full-sized adults.

Little is known of the oceanic movements of coho salmon. High-seas tagging shows that maturing Southeast Alaska coho move northward throughout the spring and appear to concentrate in the central Gulf of Alaska in June. They later disperse landward and migrate along the coastline until reaching their stream of origin (<http://www.state.ak.us/adfg/notebook/fish/coho.htm>).

Sockeye Salmon (*O. nerka*)

Sockeye salmon, often referred to as “red” salmon, occur in the North Pacific and Arctic oceans and associated freshwater systems. This species ranges south to the Klamath River in California and northern Hokkaido in Japan to as far north as Bathurst Inlet in the Canadian Arctic and the Anadyr River in Siberia. Aboriginal people considered sockeye salmon to be an important food source and either ate them fresh or dried them for winter use. Today, sockeye salmon support one of the most important commercial fisheries on the Pacific coast of North America and are increasingly sought after in recreational fisheries; they remain an important mainstay of many subsistence users.

Sockeye salmon can be distinguished from chinook, coho, and pink salmon by the lack of large, black spots and from chum salmon by the number and shape of gill rakers on the first gill arch. Sockeye salmon have 28-40 long, slender, rough or serrated, closely set rakers on the first gill arch. Chum salmon have 19-26 short, stout, smooth rakers. Immature and prespawning sockeye salmon are elongate, fusiform, and somewhat laterally compressed. They are metallic green blue on the back and top of the head, iridescent silver on the sides, and white or silvery on the belly. Some fine black speckling may occur on the back, but large spots are absent. Juveniles inhabiting freshwater have the same general coloration as immature sockeye salmon in the ocean, but they are less iridescent. Juveniles also have dark, oval parr marks on their sides. These parr marks are short, less than the diameter of the eye, and rarely extend below the lateral line. Breeding males develop a humped back and elongated, hooked jaws filled with sharp, canine-like teeth. Both sexes turn brilliant to dark red on the back and sides, pale to olive-green on the head and upper jaw, and white on the lower jaw.

Sockeye salmon are anadromous; they live in the sea and enter freshwater systems to spawn. After hatching, juvenile sockeye salmon may spend up to 4 years in freshwater before emigrating to sea as silvery smolt. They grow quickly in the sea, usually reaching 2-4 kilograms (4-8 pounds) after 1-4 years. Mature sockeye salmon travel thousands of miles from ocean-feeding areas to spawn in the same freshwater system where they were born. Little is known about the navigation mechanisms or cues they use on the high seas, although some evidence suggests that they may use cues from the earth’s magnetic field. Once near their natal freshwater system, sockeye salmon use olfactory cues to guide them home. Maturing sockeye salmon return to freshwater systems from the ocean during the summer months, and most populations show little variation in their arrival time to the spawning grounds from year to year. Like all Pacific salmon, sockeye salmon die within a few weeks after spawning.

Adult sockeye return to Cook Inlet and the Shelikof Strait region annually in late June, and runs continue through early August. Watersheds with lakes produce the greatest number of sockeye salmon. Spawning usually occurs in rivers, streams, and upwelling areas along lake beaches. The female selects the spawning site, digs a redd with her tail, and deposits eggs in the downstream portion of the redd as one or more males swim beside her and fertilize the eggs as they are extruded. After each spawning act, the female covers her eggs by dislodging gravel at the upstream end of the redd with her tail. A female usually deposits about five batches of eggs in a redd. Depending upon her size, a female produces from 2,000-4,500 eggs. Eggs hatch

during the winter, and the young sac-fry, or alevins, remain in the gravel, living off their yolk sacs until early spring. At this time, they emerge from the gravel as fry and move into rearing areas. In watersheds with lakes, juveniles usually spend 1-3 years in freshwater before migrating to the ocean in the spring as smolts. However, in watersheds without lakes, many juveniles migrate to the ocean soon after emerging from the gravel.

Once in the ocean, sockeye salmon grow quickly. Mature sockeye salmon that have spent only 1 year in the ocean are called jacks and, almost without exception, are males. Sockeye salmon return to their natal stream to spawn after spending 1-4 years in the ocean. While returning adults usually weigh between 2 and 4 kilograms (4 and 8 pounds), weights in excess of 7 kilograms (15 pounds) have been reported. In some areas, populations of sockeye salmon remain in freshwater all their lives. This landlocked form of sockeye salmon, called "kokanee," reaches a much smaller maximum size than the anadromous form and rarely grows to be more than 36 centimeters (14 inches) long. While inhabiting freshwater, juvenile sockeye salmon feed mainly on zooplankton (for example, ostracods, cladocerans, and copepods), benthic amphipods, and insects. In the ocean, sockeye salmon feed on zooplankton (for example, copepods, euphausiids, ostracods, and crustacean larvae), but they also prey on larval and small adult fish (for example, sand lance) and occasionally squid (<http://www.state.ak.us/adfg/notebook/fish/sockeye.htm>).

Chinook Salmon (*O. tshawytscha*)

The chinook (king) salmon is the largest of all Pacific salmonids, with weights of individual fish commonly exceeding 14 kilograms (30 pounds). A 57-kilogram (126-pound) chinook salmon taken in a fish trap near Petersburg, Alaska, in 1949 is the largest on record. The largest sport-caught chinook salmon was a 44 kilograms (97 pound) fish taken in the Kenai River in 1986.

The chinook salmon has numerous local names. In Washington and Oregon, chinook salmon are called chinook, while in British Columbia they are called spring salmon. Other names are quinnat, tyee, tule, blackmouth, and king salmon.

In North America, chinook salmon range from the Monterey Bay area of California to the Chukchi Sea, Alaska. On the Asian coast, chinook salmon occur from the Anadyr River area of Siberia southward to Hokkaido, Japan. In Alaska, this species is abundant from the Southeast Panhandle to the Yukon River. Major numbers make runs into the Yukon, Kuskokwim, Nushagak, Susitna, Kenai, Copper, Alek, Taku, and Stikine rivers. Important runs also occur in many smaller streams.

Adults are distinguished by black irregular spotting on the back and dorsal fins and on both lobes of the caudal fin. Chinook salmon also have a black pigment along the gum line, which gives them the name "blackmouth" in some areas. In the ocean, the chinook salmon is a robust, deep-bodied fish with a bluish-green coloration on the back, which fades to a silvery color on the sides and white on the belly. Colors of spawning chinook salmon in freshwater range from red to copper to almost black, depending on location and degree of maturation. Males are more deeply colored than the females and also are distinguished by their "ridgeback" condition and hooked

nose or upper jaw. Juveniles are recognizable by well-developed parr marks bisected by the lateral line.

Chinook salmon are anadromous; they hatch in freshwater, spend part of their life in the ocean, and then spawn in freshwater. All chinooks die after spawning. Chinook salmon become sexually mature sometime during their second through seventh year and, as a result, fish in any spawning run may vary greatly in size. For example, a mature 3-year-old probably will weigh less than 2 kilograms (4 pounds), while a mature 7-year-old may exceed 22 kilograms (50 pounds). Females tend to be older than males at maturity. In many spawning runs, males outnumber females in all but the 6- and 7-year age groups. Small Chinooks that mature after spending only one winter in the ocean are commonly referred to as "jacks" and usually are males. Alaska streams normally receive a single run of chinook salmon, from May through July.

Chinook salmon often make extensive freshwater spawning migrations to reach their home streams on some of the larger river systems. Yukon River spawners bound for headwaters in the Yukon Territory, Canada, will travel more than 3,219 river kilometers (2,000 river miles) during a 60-day period. Chinook salmon do not feed during the freshwater spawning migration, and their condition deteriorates gradually during the spawning run as their bodies consume stored energy reserves.

Each female deposits from 3,000-14,000 eggs in several gravel redds, which she excavates in relatively deep, moving freshwater. In Alaska, eggs usually hatch in late winter or early spring, depending on the timing of spawning and water temperature. Newly hatched fish, called alevins, live in the gravel for several weeks until they absorb their attached yolk sac. Later, these juveniles, now called fry, wiggle up through the gravel in early spring. In Alaska, most juvenile chinook salmon remain in freshwater until the following spring when they emigrate to the sea in their second year of life. These seaward emigrants are called smolts. Juvenile chinooks in freshwater feed on plankton and insects. In the ocean, they eat a variety of organisms including herring, pilchard, sand lance, squid, and crustaceans. Salmon grow rapidly in the ocean and often double their weight during a single summer season (<http://www.state.ak.us/adfg/notebook/fish/chinook.htm>).

Spawning chinook salmon enter the proposed sale area during early May and are present in some spawning streams by the end of that month. During this same period, chinook salmon smolt are emigrating downstream to the North Pacific Ocean.

2.2 Groundfish

The term "groundfish" loosely groups the finfish that, for much of their time, remain near the seafloor. Spawning and early life, however, may be in pelagic waters. The following groundfish species are considered commercially valuable in the Cook Inlet, Kodiak, and South Aleutian Peninsula regions.

Pacific Cod (*Gadus macrocephalus*)

The Pacific cod is a largely demersal (bottom-dwelling) fish that may reach a length of 1 meter (3.25 feet). Pacific cod are fast growing, maturing in 3 years. There is concurrently rapid turnover in subpopulations, as predation and commercial fishing take their toll. Pacific cod spawn during an extended period, possibly February through July. The adhesive, demersal eggs hatch in about 13-14 days, depending on water temperature. The resultant larvae are pelagic for a time before entering the benthos. Pacific cod feed on pollock, herring, smelt, mollusks, crabs, shrimp, and other similar-sized marine organisms (Hart, 1973).

Walleye Pollock (*Theragra chalcogramma*)

This codlike species occurs throughout the proposed sale area, with a large spring spawning aggregation in parts of Shelikof Strait. Pollock are found at depths of 20-2,000 meters (11-1,094 fathoms). The species also inhabits pelagic waters in some areas at various times. In size, walleye pollock range to 91 centimeters (36 inches) long; however, they enter the commercial-trawl fisheries at about 25 centimeters (12 inches) long (Hood and Zimmerman, 1986). Adult pollock consume shrimp, sand lance, herring, small salmon, and similar organisms they encounter. Walleye pollock also are cannibalistic.

Walleye pollock spawn in the spring in large aggregations, although there is extended spawning by smaller numbers throughout the year. Eggs may be close to the surface initially and hatch in about 10-20 days (depending on water temperatures). Pelagic larvae remain at the sea surface for up to 30 days, again depending on water temperature (and available food supply). At about a 25 millimeter (1-inch) length (Bakkala, 1989), immature pollock move to deeper waters.

Pacific Ocean Perch (*Sebastes alutus*)

This representative species of the 30 rockfish species so far recovered from the Gulf of Alaska ranges over much of the continental shelf of the Gulf of Alaska westward to the nations of the Russian Commonwealth. This group is unique in that many are very long lived and bear their young alive (as opposed to spawning eggs into the water). The Pacific Ocean perch was formerly a much-sought-after commercial species that was then overexploited.

Adult Pacific Ocean perch usually are found in gravel, rocky, or boulder-strewn substrates in and along the gullies, submarine canyons, and depressions of the upper continental slope. Larvae and juveniles are pelagic until joining adults in these demersal habitats after 2 or 3 years.

Sablefish (*Anoplopoma fimbria*)

Sablefish (black cod) are found within the Cook Inlet proposed sale area and is a valued commercial species. However, most are harvested outside the sale area, because this species usually occurs at depths of 366-915 meters (200-500 fathoms). Sablefish are largely demersal in habit with some nocturnal forays into pelagic waters. Sablefish range to 1 meter (40 inches) in length and are a relatively long-lived species (some to 35 years). Sablefish probably spawn during the spring, but little is known about their spawning movements or egg-larval

development. The eggs are pelagic as are the early prolarvae. Later larval stages occupy waters 150 meters in depth. Sablefish are indiscriminate feeders on a large variety of benthic and pelagic fauna.

Other Groundfish

Lesser numbers of arrowtooth flounder, yellowfin sole, Atka mackerel, and other groundfish inhabit the Cook Inlet, Kodiak, and South Aleutian Peninsula region. These species generally are in the same habitats as the previously discussed groundfish species.

2.3 Shellfish

“Shellfish” is a collective term that generally refers to harvestable mollusks and crustaceans. The coastal ecosystem of the Gulf of Alaska underwent a shift from an epibenthic community dominated largely by crustaceans to one now dominated by several species of finfish (Anderson, Blackburn, and Johnson, 1997). The reorganization of domineering species in coastal waters resulted from a shift in ocean climate during the late 1970’s (Anderson and Piatt, 1999). Analysis of climatological data from the northeast Pacific led Ware (1995) to predict another regime shift to occur in early 2000. If so, cold regime conditions are predicted to enhance crustacean abundance again, while dampening groundfish and salmon numbers (Anderson and Piatt, 1999).

Pacific Weathervane Scallop (*Patinopecten caurinus*)

The Pacific weathervane scallop is one of several species of true scallops, family Pectinidae, found in the eastern North Pacific Ocean. This scallop supports a sporadic but important commercial fishery in Alaska waters from Yakutat to the eastern Aleutians. Weathervane scallops are bivalves, referring to the two flattened, shelly valves that are hinged together. Shell lengths may reach 20 centimeters (8 inches) or larger at maturity. The shells are a brownish color on the outside and have many prominent heavy ribs. Generally weathervane scallops are sexually mature at age 3 or 4 years and are of commercially harvestable size at 6-8 years. Age is determined by counting the annuli, concentric rings on the shell, which are formed with the colder or warmer water temperatures of winter or summer. Scallops are found in beds (areas of abundant numbers), and are dioecious, having separate sexes. Spawning occurs in June and July where the spermatozoa and ova are red into the water. Ova that are fertilized will settle to the bottom. After approximately 1 month, hatching occurs and larvae drift with the tidal currents. Over the following 2-3 weeks, larvae gain shell weight, settle to the bottom, and attach themselves to seaweed. Within 4-8 weeks after settling, juveniles develop the ability to swim. At this time, the juvenile scallop is approximately 0.9 centimeters (0.4 inches) in diameter and assumes the adult form. Growth is very rapid the first few years and is minimal after age 10. Scallops may live for 18 years.

Weathervane scallops have specialized adaptations that facilitate escaping predation or other disturbing conditions. Scallops are the only bivalves whose adult stage is capable of swimming.

This ability is accomplished by the rapid ejection of water from the interior of the shell in a jet-like action. Swimming can be maintained for 15-20 seconds and rarely exceeds 6 meters (20 feet). Another unique adaptation of scallops includes the presence of many jewel-like eyes that are sensitive to changing light or moving objects. Also, scallops have small tentacles that are highly sensitive to waterborne chemicals and water temperature. Prominent heavy ribbing on the shell halves serve as strengthening structures to complete the scallop's defenses.

Weathervane scallops are found on sand, gravel, and rock bottoms from 45-183 meters (150-600 feet). Weathervane scallops feed by filtering microscopic plankton from the water.

2.4 Prey and Prey Habitat

Loss of prey may be an adverse effect on EFH and federally managed species because the presence of prey makes waters and substrate function as feeding habitat, and the definition of EFH includes waters and substrate necessary to fish for feeding. Actions that reduce the availability of a major prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat that are known to cause a reduction in the population of the prey species, may be considered adverse effects on EFH if such actions reduce the quality of EFH.

Forage fish are abundant, schooling fish preyed upon by many species of seabirds, marine mammals, and other fish species. They provide important ecosystem functions by transferring energy from primary or secondary producers to higher trophic levels (Springer and Speckman 1997). Ecologically, Pacific herring, Pacific sand lance, are important forage fish in the central Gulf of Alaska. Another common group of forage fish in the central Gulf of Alaska are smelts (Osmeridae), including capelin, eulachon, and rainbow smelt. Euphausiids, commonly called krill, are important prey not only for baleen whales but also for juveniles of many managed fish species. Only one species of bristlemouth (*Gonostomatidae*), the black bristlemouth, is common in the Gulf of Alaska, but it inhabits the depth off the continental shelf (Mecklenburg, Mecklenburg, and Thorsteinson, 2002).

A variety of processes influence the patterns of community structure and prey availability in the Gulf of Alaska's large marine ecosystem that includes Cook Inlet. Bottom-up processes largely relate water temperature with crustacean densities and, thereby, influence predatory fish higher in the trophic web. Conversely, top-down processes also contribute to the community structure of the region. Piscivorous predators such as sea birds, marine mammals, and other fish, including sharks, may limit or slow the ability of depressed forage fish populations from increasing. For example, the total biomass of all forage taxa, including juvenile pollock, may now be limiting because of the enormous food demands of adult groundfish, which outweigh those of sea birds and marine mammals by 1-2 orders of magnitude (Livingstone, 1993; Yang, 1993; Hollowed et al., In press; all as cited in Anderson and Piatt, 1999.).

It is important to note that the inshore-coastal ecosystem of the Gulf of Alaska has undergone a shift from an epibenthic community dominated largely by crustaceans to one now dominated by

several species of fish (Anderson and Piatt, 1999). Analysis of historical data revealed that the nearshore Kachemak Bay fish community changed significantly between 1976 and 1996, showing increased diversity and abundance in several taxa, notably gadids, salmonids, pleuronectids, and sculpins (Robards et al., 1999). Ocean climate in the Gulf of Alaska cycles between warm and cold regimes on a multidecadal time scale (Francis et al., 1998; McGowan et al., 1998; both cited in Anderson and Piatt, 1999). During the last reversal from a cold (1947-1976) to a warm regime (1977-present), the Aleutian Low pressure system shifted south and intensified, leading to stronger westerly winds and warmer surface waters in the Gulf of Alaska. Biological consequences included a marked improvement in groundfish recruitment and sharply increased Pacific salmon catches in Alaska (Anderson and Piatt, 1999 citing Francis and Hare, 1994). In contrast, some forage fish populations collapsed to the detriment of predators such as sea bird and marine mammal populations (Piatt and Anderson, 1996; Merrick and Loughlin, 1997). It appears that forage species such as pandalid shrimp and capelin may be leading indicators of decadal-scale changes in northern marine ecosystems because of their short lifespans and low trophic levels (Anderson and Piatt, 1999). It is likely that one or more ocean climate-regime shifts will occur during the lifetime of the Proposed Action.

2.5 Habitat Areas of Particular Concern

Habitat Areas of Particular Concern (HAPC) are those areas defined pursuant to 50 CFR 600.815 (a)(8). In Alaska, there are several habitat types that meet this criterion. These habitat types have important ecological functions, are sensitive and vulnerable to human impacts, and are relatively rare. Currently, these include living substrates in shallow and deep waters, and freshwater waterways used by anadromous fish. Presently, Cook Inlet has not been surveyed for HAPC; however, living substrates in shallow and deep waters (i.e., corals, sponges, mussels, rockweed, and kelp) and freshwater waterways used by anadromous fish (for which there is a commercial fishery) are known to exist in Cook Inlet.

Living substrates such as kelp forests are used by Atka mackerel eggs and adults. Cook Inlet, Shelikof Strait, and Kennedy Entrance have few notable regions of eelgrass and kelp except within Kachemak Bay (Otis and Gretsche, pers. commun.). The Barren Islands and Kachemak Bay nearshore habitats are important to Pacific sand lance (Robards et al., 1999). There are areas of submerged vegetation that are important spawning habitat to Pacific herring in Kamishak Bay that may need additional protection.

Pacific salmon are common anadromous fish that migrate through Cook Inlet to freshwater watersheds feeding into the larger estuary. First-order streams (which flow directly into saltwater) are identified on Map 21 of the DEIS.

Heifetz (2002) reviewed coral distributions in Alaska. Corals in the proposed sale area are mostly Gorgonian and cup corals; the associated commercial fish species are primarily rockfish, Atka mackerel, gadoids (cod), and flatfish (halibut and sole).

Table 2.0

Essential Fish Habitat and Fisheries Resources in the Gulf of Alaska

Species	Scientific Name	Habitat Depth or Distribution
Groundfish		
Pacific Cod	<i>Gadus macrocephalus</i>	Shore to 500 m
Atka Mackerel	<i>Pleurogrammus monopterygius</i>	Kodiak Banks
Walleye Pollock	<i>Theragra calcogramma</i>	<300 m
Sablefish	<i>Anoplopoma fimbria</i>	>200 m Shelikof Strait and Kodiak Banks
Other Groundfish		
Skates	<i>Rajidae</i>	50-300 m
Sculpin	<i>Cottidae</i>	Mostly Shallow
Sharks	<i>Lamnidae and Squalidae</i>	Near Coast to Outer Shelf, Particularly Kodiak
Octopus	<i>Octopoda gilbertianis</i>	to 500 m
Red Squid	<i>Beryteuthis magister</i>	30-1500 m
Shallow Water Flatfish		
Yellowfin Sole*	<i>Limanda aspera</i>	Entire Area South of Ninilchik
Rock Sole*	<i>Lepidopsetta bilineatis</i>	Entire Area South of Ninilchik
Starry Flounder	<i>Platichthys stellatus</i>	—
Butter Sole	<i>Isopsetta bilineatus</i>	—
English Sole	<i>Parophrys vetulus</i>	—
Alaska Plaice	<i>Pleuronectes quadrituberulatus</i>	<150 m
Sand Sole	<i>Psettichthys melanostictus</i>	—
Rex Sole	<i>Glyptocephalus zachirus</i>	Off Shelf
Flathead Sole	<i>Hippoglossoides elassodon</i>	Entire Planning Areas of Ninilchik
Deep Water Flatfish		
Greenland Turbot (Greenland Halibut)	<i>Reinhardtius hippoglossoides</i>	—
Dover Sole*	<i>Microstomus pacificus</i>	Shelikof Strait and Off Shelf
Deep Sea Sole	<i>Embassichthys bathbius</i>	—
Arrowtooth Flounder	<i>Atheresthes stomias</i>	Entire Planning Area
Rockfish		
Shortspine Thornyhead Rockfish*	<i>Sebastolobus ascanus</i>	Demersal Shelf Rockfish Complex
Yelloweye Rockfish*	<i>Sebastes ruberrimus</i>	100- to 200-m Slope Rockfish Complex
Shortraker Rockfish	<i>Sebastes borealis</i>	>25 m
Rougheye Rockfish	<i>Sebastes aleutianus</i>	>25 m
Pacific Ocean Perch	<i>Sebastes alutus</i>	Summer 180-250 m
Northern Rockfish	<i>Sebastes pollyspinis</i>	75- to 125-m Pelagic Shelf Rockfish Complex
Dusky Rockfish*	<i>Sebastes ciliatus</i>	Shelikof Strait and Banks

Forage Fish in Lower Cook Inlet Region Identified as Prey of Commercial Fish in the Gulf of Alaska		
Pacific Herring ¹	<i>Clupea pallasii</i>	Intertidal to Off Shelf
Eulachon	<i>Thaleichthys pacificus</i>	50-1,000 m and in rivers
Sand Lance	<i>Ammodytidae</i>	Intertidal to 150 m
Deep Sea Smelts	<i>Bathylagidae</i>	Off Shelf (see below)
Northern Smoothtongue	<i>Leuroglossus schmidti</i>	Mostly Off Shelf
Stout Blacksmelt	<i>Pseudobathylagus milleri</i>	Off Shelf
Slender Blacksmelt	<i>Bathylagus pacificus</i>	Off Shelf
Smelts	<i>Osmeridae</i>	(See below)
Surf Smelt	<i>Hypomesus pretiosus</i>	Beach Surf Spawners
Rainbow Smelt ¹	<i>Osmerus mordax</i>	Freshwater Spawn to 150 m
Capelin ¹	<i>Mallotus villosus</i>	Beach to 200 M
Bristlemouth	<i>Gonostomatidae</i>	See below
Black Bristlemouth	<i>Cyclothone atraria</i>	Off Shelf
Lanternfish	<i>Myctophidae</i>	Probably Offshelf (see below)
Bigeye Lanternfish	<i>Protomyctophum thompsoni</i>	Usually Off Shelf
Blue Lanternfish	<i>Tarletonbeania crenularis</i>	Probably Off Shelf
California Headlightfish	<i>Diaphus theta</i>	Probably Off Shelf
Brokenline Lanternfish	<i>Lampanyctus jordane</i>	Probably Off Shelf
Pinpoint Lampfish	<i>Nannobranchium regale</i>	Probably Off Shelf
Pricklebacks	<i>Stichaeidae</i>	(See below)
Arctic Shanny	<i>Stichaeus punctatus</i>	Subtidal to 50 m
Mosshead Warbonnet	<i>Chirolophis nugator</i>	Intertidal, Subtidal
Decorated Warbonnet	<i>Chirolophis decoratus</i>	Subtidal to 90 m
Longsnout Prickleback	<i>Lumpenella longirostris</i>	Outer Shelf, Upper Slope
Daubed Shanny	<i>Leptoclinus maculatus m</i>	Bottom, Usually <170 m
Whitebarred Prickleback	<i>Poroclinus rothrocki</i>	Bottom 46-128 m
Stout Eelblenny	<i>Anisarchus medius</i>	Nearshore to 150 m
Slender Eelblenny	<i>Pumpenus fabricii</i>	Intertidal to 100 m
Snake Prickleback	<i>Lumpenus sagitta</i>	Shore to 200 m
Blackline Prickleback	<i>Acantholumpenus mackayi</i>	Nearshore to 56 m
Lesser Prickleback	<i>Alectridium aurantiacum</i>	Intertidal and Subtidal
High Cockscomb	<i>Anoplarchus purpureus</i>	Mostly Intertidal
Slender Cockscomb	<i>Anoplarchus insignis</i>	Mostly Subtidal
Ribbon Prickleback	<i>Phytichthys chirus</i>	Intertidal to 12 m
Black Prickleback	<i>Xiphister atropurpureus</i>	Kodiak Island, Intertidal to 8 m
Gunnels	<i>Pholidae</i>	(See below)
Penpoint Gunnel	<i>Apodichthys flavidus</i>	Kodiak Island Intertidal
Crescent Gunnel	<i>Pholis laeta</i>	Intertidal and Subtidal
Krill	<i>Euphausiids</i>	seaward to the EEZ
Scallops		
Weatherwane scallops	<i>Patinoplectin caurinus</i>	Intertidal to 150 m
Salmon		
Pink Salmon	<i>Oncorhynchus gorboscha</i>	inland rivers to off shelf
Chum Salmon	<i>Oncorhynchus keta</i>	inland rivers to off shelf
Coho Salmon	<i>Oncorhynchus kisutch</i>	inland rivers to off shelf
Sockeye salmon	<i>Oncorhynchus nerka</i>	inland rivers to off shelf
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	inland rivers to off shelf

Notes: ¹ Indicates the three major forage species for which knowledge is abundant.
Off shelf indicates species inhabits deep areas.
Indented shows species; non-indented with light shading indicates major taxonomic group.

Key:

NPFMC = North Pacific Fishery Management Council

*Most abundant in its group or complex; NPFMC uses it to represent habitat for group or complex.

— means no data are available

< = less than

> = greater than

m = meters

Sources:

Habitat Assessment Reports for EFH - Prepared and Compiled by the Technical Teams for EFH of NMFS, NPFMC, and the Alaska Department of Fish & Game, 1998. Species in forage fish families, distribution and some habitat from Mecklenburg et al. (2002).

3.0 Effects on Essential Fish Habitat

Table IV.B-5 of the DEIS contains the list of potential impacts identified by the NPFMC (NPFMC 1999) for petroleum production. Not all of the potential threats in this Table are relevant to these lease sales. This section addresses habitat alteration, topographic alteration, and portions of organism alteration. Water quality alteration and atmospheric depositions are addressed in the water quality (IV.B.1.a) and air quality (IV.B.1.b) sections of the DEIS. Oceanographic alterations, gene pool deterioration, introduction of exotic species, introduction of pathogens/disease, and change in photosynthetic regime. For purposes of this programmatic consultation, the effects from exploration activities will be considered.

3.1 Effects from Exploration

Routine activities associated with a lease sale that may adversely affect EFH, include permitted drilling discharges, and seismic surveys. Accidental activities that may affect EFH include exposure to spilled hydrocarbons. MMS estimates a 19% chance of one or more large oil spills greater than 1,500 barrels from a production facility or greater than 4,600 barrels from a pipeline occurring over the life of the project.

MMS analysis relies on population level impacts; whose definition of a population is defined here as group of organisms of one species, occupying a defined area (the central Gulf of Alaska encompassing the South Alaskan Peninsula, Kodiak Archipelago, Shelikof Strait, Cook Inlet, and Prince William Sound) and usually isolated to some degree from other similar groups.

Except for the occurrence of a large oil spill, the effects of exploration and production related activities on fisheries resources are expected to be essentially the same and are discussed under development and production. Although there may be minor differences in the frequency or type of activities between exploration and production, those differences would not make a measurable difference on fisheries resources.

MMS also estimates a number of smaller oil spills would occur. This section describes the potential effects of oil to fisheries resources including EFH in the lease sale area using the Oil-Spill-Risk Analysis (see Appendix A of the DEIS) model. For example, Table A.1-5 of the DEIS indicates that a 4,600-barrel spill in lower Cook Inlet during summer would have a discontinuous area of approximately 56 square kilometers after 3 days, 265 square kilometers after 10 days, and 1,100 square kilometers after 30 days. Broader areas may be impacted following the initial 30 days.

3.1.1. Drilling Discharges

As discussed in Section III of the DEIS, drilling discharges affect localized areas of the benthos, and their fluid components are diluted rapidly by marine waters. MMS anticipates discharges of drilling muds and cuttings to occur only during exploration drilling operations. MMS anticipates that lessees and operators of new production platforms will be required by the Environmental Protection Agency (EPA) to reinject production and development discharges of produced waters, drilling muds, and cuttings into existing wells. This expectation is based on current new source guidance and EPA's National Pollutant Discharge Elimination System (NPDES) permit program. EPA's goal is to achieve a zero discharge from offshore platforms.

However, drilling muds and cuttings may be discarded into Cook Inlet during exploration if permitted by the EPA. During exploratory-drilling operations bulk drilling mud, usually about 100-200 barrels at a time, is discharged several times during the drilling of a well, when the composition of the drilling mud has to be changed substantially or when the volume exceeds the capacity of the mud tanks.

Washed drill cuttings and a small volume of drilling mud solids are continuously discharged during drilling operations; the discharge rate varies from about 25-250 barrels per day. Section 403(c) of the Federal Water Pollution Control Act (Clean Water Act) regulations allow only a 100-meter radius mixing zone for initial dilution of discharges in OCS waters. The most recent general NPDES permit for Cook Inlet oil and gas discharges (AKG285000; Environmental Protection Agency, 1999) allows discharge of only muds with negligible toxicity as measured by 96 hour lethal concentration for 50% of test organisms (LC₅₀) tests (see Section IV.B.1.a(2)(c) of the DEIS).

Additionally, the waters of Cook Inlet generally are vertically well mixed and strongly influenced by the tidal cycle. EFH is not likely to suffer acute (lethal) toxic effects from exposure to permitted discharges within the federal mixing zone, because (a) the concentrations are of negligible toxicity by EPA standards, (b) discharge concentrations of negligible toxicity would

become rapidly diluted within the mixing zone by waters of Cook Inlet as they are swept past the discharge point by strong tidal currents, and (c) the timing of drilling discharges in juxtaposition with the presence of considerable numbers of juvenile and adult fish in the mixing zone for each exploratory or delineation well drilled. Managed species occurring within the mixing zone may experience sublethal effects; however, these effects are slight and not predicted to measurably impact EFH. Eggs, fry, and small prey occurring in or entering the mixing zone during discharge of muds and cuttings may experience lethal and sublethal effects if they are very close (within 1-2 meters) to the discharge point, and volumes of muds and cuttings are red at rates permitted by the EPA (500-1,000 barrels per hour, depending on water depth). Such lethal and sublethal effects most likely would result from physical damage or smothering, resulting from the bulk constituents comprising muds and cuttings. Only very small numbers of eggs, larvae, or prey are believed susceptible to such close exposure, due to the limited periods of high discharge rates; the few exploratory wells (totaling seven wells for both sales) to be drilled over a four year period; and relative to the widespread distribution of EFH in Cook Inlet. Such minor mortality of eggs, larvae, and prey is considered negligible to the population dynamics of managed species in the defined area. Sediment deposition during discharges and physical activities associated with the drilling operations likely would disturb and displace fish from the immediate area. EFH located on the seafloor immediately below the 100-meter mixing zone radius may be temporarily unavailable for fish to occupy because of disturbance from active drilling. Fish and prey would likely utilize the area when drilling activities are not disturbing the seafloor. Fish may reinhabit the immediate drilling area within minutes to hours after drilling or discharging operations cease. This activity is not expected to have anything more than negligible effects on EFH or water quality. See Section IV.B.1.a(2)(a) of the DEIS for additional information on effects to water quality.

3.1.2 Noise (Seismic Surveys and Vessel Operations)

Fish display avoidance reactions to both airgun and vessel sound levels. Demersal and benthopelagic finfish living near the bottom escape by descending to the bottom (Pearson, Skalski, and Malme, 1992; LGL, Ltd., 1998). These avoidance reactions are elicited when sound levels exceed fish hearing thresholds by about 30 decibels (Engas and Lokkeborg, 2001). McCauley et al. (2000) found finfish begin to show alarm behaviors such as increasing swimming speeds, tightened schools, and movement toward the sea floor at 156-168 decibels. Some finfish observed in this and other studies even exhibited a "C-turn" response where all the lateral muscles along one side of the fish involuntarily contract, and the finfish darts off in that direction. Smaller finfish were observed to react to 182-195 decibels, while larger fish reacted at higher noise levels up to 203 decibels. Ironically, their alarm response of descending would take them to lower depths where they experience the highest levels of airgun noise. The same authors found that other marine organisms such as squid, remained close to the water surface at sound levels 156-161 decibels. In these instances, squid would move to that part of their habitat least impacted by the seismic sound waves. Another study found reduced catches of cod and haddock up to 33 kilometers from the seismic testing areas (Engas et al., 1996).

MMS expects site-specific surveys to cover an approximate area of 23 square kilometers (9 square miles), for each exploration site. The total area covered by shallow-hazard surveys would equal 46 square kilometers (18 square miles). Annual exploratory seismic testing likely would affect 23-52 square kilometers (9-20 square miles) of habitat for 2-10 days in late summer or early fall of each year from 2005 through 2010. The physical characteristics of seismic waves that can potentially degrade EFH are (1) the decibel noise volume or how loud a sound is and (2) the frequency of the sound waves. Much like earthquakes, sound volume is measured on a logarithmic scale so that 2 decibels are 10 times louder than 1 decibel (Jasny and Reynolds, 1999). Noise volume, or loudness, is measured in the air in decibels and in water as decibels in micropascals (decibels re 1 micropascal) (Jasny and Reynolds, 1999) or mean peak levels (decibels re 1 micropascal-m). Mean-peak level is defined as the decibel value of the mean of sum of maximum positive and absolute value of minimum negative pressure values. The second physical characteristic of sound that can potentially degrade EFH is frequency, or how high or low the sound is in musical terms. As in radio frequencies, the frequency of seismic testing sound waves is measured in hertz cycles.

Seismic surveys, probably using airguns, would be used during oil and gas exploration and development in the proposed sale area. Airguns are the type of device most frequently used in geophysical surveys in marine waters. Comparison of sounds from airguns indicates that marine fish can hear airgun sounds (Pearson, Skalski, and Malme, 1992). The frequency spectra of seismic-survey devices cover the range of frequencies detected by most fish, for example, 50-3000 Hertz for marine fish in general (Pearson, Skalski, and Malme, 1992; Platt and Popper, 1981, Hawkins, 1981). Available information indicates that marine fish are quite likely to detect airgun emissions nearly 2.7-63 kilometers (1.6-39 miles) from their source, depending on water depth (Pearson, Skalski, and Malme, 1992). In a study investigating the effects of airguns on rockfish behavior, Pearson, Skalski, and Malme, (1992) found the effects were evident as (1) shifts in the vertical distribution of the fish (either up or down), (2) shifts in behavior, and (3) the occurrence of alarm and startle responses. Responses were species specific. The threshold for startle responses was between 200 and 205 decibels; the general threshold for the alarm responses was about 180 decibels. Avoidance and other more subtle behavioral responses may occur, but limitations of the study enclosure prevented their expression.

In work related specifically to seismic exploration, Richardson and Malme (1993) indicate that the maximum decibel level is 242-252 decibels, and that an array of seismic airgun pulses emits considerable energy from below 20-250 Hertz with the strongest around 50-100 Hertz. An Alaskan example is a 1998 request for an incidental Harassment Authorization for seismic exploration in the Beaufort Sea of Alaska (LGL, Ltd., 1998). It indicated airgun noise of 255 decibels and frequencies from 0-188 Hertz would be used for seismic testing. In relation to the decibel level, the application indicated that fish might be unaffected at distances of 30-33 kilometers (16-18 nautical miles) of seismic activities. "Ramp-up," which is a gradual increase in decibel level as the seismic activities begin, can help mitigate the effects on fish large enough to move out of their disturbed habitats before damage occurs (Larson, 2002, pers. commun.).

The effects of seismic-wave frequencies on EFH habitat are less well understood than the effects of decibel levels on EFH. Recent research indicates that particular frequencies common in seismic waves may cause greater effects than the noise level, especially for the important herring prey of commercial fish species. Finfish can hear frequencies of 100-1,000 hertz or more (Yoda, Rogers, and Baxter, 2001; Higgs, 2001). The frequency spectrum of sounds produced by geophysical airgun arrays is within the most sensitive hearing frequencies of many marine finfish (Engas and Lokkeborg, 2001). The effects are not only on finfish "ear" bones, but also swim bladders and the lateral line (the line that can be seen along the side of the finfish from head to tail). The frequency of seismic waves apparently could have as large if not a larger effect on EFH than does the decibel level of seismic waves. The lateral line system is pressure sensitive, and many finfish will likely reveal morphological connections between the lateral line and the swim bladder similar to those recently identified in butterfly fish (Webb, 2001). By virtue of their anatomy, demersal fish can hear better than pelagic finfish (Lychakov and Rebane, 2001) and may be more likely to be affected by sound volume. Furthermore, the seismic waves are propagated down more than sideways (and thus are more likely to affect the demersal finfish bottom habitat).

Herring are a prey species that may be adversely impacted by seismic activity. Herring have a unique "hearing" anatomy connected to the lateral recess (Schilt and Escher, 2001) and may therefore be more affected than other finfish by seismic waves. Herring are in fact taxonomically defined by their unique "hearing" features such as the characteristic coupling of the swim bladder and inner ear and head canal system (Mecklenburg, Mecklenburg, and Thorsteinson, 2002). Lab experiments indicated another herring, American shad, could detect ultrasound up to 180 kilohertz and that they may have evolved this sensitivity in response to predation by echolocating cetaceans (Mann et al., 2001). Mecklenburg, Mecklenburg, and Thorsteinson cited Whitehead (1985) as indicating this "hearing system" probably monitors information necessary for schooling and detection of predators and other hazards. They also indicate that Pacific herring in Alaska reside more offshore in winter and onshore in spring for spawning. Thus, herring, a primary forage prey species, may be most affected by seismic waves as they school and move inshore to spawn. However, the key habitat area for herring is primarily in Kamishak Bay (Map 5 of the DEIS) which is in the southern area and adjacent to the sale area. Therefore, the area itself is not expected to experience seismic surveys.

Finfish inhabiting all depths, surface, pelagic, and demersal could be affected by seismic waves. For several species of finfish, it was demonstrated that it can take more than 58 days for hearing fibers to regenerate after airgun exposure (McCauley and Fewtrell, 2001). The demersal and benthopelagic finfish species that use habitat in the lease sale areas would be the most impacted by the noise (decibel) level. The habitats include those of Pacific Ocean perch; northern rockfish; yellow fin sole; weathervane scallop; sculpin; walleye; pollock larvae, eggs, and adults; juvenile rock sole; juvenile Greenland turbot; Pacific cod; halibut; skates; flathead sole, adult and juveniles; arrowtooth flounder, both juvenile and concentration habitat; juvenile rex sole; squid; and octopus.

Given the relative scattered distribution and hypothetical frequency of post seismic surveys expected to occur to cover approximately 161 square kilometers (62.3 square miles) during 14-35 days dispersed over 4 years, the effects of seismic surveys to EFH in the proposed sale area and adjacent waters are not expected to be significant. It is possible that seismic surveys temporarily may displace fish from the proximate area where airguns are in use. Seismic surveys are fleeting operations; hence, any fish proximately displaced due to potential avoidance are likely to backfill the surveyed area in a matter of minutes to hours. Fish of any life stage in close proximity to airgun emissions may suffer sublethal injuries that reduce individual fitness, fecundity, or survival. However, eggs and fry are believed to be widely distributed in Cook Inlet, and seismic surveys are expected to be limited in frequency. Consequently, large numbers of eggs or fry are not likely to be subjected to this harm. MMS expects that seismic surveys would have no measurable lethal effects on EFH in the defined area. Indirect effects are considered to be closely limited in area and time and, therefore, without significance to regional fish populations.

Boat trips during exploration are expected to average 160-360 trips per year over 5 years of exploration. However, the amount of boat traffic associated with oil and gas activities are minimal when compared to the fishing and other commercial traffic that occurs within Cook Inlet. Midsized ships such as tugboats and ferries produce sounds of 150-170 decibels filling the frequency band below 500 Hertz (Jasny and Reynolds, 1999). If each trip is 10 hours, temporary displacement of fish from normal habitats (Pearson, Skalski, and Malme, 1992; LGL, Ltd., 1998) within the travel corridors could add up to 66-150 days per year. The effects from the oil and gas related boat traffic are expected to have similar effects to those associated with commercial fishing activities.

3.1.3 Effects from Oil Spills

Exploratory drilling may occur as a result of the lease sales. Except for the occurrence of a large oil spill, the effects of exploration and production related activities on fisheries resources are expected to be essentially the same and are discussed under development and production. Although minor differences may occur in the frequency or type of activities between exploration and production, those differences would not make a measurable difference on fisheries resources. The following information would therefore remain the same in an exploration scenario.

Numerous benthic-pelagic and demersal finfish and shellfish may be exposed to and killed or harmed by oil spills during the lifetime of the Proposed Action, whether by frequent small spills or one or more large spills. Species that use intertidal and nearshore habitats during their life history are most vulnerable to acute and chronic impacts that may result in lethal and sublethal effects to stocks and subpopulations within affected areas. Some benthic-pelagic and demersal finfish and shellfish produce large amounts of pelagic eggs and larvae that may die or incur sublethal effects if exposed to spilled oil in pelagic habitats. Developing eggs and juvenile stages may suffer sublethal effects as a result of a spill, degrading individual fitness, fecundity, and survival. Species only using waters deeper than 50 meters or more are regarded as primarily at risk only in the event of a pipeline spill at depth, the effects of which are poorly studied. In each oil-spill case, the magnitude of lethal and sublethal effects greatly depends on seasonal timing

and environmental factors influencing the concentration and distribution of oil in the waters of Cook Inlet and beyond.

Oil spills affecting EFH resources:

- Cause unnatural mortality to eggs and immature stages, abnormal development, or delayed growth due to acute or chronic exposures in spawning or nursery areas
- Impede the access of migratory fish to spawning habitat because of contaminated waterways
- Alter behavior
- Displace individuals from preferred habitat
- Constrain or eliminate prey populations normally available for consumption;
- Impair feeding, growth, or reproduction
- Contaminate organs and tissues and cause physiological responses, including stress
- Reduce individual fitness and survival, thereby increasing susceptibility to predation
- Parasitism, zoonotic diseases, or other environmental perturbations
- Increase or introduce genetic abnormalities within gene pools
- Modify community structure that benefits some fisheries resources and detracts others

Many species of fish are more susceptible to stress and toxic substances at the egg and larval stages than adult stages. Several studies demonstrated adverse effects of oil on intertidal fish habitat at levels below the water quality guidelines of 15 parts per billion, including mortality to pink salmon embryos at 0.1 part per billion (Heintz, Short, and Rice, 1999). Their study found a 25% reduction in survival during incubation of brood fish exposed to less than 18 parts per billion. Between the end of the exposure and maturity, survival was further reduced by another 15%, resulting in the production of 40% fewer mature adults than the unexposed population. Thus, the true effect of the exposure on the population was 50% greater than was concluded after evaluating the immediate effects. Studies indicate that examination of short-term consequences underestimate the impacts of oil pollution (Heintz et al., 2000). When oil contaminates natal habitats, the immediate effects in one generation may combine with delayed effects in another to increase the overall impact on the population. If small spills enter intertidal habitats, thousands to millions of egg and juvenile stages-habitats could be impacted and last for multiple generations of a subpopulation. Intertidal habitat of capelin eggs and adults, herring eggs, sculpin eggs and adults, yellowfin sole and pink salmon eggs, adult squid, juvenile sablefish, walleye pollock larvae and adults, Pacific cod larvae and adults, eulachon juveniles, and Greenland turbot eggs could experience such adverse effects. However, impacts would affect only subpopulations and would not result in a significant impact to an overall population inhabiting the central Gulf of Alaska. (See Sections IV.B.1.d(3)(b) and IV.B.1.e(3)(c)1 of the DEIS for additional information about oil-spill effects.)

Numerous marine fish species have pelagic egg and larval stages within the project area and may be adversely impacted by small oil spills. Large numbers of juvenile fish, floating eggs, and larvae may be killed when contacted by oil (Patin, 1999). Individuals inhabiting pelagic habitats in the project area and exposed to small oil spills may experience lethal or sublethal effects similarly described above for intertidal habitats. However, the numbers of individuals and generations impacted may be lower because organisms inhabiting intertidal habitats may receive repeated, long-term exposure, while organisms inhabiting pelagic habitats are believed more prone to acute toxicity exposures.

Concentrations of petroleum hydrocarbons are acutely toxic to finfish a short distance from and a short time after a spill event. However, the majority of adult finfish are able to leave or avoid areas of heavy pollution and, thus, avoid acute intoxication and toxicity. Evidence indicates that populations of free-swimming finfish are not injured by oil spills in the open sea (Patin, 1999). Conversely, floating eggs, and juvenile stages of many species can be killed when contacted by oil (Patin 1999), regardless of the habitat. In coastal shallow waters with slow water exchange, oil spills may kill or injure demersal finfish, shellfish, and other invertebrates in addition to cultivated species.

Some demersal or benthopelagic species are sensitive to oiled substrates, and may be displaced from preferred habitat that is oiled as a result of a spill. Pinto et al., (1984) found that sand lance avoided sand contaminated with Prudhoe Bay crude oil in an experimental setting. Moles et al. (1994) exposed three species of juvenile Alaskan demersal finfish (rock sole, yellowfin sole, and Pacific halibut) to laboratory chambers containing contaminated mud or sand offered in combination with clean mud, sand, or granule. The finfish were able to detect and avoid heavily oiled (2%) sediment but did not avoid lower concentrations of oiled sediment (0.05%). Oiled sediment was favored over unoiled sediment, if the unoiled sediment was of the grain size not preferred by that species. Oiled sand or mud was always preferred over unoiled granule. The authors concluded that the observed lack of avoidance at concentrations likely to occur in the environment may lead to long-term exposure to contaminated sediment following a spill.

Pollock, sablefish, Pacific cod, eulachon, and Pacific sand lance are federally managed species in the Cook Inlet area. Such finfish may inhabit the benthos or pelagic waters at times. Vertical changes in depth may be responses to factors such as light conditions and foraging opportunities. For example, Pacific sand lance inhabit the water column nearshore during the day, but bury themselves at night in soft bottom sediments. They also are known to overwinter by burying in sediments, with a preference for fine or coarse sand substrate. This makes them particularly vulnerable should oil spills reach nearshore areas.

Potential oil-spill impacts to pelagic finfish in the Gulf of Alaska are best known for salmon and Pacific herring. Salmon are able to detect and avoid hydrocarbons in the water (Weber 1988), although some salmon may not avoid oiled areas and become temporarily disoriented but eventually returning to their home stream (Martin 1992). Adult salmon remain relatively unaffected by oil spills and are able to return to natal streams and hatcheries even under very large oil-spill conditions, as evidenced by pink and red salmon returning to Prince William

Sound and red salmon returning to Cook Inlet after the *Exxon Valdez* oil spill in 1989. When oil from the *Exxon Valdez* spill entered Cook Inlet, the Alaska Department of Fish and Game closed the sockeye salmon commercial fishery in Cook Inlet. This evidently resulted in overescapement of spawning fish in the Kenai River system for the third consecutive year. Overescapement in 1987 was due to a previous spill, a naturally high escapement occurred in 1988. As a result of the repeated overescapements, fisheries managers observed what appeared to be a decline in salmon smolt. Although the mechanism for the apparent decline in smolt abundance is uncertain, the result of overescapement and too many salmon fry to be supported by the available prey may be the cause. The extent of the decline was speculative. Managers originally predicted that adult salmon returns in 1994 and 1995 would be below escapement goals, but the 1994 returns were three times that forecasted. Figures for 1995 are not available at this time, but escapement goals were met, and commercial fisheries did operate.

Some Pacific herring stocks of the Gulf of Alaska were appreciably impacted by past oil spills. Herring populations are dominated by occasional, very strong year classes that are recruited into the overall population (http://www.oilspill.state.ak.us/facts/status_herring.html). The 1988 pre-spill year-class of Pacific herring was very strong in Prince William Sound and, as a result, the estimated peak biomass of spawning adults in 1992 was very high. Despite the large spawning biomass in 1992, the population exhibited a density-dependent reduction in size of individuals, and an unprecedented crash of the adult herring population occurred in 1993. In 1989 the *Exxon Valdez* oil spill occurred a few weeks before Pacific herring spawned in Prince William Sound. The size of the *Exxon Valdez* oil spill was several magnitudes larger than the 4,600-barrel spill MMS is evaluating. A considerable portion of spawning habitat, and staging areas in Prince William Sound, were contaminated by oil. Adult herring returning to spawn in Prince William Sound in 1989 were relatively unaffected by the spill and successfully left one of the largest egg depositions since the early 1970s. However, the 1989-year class was a minority in the 1993 spawning assemblage, returning to spawn with an adult herring population reduced by approximately 75%, apparently because of a widespread epizootic. A viral disease and fungus may have been the immediate agents of mortality or a consequence of other stresses, such as a reduced food supply and increased competition for food. There have been no "very strong" year classes recruited into the Prince William Sound herring population since 1988. The Pacific herring stock of Prince William Sound is classified as "not recovered" from the *Exxon Valdez* oil spill of 1989.

Many finfish species are most susceptible to stress and toxic substances during the egg and larval stages than adult stage. Intertidal areas contaminated by spilled oil may persist for years and represent a persistent source of harmful contaminants to aquatic organisms. Contamination of intertidal spawning stream areas for pink salmon caused increased embryo mortality and possible long-term developmental and genetic damage (Bue et al., 1993). The embryonic stage of salmon development, is vulnerable because of its long incubation in intertidal gravel and its large lipid-rich yolk, which will accumulate hydrocarbons from chronic, low-level exposures (Moles et al., 1994; Marty et al., 1997; Heintz, Short, and Rice, 1999). Pink salmon (often intertidal spawners) embryos in oiled intertidal stream areas of Prince William Sound continued to show higher mortality than those in nonoiled stream areas through 1993, more than 4 years after the oil spill,

but appeared to recover in 1994 (Bue et al., 1993). Experiments conducted by Heintz, Short, and Rice (1999) demonstrate that aqueous-total polycyclic aromatic hydrocarbons concentrations as low as 1 part per billion derived from weathered *Exxon Valdez* oil can kill pink salmon embryos localized downstream from oil sources. Their study also found a 25% reduction in survival during incubation of brood fish exposed to 18 parts per billion. Other studies examining egg and fry survival showed no difference between oiled and unoiled locations (Brannon et al., 1993) except in two cases, one that showed higher mortality at an unoiled stream and another that showed higher mortality at the high-tide station of an oiled stream. These studies did not measure polycyclic aromatic hydrocarbons in stream water or in salmon embryos, were statistically underpowered, and were insufficient in duration to test for the manifestation of adverse effects from low-level polycyclic aromatic hydrocarbon exposures (Murphy et al., 1999). Thus, results published by Murphy et al. (1999) and Heintz, Short, and Rice (1999) negate other scientists' conclusions that polycyclic aromatic hydrocarbon concentration in spawning substrate after the spill was too low to adversely affect developing salmon (i.e., Brannon et al., 1995; Maki et al., 1995; Brannon and Maki, 1996).

Several studies demonstrated indirect and chronically adverse effects of oil to intertidal fish at levels below the water-quality guidelines of 15 parts per billion. Experiments conducted by Heintz, Short, and Rice, (1999) demonstrate that between the end of chronic exposure to embryonic salmon and their maturity, survival was reduced further by another 15%, resulting in the production of 40% fewer mature adults than the unexposed population. Heintz, Short, and Rice (1999) concluded the true effect of the exposure on the population was 50% greater than was concluded after evaluating the direct effects. Additional research found that fewer exposed fish from one experimentally exposed egg brood survived life at sea and returned as mature adults compared to unexposed fish (Heintz et al., 2000). Moreover, Heintz et al. (2000) experimental data show a dependence of early marine growth on exposure level; unexposed salmon increased their mass significantly more than salmon exposed to crude oil as embryos in eggs. Heintz et al. (2000) concluded that exposure of embryonic pink salmon to polycyclic aromatic hydrocarbon concentrations in the low parts per billion produced sublethal effects that led to reduced growth and survival at sea. Studies, therefore, indicate that examination of short-term consequences underestimate the impacts of oil pollution (Heintz et al., 2000; Rice et al., 2000; Ott, Peterson, and Rice, 2001). When oil contaminates natal habitats, the immediate effects in one generation may combine with delayed effects in another to increase the overall impact on the population. If oil spills enter small areas of intertidal habitats, small scale impacts to affected egg and larval habitats could last for one or more generations of a subpopulation.

McGurk and Brown (1996) tested the instantaneous daily rates of egg-larval mortality of Pacific herring at oiled and non-oiled sites; they found that the mean egg-larval mortality in the oiled areas was twice as great as in the non-oiled areas, and larval growth rates were about half those measure in populations from other areas of the North Pacific Ocean. Norcross et al. (1996) collected Pacific herring larvae throughout Prince William Sound in 1989 following the *Exxon Valdez* oil spill. They found deformed larvae both inside and outside of areas considered as oiled. Many larvae exhibited symptoms associated with oil exposure in laboratory experiments and other oil spills. These included morphological malformations, genetic damage, and small

size. Growth was stunted during developmental periods. Brown et al. (1996) noted the resulting 1989 year-class displayed sublethal effects in newly hatched larvae, primarily premature hatch, low weights, reduced growth, and increased morphologic and genetic abnormalities. In newly hatched larvae, developmental aberration rates were elevated at oiled sites, and in pelagic larvae genetic damage was greatest near oiled areas of southwestern Prince William Sound. Brown et al. (1996) estimated that oiled areas produced only 16 million pelagic larvae compared with 11 billion in non-oiled areas. Kocan et al. (1996) exposed Pacific herring embryos to oil-water dispersions of Prudhoe Bay crude oil in artificial seawater and found that genetic damage was the most sensitive biomarker for oil exposure, followed by physical deformities, reduced mitotic activity, lower hatch weight, and premature hatching.

Demersal and benthic-pelagic finfish inhabiting oil polluted areas may suffer similar lethal and sublethal effects (for example, egg mortality, developmental aberrations, reduced survival, etc.) as reported for pelagic finfish, although not necessarily of the same magnitude as finfish assemblages using nearshore and intertidal habitats. Pollock sampled from Prince William Sound and Tugidak Island in 1990 following the *Exxon Valdez* oil spill showed evidence of fluorescent aromatic compounds, but these dropped substantially in 1991 (Collier et al., 1993). Overall, Collier et al. (1993) show a continuing exposure of several subtidal fish species.

Rockfish (yelloweye, quillback, and copper) examined for histopathological lesions and elevated levels of hydrocarbons in their bile after the *Exxon Valdez* oil spill indicated significant differences between oiled and control locations (Hoffman, Hepler, and Hansen, 1993). Additionally, at least five rockfish examined were killed by exposure to oil. While the authors noted no population-level effect in these species, these data indicate spilled oil reached and exposed demersal fish to both sublethal and lethal toxic effects.

Moles and Norcross (1998) found that juvenile yellowfin sole, rock sole, and Pacific halibut experienced reduced growth following 30-90 days of exposure to sediments laden with Alaska North Slope crude oil. Changes in fish health bioindicators after 90 days, (i.e., increases in fin erosion, liver lipidosis, gill hyperplasia, and gill parasites) coupled with decreases in macrophage aggregates, occurred at hydrocarbon concentrations (1,600 micrograms per gram) that reduced growth 34-56% among the demersal finfish. Moles and Norcross (1998) concluded that (1) chronic hydrocarbon pollution of nearshore nursery sediments could alter growth and health of juvenile flatfish, and (2) recruitment of juveniles to the fishery may decline because of increased susceptibility to predation and slower growth.

Hydrocarbon exposure in demersal fish often results in an increase in gill parasites (Khan and Thulin, 1991; MacKenzie et al. 1995). Moles and Wade (2001) experimentally tested adult Pacific sand lance's susceptibility to parasites when exposed to oil-contaminated sediments for 3 months. They found that sand lance exposed to highly oiled substrates had the greatest mean abundance of parasites per fish. Chronic exposure to harmful pollutants such as hydrocarbons coupled with increased parasitism degrades individual fitness and survival.

The most serious concerns arise regarding the potential sublethal effects to federally managed species, is exposure to chronic contamination within their habitats (Patin 1999). Recent studies show that the toxicity of oil pollution to aquatic populations has been seriously underestimated by standard short-term toxicity assays, and the habitat damage that results from oil contamination has been correspondingly underestimated (Ott, Peterson, and Rice 2001). These studies show that intertidal or shallow benthic substrates may become sources of persistent pollution by toxic polycyclic aromatic hydrocarbons following oil spills or from chronic discharges (Rice et al., 2000). Bivalves exposed to background contamination of polycyclic aromatic hydrocarbons may experience biological responses at the cellular level, disease, and histopathological changes (Patin, 1999). Finfish sublethal responses include a wide range of compensational changes (Patin, 1999). These start at the subcellular level and first have a biochemical and molecular nature. Recent research, mostly motivated by the *Exxon Valdez* oil spill, has found (1) polycyclic aromatic hydrocarbons are red from oil films and droplets at progressively slower rates with increasing molecular weight leading to greater persistence of larger polycyclic aromatic hydrocarbons; (2) eggs from demersally-spawning fish species accumulate dissolved polycyclic aromatic hydrocarbons red from oiled substrates, even when the oil is heavily weathered; and (3) polycyclic aromatic hydrocarbons accumulated from aqueous concentrations of less than 1 part per billion can lead to adverse sequelae appearing at random over an exposed individual's lifespan (Rice et al., 2000). These adverse effects likely result from genetic damage acquired during early embryogenesis caused by superoxide production in response to polycyclic aromatic hydrocarbons. Therefore, oil poisoning is slow acting following embryonic exposure, and adverse consequences may not manifest until much later in life. The frequency of any one symptom usually is low, but cumulative effects of all symptoms may be considerably higher (Rice et al., 2000). For example, if chronic exposures persist, stress may manifest sublethal effects later in a form of histological, physiological, behavioral, and even populational responses, including impairment of feeding, growth, and reproduction (Patin, 1999). Chronic stress and poisoning also may reduce fecundity and survival through increased susceptibility to predation, parasite infestation, and zoonotic diseases. These can affect population abundance and subsequently community structure.

Oil-spill impacts to stocks or subpopulations of walleye pollock or Pacific sand lance may have serious consequences to higher vertebrate predators, because these finfish are among the most important forage fish in the central Gulf of Alaska and are consumed by many endangered and threatened species of sea birds and marine mammals, and by various fisheries resources. Although frequent small spills or one or more large spills in Cook Inlet may cause local stocks or subpopulations of shellfish, benthic-pelagic, or demersal finfish to decline in abundance requiring multiple generations to recover to its former status, they are not likely to result in a significant impact to an overall population inhabiting the central Gulf of Alaska.

3.1.4 Effects of Oil Spill Response Measures

Dispersants used to mitigate oil slicks can adversely impact finfish, shellfish, and their prey. The Alaska Regional Response Team has prepared a Unified Plan that provides general guidelines, and the Subarea Plan designates where application of dispersants is appropriate. Both plans can be found online at <http://www.akrrt.org/plans.shtml>. The basic rule of thumb is no application of dispersants in areas shoreward of the 9-meter (5-fathom) isobath and, in some areas, that is increased to the 18-meter (10-fathom) isobath. The Subarea Plan identifies these areas. There also is an ongoing geographic response strategy program to map the entire Alaska coastline, identify sensitive habitats and species of animals at risk, and identify which response tactics should be considered first to limit oil impacts. Such information will be instrumental in minimizing the impacts of an oil spill and response activities to fisheries resources and their habitats.

3.1.5 Combined Probability Analysis

The combined probabilities estimate the probability of a spill occurring from all sources (transportation or platform) and contacting environmental resource areas, land segments, and sea segments during the life of the proposal has been calculated at intervals of 3, 10, and 30 days. The names and locations of environmental resource areas and land and sea segments referred to throughout this section are listed in Tables A.2-31 and 32 of the DEIS.

The relatively low probability of oil occurrence and contact to various environmental resources is illustrated by examination of the highest probabilities. After three days, the combined probabilities (expressed as percent chance) for one or more oil spills of greater than or equal to 1,000 barrels occurring and contacting Tuxedni Bay (ERA 1) is 5%; for outer Kamishak Bay (ERA 4) it is 3% (Table A.2-31). After ten days, the combined probability increases to 5% for outer Kamishak Bay (ERA 4) and to 6% for Tuxedni Bay (ERA 1). After 30 days, the combined probability of one or more oil spills greater than or equal to 1,000 barrels occurring and contacting outer Kamishak Bay or Tuxedni Bay does not change. Fish species inhabiting these resource areas potentially affected by oil spills are adult anadromous fish and eulachon transiting lower Cook Inlet; outmigrating juvenile salmon entering Cook Inlet from natal rivers and streams; herring, true cod, and halibut; and walleye pollock in the vicinity of Cape Douglas. Additionally, pelagic eggs and juvenile stages inhabiting near-surface waters may experience lethal and sublethal effects. For all other environmental resource areas and land segments, estimated combined probabilities (expressed as a percent chance) of one or more spills greater than or equal to 1,000 barrels occurring and contacting are less than 5%.

3.1.6 Large Natural Gas Release

If a natural gas release occurred, mortality could result to finfish or shellfish of varying life stages near the release point. Natural gas condensates in the water column may impact eggs or larvae with lethal and sublethal effects if exposed to high or moderate concentrations. A plume of natural gas vapors and condensates would disperse rapidly and is expected to produce negligible adverse impacts, affecting at most a few individuals.

3.2 Effects to Prey, Prey Habitat, and Other Ecosystem Components

As noted earlier, the primary risk of adverse effects to EFHs from the proposed sale is the potential of a large unlikely oil spill. The National Research Council reviewed the amounts of petroleum inputs into oceans and effects of all these inputs, including oil spills (National Research Council, 2002). The following paragraphs, summarized from that document, demonstrate ways in which oil spills may affect both habitat areas of particular concern such as corals (referred to as biogenically structured habitats) and an ecosystem's ability to regulate itself can be affected by an oil spill.

Biogenically structured biotopes, such as salt marshes where plants and animals are habitat to other organisms, are subject to destruction or alteration by acute oiling events. Indirect effects can be substantial. For example, in the *Exxon Valdez* oil spill (in Prince William Sound) and the *Torrey Canyon* oil spill (off the coast of southeast England), destruction of the algal cover had indirect impacts on limpets and other invertebrates. Such successional, reverberating or cascading indirect effects in a complex ecosystem may be very important but are not captured by laboratory studies.

Fresh petroleum is readily oxidized by microbes, which in turn can serve as a supplementary food source for benthic food webs in shallow water. The decrease in oxygen in the surface layers of the sediments that results from microbial metabolism of petroleum is a limiting factor to benthic organisms. Medium and higher molecular weight aromatic compounds are among the most persistent compounds in both animal tissues and sediments. The half-lives in marine bivalves can be quite long compared to the relatively rapid decline in monoaromatic compounds. Hydrocarbon exposure can occur at concentrations several orders of magnitude lower than concentrations that induce acute toxic effects. Impairment of feeding mechanisms, growth rates, development rates, energetics, reproductive output, recruitment rates, and increased susceptibility to zoonotic diseases are some examples. Early life history stages can be especially vulnerable. Heintz, Short, and Rice (1999) reported embryo mortality of pink salmon with laboratory exposure to aqueous total polycyclic aromatic hydrocarbon concentrations as low as 1 part per billion.

Prey and prey habitats compose the next level of the fish food web. The primary prey of many fish in the Cook Inlet area are zooplankton swimming in the open estuarine and marine waters, benthic animals in the estuarine zone and on the shallow sea bottom, and smaller fish categorized as forage fish. Consuming oiled zooplankton prey has been identified as a likely avenue of oil exposure in fish in the *Exxon Valdez* oil spill. Euphausiids are the most important planktonic prey in oceanic and shallow coastal waters but primarily occur in upwelling waters such as the Kennedy Entrance and at the edges of the Shelikof gully. Copepods are a secondarily important prey. Some of the Cook Inlet species that depend on zooplankton include walleye pollock, Atka mackerel, sablefish rockfish and flatfish, salmon, capelin, eulachon, and Pacific herring. In western Gulf of Alaska areas, euphausiids make up more than 70% of the total consumption of walleye pollock, the dominant small fish prey of larger fish. Copepods and euphausiids more than 85% in weight of age-0 pollock diet (Cianelli and Brodeur, 1997). Section IV.B.1.c –

Lower Trophic-Level Organisms of the DEIS, contains additional information and references on the effects of the lease sale on euphausiids and copepods.

As the complex food web was incorporated into the EFH analysis, MMS also considered ecosystem functions. While there are no federal offshore oil and gas developments in Cook Inlet at this time, ecosystem-level changes are occurring in Cook Inlet from commercial fishing, sports fishing, urban development, shipping, and other commercial developments within the area. Potential effects of this oil and gas sale on the ecosystem components are difficult to separate from the causes of the changes that are already taking place. This is especially true when analyzing the potential effects of this sale on forage fish.

The structure of the forage fish community is a critical component of the ecosystem. The community relationships are complex. A number of commercial fish species such as salmon, cod, and halibut feed on forage fish. A number of forage fish, such as pollock and herring, are also commercially valued fish species

Potential effects of this lease sale or any other development depend on the “regime”, or conditions and community or ecosystem structure present at the time. The Cook Inlet commercial and forage fish community and the prey of the forage fish in Kachemak Bay (Bechtol, 1997) and Shelikof Strait (Anderson et al., 1997) has experienced a regime shift since the early 1970's. Since 1976, fish composed an increasing portion of the mean catch weight in Kachemak Bay shrimp surveys (Bechtol, 1997). Pollock appears to have been a dominant species in the Kachemak Bay ecosystem. As the shrimp population declined in the 1980's, the fish component of the survey catch increased dramatically from less than 20% to more than 80%. Walleye pollock always dominated the forage fish catch but their number and range varied widely. They generally trended toward fewer fish (decreasing by two orders of magnitude) spread throughout a greater area (in 22% of tows up to being in 90% of tows). This trend may be a result of a large number of small, young fish growing into fewer but widely distributed large, old fish.

The term “regime shift” is most often associated with the changes in the North Pacific that have resulted in many years of increased salmon runs in Alaska since the early 1970's and a corresponding reduction of salmon runs in Washington and Oregon over the same period. Implicit in the concept of regime shift is that changes occur throughout the ecosystem and a new community structure is formed (Anderson et al., 1997). Results suggest the Bering Sea ecosystem may not have returned to initial conditions after the change in physical state that occurred around 1978 (Decker et al., 1995). It is possible that the ecosystem has now reached a relative stability in which predator species suppress the production of prey species that are limited in abundance. The changes in Kodiak have been correlated with a March nearshore temperature change of about 2 °Celsius that allow cod to remain in the bays through winter instead of migrate offshore (Anderson et al., 1997). While 2 °Celsius seems like a small change, it can result in a very noteworthy ecological change, especially in cold northern ecosystems.

Two other potential causes of community structural change are overfishing and the accumulation of smaller disturbances or stresses over a number of years. In the latter case, oil-development impacts described above may well be a contributor, adding to the critical mass of changes.

For example, if an oil spill reached Shelikof Strait it could impact the major concentration of pollock reproduction and early growth for the entire central Gulf of Alaska. The smaller eddies that form in certain environmental conditions normally promote higher survival and growth of pollock larvae. However, these same small eddies could also retain and concentrate spilled oil, severely impacting pollock by resulting in decreased survival. The cumulative stresses could have more far-reaching and long-lasting effects on the balance within the ecosystem. Individual small effects could add to stresses already present to alter balances between species that could suddenly shift the system into another very different and unpredicted ecological regime.

3.3 Effects to Habitat Areas of Particular Concern

Living substrates in shallow and deep waters (corals, sponges, mussels, rockweed, and kelp) and freshwater habitats used by anadromous fish were identified by the NPFMC as HAPC (<http://www.afsc.noaa.gov/groundfish/HAPC/HAPC.htm>).

Waterways used by anadromous fish and living substrates in estuarine, subtidal, and intertidal areas may experience adverse impacts resulting from small, frequent oil spills and/or one or more large oil spills. Impacts may destroy living substrates in shallow and intertidal waters if contacted by moderate to heavy concentrations of oil and subsequently affect proximate community assemblages and structure. Such impacts may take decades for habitats and communities to recover to their pre-oil spill status, although proximate community organization may never be achieved. Recolonization and recovery of impacted habitat areas of concern in estuarine and intertidal waters will depend in part on the magnitude of spill contact, the proximity of source populations, transport vectors and barriers, and amounts of oil entrapped in habitat sediments. Recolonization and recovery can be delayed for months and years depending on a suite of variables.

3.4 Effectiveness of Mitigating Measures

Standard Stipulations and Notices to Lessees, which are listed in Section II.F of the DEIS, are considered mitigation measures. Stipulation No. 1 - Protection of Fisheries relates to conflicts with the fishing community and their gear. It does not relate directly to fish or essential fish habitat.

Stipulation No. 2 could most directly relate to EFH mitigation. Stipulation No. 2 - Protection of Biological Resources applies to biological populations or habitats that are identified by the Regional Supervisor, Field Operations, MMS. The Field Operations Supervisor may require biological surveys and, based on the surveys or other information available, require relocation,

modification, or time restrictions of operations. Lessees are required to report any area of biological significance they discover and submit all data obtained in the course of biological surveys. There are no reports indicating that any biological surveys, relocations, or modifications have resulted from Stipulation No. 2 in previous sales.

Oil-spill related ITL clauses notify lessees of legal requirements enforced by other agencies. The ITL clauses to be incorporated in the lease include ITL's No. 3 and No. 5. ITL No. 3 - Sensitive Areas in Oil-Spill-Response Plans identifies specific areas to be considered in oil-spill-response planning. Kamishak Bay has high value for essential fish habitat and is specifically identified for consideration in oil-spill-response planning. The ITL No. 3 also requires prior approval before dispersants are used. ITL No. 5 - Information on Oil-Spill-Response Preparedness advises lessees that they must be prepared to respond to oil spills.

The ITL's No. 4 and No. 6 reaffirm regulations of other Federal and State of Alaska agencies related to water quality. ITL No. 4 - Information on Coastal Zone Management refers to regulations of the State of Alaska, Division of Governmental Coordination whereby state agencies and coastal districts adjacent to the activity review these plans for consistency with their Coastal Management Programs. The ITL No. 6 - Drilling Fluids and Cuttings Discharge during Post-Lease Activities refers to National Pollution Discharge Elimination System permits issued by the Environmental Protection Agency.

4.0 EFH Conservation Recommendations

NMFS and MMS have agreed that the use of a programmatic consultation as outlined in 50 CFR 600.920 (j) is the most expeditious method to implement the EFH consultation requirements of the Magnuson-Stevens Act for the proposed lease sales in the Cook Inlet planning area. MMS has determined that proposed lease sales 191 and 199 could adversely affect EFH. Although this programmatic consultation document discusses potential adverse effects to EFH as a result of activities associated with production and development, this consultation is for activities associated with leasing and exploration only. Should MMS determine that proposed development and production for a specific project would adversely affect EFH, a separate consultation will be necessary at that time.

MMS has determined that adverse effects to EFH from a lease sale would result from routine activities that may including permitted drilling discharges, offshore and onshore construction activities, and seismic surveys. Accidental activities that may affect fisheries resources include exposure to hydrocarbons as a result of an oil spill. The following represent NMFS **EFH Conservation Recommendations**

1. MMS's Proposed Action, described in the Cook Inlet DEIS as Alternative I, consists of the Cook Inlet multiple-sale area which includes 517 whole or partial blocks covering 2.5 million acres in Cook Inlet. The DEIS offers three additional alternatives; the no action alternative and two alternative deferral areas, known as Alternative III and Alternative IV.

NMFS recommends the adoption of Alternative III and IV of the DEIS as preferable to Alternative I.

Rationale - This recommendation was previously provided to MMS under a separate cover dated January 30, 2003 from the NEPA coordinator for the National Oceanic and Atmospheric Administration. Alternative III (lower Kenai Peninsula Deferral), would reduce the potential for adverse effects on subsistence fish resources and associated habitat. Alternative IV (Barren Islands Deferral) offers meaningful benefit to the protection of locally important living marine resources including EFH.

2. Limit the discharge of produced waters into marine and estuaries environments. As a condition of the lease sale, require reinjection of produced waters into the oil formation whenever possible.

Rationale - The DEIS states that produced waters are expected to be reinjected back into the underlying formations as is now done for the Osprey platform. As the DEIS also notes, produced water has been a concern for Cook Inlet because of the types of naturally occurring substances they may carry and the manmade substances that may be added and because of the EPA's Cook Inlet exemption to zero discharge. NMFS understands that this permitting process is the purview of the EPA. However, but for MMS offering this area for lease, there would be no possibility for such an activity to take place.

3. Avoid discharge of muds and cuttings into the marine and estuarine environment. Use methods to grind and reinject such wastes down the well hole or use onshore disposal, and /or use non-toxic drilling muds wherever possible.

Rationale - The DEIS states that drilling muds and cuttings are the most significant discharge during exploration drilling. Again, while these discharges may be regulated by the EPA, it is the actions resulting from the lease sale that make such regulation necessary. The DEIS states that over the next 5 to 10 years municipal wastewater and seafood waste are estimated to contribute double the inputs of oil industry produced waters. To reduce the cumulative effects of all sources, it is important to inject produced waters, muds and cuttings downhole.

4. Encourage the use of geographic response strategies that identify EFH and environmentally sensitive areas and identify appropriate cleanup methods to include the prestaging of response equipment, description of dispersants and any considerations or restrictions for their use in Cook Inlet.

Rationale - Many factors determine the degree of damage from a spill, including the type of oil, size and duration of the spill, geographic location of the spill, and the season. While oil is toxic to all marine organisms at high concentrations, certain species and certain life stages are more sensitive than others. Likewise, response scenarios can vary depending on the species, life stage and geographic area including the type of habitat

impacted. Therefore, it is important that responders have the information and tools necessary to avoid exacerbating damage to EFH as a result of clean-up activities.

5. Prohibit drilling exploration wells into untested formations during broken ice conditions.

Rationale - Should a well blowout occur during exploration drilling, hazardous or adverse environmental conditions would make response activities dangerous and difficult.

5.0 Conclusion

Based on our review of the information provided by MMS for the EFH consultation on the federal oil and gas leasing and exploration sales 191 and 199 within Cook Inlet, Alaska planning area, NMFS has provided the EFH conservation recommendations above to avoid and minimize adverse effects to EFH. This programmatic consultation covers the proposed lease sales 191 and 199 only, and does not cover existing lease sales in the Cook Inlet Planning area. This programmatic consultation addresses the incremental step of leasing and exploration. Its purpose is to provide an assessment of those actions on EFH, as well as to recommend conservation measures to avoid and mitigate any potential adverse effects.

The EFH assessment contained in the DEIS, and the additional information provided by MMS, presented information on expected development and production as a result of the lease sales. However, the subsequent phases of OCS development, production, transportation and abandonment will require additional consultation due in part to the uncertainty and variables associated with individual tract development. Should commercially producible quantities of oil be discovered and development and production be proposed, MMS should determine whether the proposed activity may adversely affect EFH, and initiate consultation, if necessary.

6.0 Revision Tracking and Review

This consultation remains in effect for a period of five years. If any changes are made to MMS programs during that time, MMS should contact NMFS so that the conservation recommendations can be revised if necessary. At the end of the five-year period, MMS should provide NMFS with a report on the leasing activities and the tracts in which those activities occurred. This information will be part of the review to determine if the programmatic conservation recommendations need to be revised. This review should be initiated by MMS to ensure that the conservation recommendations are based on the best scientific information currently available.

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Online Resources

<http://www.afsc.noaa.gov/groundfish/HAPC/HAPC.htm>

<http://www.state.ak.us/adfg/notebook/fish>

<http://www.state.ak.us/adfg/notebook/fish/chinook.htm>

<http://www.state.ak.us/adfg/notebook/fish/chum.htm>

<http://www.state.ak.us/adfg/notebook/fish/coho.htm>

http://www.state.ak.us/adfg/notebook/fish/dolly_v.htm

<http://www.state.ak.us/adfg/notebook/fish/eulachon.htm>

<http://www.state.ak.us/adfg/notebook/fish/halibut.htm>

<http://www.state.ak.us/adfg/notebook/fish/herring.htm>

<http://www.state.ak.us/adfg/notebook/fish/pink.htm>

<http://www.state.ak.us/adfg/notebook/fish/sockeye.htm>

<http://www.state.ak.us/adfg/notebook/fish/steelhd.htm>

<http://www.afsc.noaa.gov/groundfish/HAPC/HAPC.htm>

<http://www.state.ak.us/adfg/notebook/shellfish>

<http://www.state.ak.us/adfg/notebook/shellfish/dungie.htm>

<http://www.state.ak.us/adfg/notebook/shellfish/kingcrab.htm>

<http://www.state.ak.us/adfg/notebook/shellfish/shrimp.htm>

<http://www.state.ak.us/adfg/notebook/shellfish/tanner.htm>

http://www.oilspill.state.ak.us/facts/status_herring.html



United States Department of the Interior



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AUG 13 2003

Dr. James Balsiger
Administrator, Alaska Region
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

Dear Dr. Balsiger:

We received your letter of July 8, 2003 providing us with your Essential Fish Habitat (EFH) Programmatic Consultation document for activities associated with leasing and exploration from proposed lease sales 191 and 199. Section 4.0 of the document provided several EFH conservation recommendations for our consideration. The following are our responses to the conservation recommendations, as required by 50 CFR §600.920.

Response to Recommendation No. 1: Your recommendation for the deferral of Alternatives III and IV are under MMS consideration. However, this determination will not be made before the conclusion of our 30-day response period allowed under the EFH final rule. The final decision delimiting the extent of lease sales and other terms and conditions of sales rests with the Secretary of the Interior. Your recommendation will be presented to and discussed with the Secretary for consideration.

Response to Recommendation No. 2: Although this EFH consultation is limited to leasing and exploration activities, we noted your concern regarding produced waters in Cook Inlet. Produced waters are generated as a result of development and production activities, rather than exploration activities. The Environmental Protection Agency (EPA) has the regulatory authority to require re-injection of produced waters or other discharges. The EPA establishes regulations for discharges, based in part on the best available science. The current General NPDES permit for Cook Inlet includes future exploratory operations in Cook Inlet north of the line between Cape Douglas on the west and Chatham on the east, and authorizes discharges that include produced water, among others. However, in comments concerning the DEIS, the EPA stated that "for new sources, re-injection of produced waters and drilling fluids and cuttings is the practice and discharge is the exception." Information to Lessees (ITL) No. 5, Drilling Fluids and Cuttings Discharge during Post-Lease Activities, advises lessees that the "EPA may require methods for disposing of drilling fluids and cuttings other than discharge into the marine environment." The ITL notes that the "MMS will work with the Environmental Protection Agency to examine the technically and economically feasible methods for disposal of drilling fluids and cuttings and their environmental effects during post-lease activities."

The MMS will not make the re-injection of produced waters a condition of the lease sales. We believe that decision is the responsibility of EPA, the agency with the regulatory authority on discharges. Letting that decision reside with EPA will help avoid regulatory conflicts and confusion. Nonetheless, the MMS will initiate an EFH consultation for any OCS development and production activities that may adversely impact EFH, should such activities be proposed.

Response to Recommendation No. 3: As noted in our response to the previous recommendation, the EPA has the authority and enforcement responsibilities concerning discharges. The MMS will respect the EPA's authority and follow its regulations in the permitting process for discharges into the environment. Currently, the discharge of water based drilling muds and cuttings during exploration is allowed in Cook Inlet under the existing General NPDES Permit.

Response to Recommendation No. 4: The MMS recognizes the importance of geographic response strategies as a tool applicable to oil-spill-response prevention and preparedness. The MMS supported the development of the Cook Inlet geographic response strategies that identified sensitive areas and developed site-specific responses for these areas. This effort was facilitated through a joint industry/Alaska/Federal agency working group through a contract administered by the Cook Inlet Regional Citizens Advisory Council. Offshore oil and gas operators, through their participation in and support of the Cook Inlet Spill Prevention and Response, Inc., have contributed to the development of the geographic response strategies in Cook Inlet.

The Information to Lessees clauses, contained in Section II.F.2 of the DEIS, which are considered part of the proposed action, address the items in Conservation Recommendation No. 4.

Information to Lessees No. 3—Sensitive Areas to be Considered in Oil Spill Response Plans, contained in Section II.F.2.c of the EIS, advises lessees of identified areas of biological and cultural sensitivity; that they have the responsibility to identify these areas in their plans and provide specific protective measures; that they should be familiar with geographic response strategies being produced for the area; that additional areas may be identified during review of exploration plans and development and production plans; and that response plans should consider whether use of dispersants is an appropriate tactic in the vicinity of an area of special biological and cultural sensitivity.

Information to Lessees No. 5—Information on Oil-Spill-Response Preparedness, contained in Section II.F.2.e of the EIS, advises lessees that sections of particular concern of the Oil Spill Response Plan submitted for approval in accordance with 30 CFR 254 include the specific actions to be taken in the event of a spill and the location and appropriateness of oil-spill equipment.

Response to Recommendation No. 5: The MMS rejects Conservation Recommendation No. 5 to prohibit exploratory drilling into untested formations during broken ice conditions. The MMS does not concur with the NMFS that oil spill response during broken ice conditions is a basis for a drilling restriction. The MMS does not believe that the recommended drilling restriction

avoids, minimizes, mitigates or offsets potential affects to the essential fish habitat in any meaningful way.

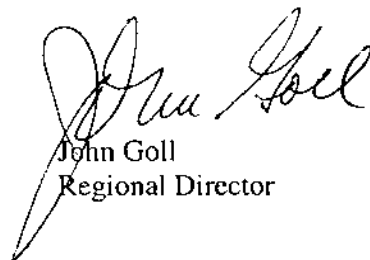
While the rationale is based on the presumption that oil spill response activities would be difficult and dangerous, the apparent objective of the recommendation is to assure that oil spills do not occur or persist during broken ice conditions. However, Conservation Recommendation No. 5 does not address a number of key issues. In particular, it does not address the probability of an oil spill from an exploratory well, define the type and nature of broken ice conditions under which drilling should be restricted, describe the type and nature of ice conditions in the lower Cook Inlet or specify the oil spill response tactics that would be employed.

The risk of an oil spill from an exploratory well blowout is small. For operations conducted on the US Outer Continental Shelf since 1971, the loss of well control from drilling over 15,000 exploratory wells accounted for only two spills that were greater than 5 bbl—a 100-bbl spill in 1992 and a 200-bbl spill in 2000. Based on this experience, the MMS believes that an oil spill larger than 5 bbl resulting from exploratory drilling operations would be highly unlikely to occur. MMS regulations include provisions for redundant safety systems and personnel training, and have been effective in essentially eliminating spills from exploratory drilling. Additionally, the MMS conducts an active inspection program to determine the operator's compliance with the regulations.

Furthermore, sea ice is not a major constraining factor in oil spill response in lower Cook Inlet. Sea ice, while prevalent in the upper Cook Inlet, is significantly lower in concentration and duration in the proposed lease sale area in the lower Cook Inlet. Ice conditions in lower Cook Inlet can be characterized roughly as occasional incursion of ice flows from upper Cook Inlet and generally may occur from November through April. New ice may form along the coast, particularly in bays and estuaries as early as October. In both of these types of conditions, response tactics and equipment are available to respond to oil spills. These tactics employ free skimming systems operating within moving ice, conventional booms and skimmers in stable ice conditions, natural dispersion, monitoring spill movement during extreme tides, and use of non-mechanical response options (in situ burning and dispersants). These tactics and equipment exist for upper Cook Inlet and would be adopted and applied in lower Cook Inlet.

The conservation recommendation could result in drilling restrictions for up to 7 months out of the year when any broken ice could be present in the planning area. Administration of this restriction would require monitoring basin wide ice conditions and adjusting drilling schedules on a daily basis as ice conditions fluctuate. Therefore, due to the negligible risk of an oil spill from an exploratory well blowout, and the fact that this measure is not a reasonable or practicable measure to implement, the MMS does not believe that adoption of Conservation Recommendation No. 5 is warranted.

Thank you for the opportunity to consult on these proposed lease sales. If you should have any technical questions, please call Mr. Jeff Childs at (907) 271-6690. If you have additional comments regarding this matter, please call me at (907) 271-6010 so that we may discuss any unresolved concerns.



John Goll
Regional Director

APPENDIX E

APPLICABLE LAWS REGULATORY RESPONSIBILITIES AND EXECUTIVE ORDERS

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APPENDIX E: APPLICABLE FEDERAL LAWS, REGULATORY RESPONSIBILITIES, AND EXECUTIVE ORDERS

This appendix briefly explains or summarizes only those portions of Federal public laws enacted by Congress (see the list of legal mandates in Section I.B of this EIS) and other applicable Federal regulatory responsibilities, executive orders, and stipulations (mitigating measures) as they relate directly or indirectly to Minerals Management Service's management of mineral leasing, exploration and development, and production activities on leases located in the submerged lands of the Outer Continental Shelf (OCS). Additionally, this section includes responsibilities and jurisdictions of other Federal Agencies and departments involved in the regulatory process of oil and gas lease sales and operations on the OCS. This is not intended to be a comprehensive summary or explanation of all the laws associated with proposed leasing, exploration and development, and production activities that might significantly affect the OCS. References, explanations, or summaries are given only to acquaint the reader with the law and are not meant as legal interpretations. Readers always should consult the entire text of the laws for updates and additional requirements and information.

A. FEDERAL LAWS AND REGULATORY RESPONSIBILITIES

A.1. The Outer Continental Shelf Lands Act

A jurisdictional dispute concerning the ownership of coastal submerged lands arose as new technology became available for developing offshore oil resources in increasingly deeper waters. This dispute was resolved in 1953 by two congressional statutes that clarified Federal and State rights and responsibilities for the "continental shelf" (the submerged lands extending from the coastline to the edge of the continental slope). The first statute, the Submerged Lands Act of 1953 (43 U.S.C. § 1331 et seq.), affirmed the coastal states' assertion of ownership of the submerged lands and resources within a 3-mile belt seaward of the line of low tide. The second statute, the OCS Lands Act of 1953, as amended (43 U.S.C. § 1331 et seq.), established that the submerged lands and resources of the OCS beyond 3 miles "appertained to the United States and [were] subject to its jurisdiction, control, and power of disposition." The OCS Lands Act authorizes the Secretary of the U.S. Department of the Interior to issue mineral leases and grant rights-of-way and to prescribe regulations governing oil and gas activities on OCS lands.

The OCS Lands Act defines the OCS as:

...all submerged lands lying seaward and outside of the areas lands beneath navigable waters as defined in section 2 of the Submerged Lands Act and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control.

The pertinent provision of the Submerged Lands Act defines “navigable waters” as:

...all lands permanently or periodically covered by tidal waters up to but not above the line of mean high tide and seaward to a line three geographical miles distant from the coast line of each such State and to the boundary line of each State where in any case such boundary as it existed at the time such State became a member of the Union, or as heretofore approved by Congress, extends seaward (or into the Gulf of Mexico) beyond three geographical miles....

Under the OCS Lands Act, the U.S. Department of the Interior is required to:

- Make Federal OCS resources available to meet the Nation’s energy needs;
- Conduct, develop, and manage the orderly leasing, exploration, development, and production of mineral resources on the Federal OCS;
- Balance orderly energy resource development while ensuring the protection of the human, marine, and coastal environments;
- Ensure that the public receives a fair and equitable return for Federal OCS resources; and
- Ensure that free-enterprise market competition is preserved and maintained.

The Secretary of the Interior has delegated the responsibility of managing and regulating the development of OCS oil and gas resources in accordance with the provisions of the OCS Lands Act to the Minerals Management Service.

The Minerals Management Service leasing regulations are presented in Chapter 30, Code of Federal Regulations (CFR) part 256. The Minerals Management Service operating regulations governing exploration, development, and production on OCS leases are presented in 30 CFR parts 250 and 270.

The OCS Lands Act extends the authority of the Secretary of the Army, through the U.S. Army Corps of Engineers, to the OCS to prevent obstruction to navigation in United States navigable waters.

The OCS Lands Act grants authority to the U.S. Coast Guard to promulgate and enforce regulations covering lighting and warning devices, safety equipment, and other safety-related matters pertaining to life and property on fixed OCS platforms and drilling vessels.

In accordance with the OCS Lands Act (43 U.S.C. § 1354) and the Export Administration Act of 1969 (50 App. U.S.C. §2405(d)), oil that is produced on the United States OCS must go to a United States port.

A.2. The National Environmental Policy Act of 1969 and the Council on Environmental Quality

The National Environmental Policy Act of 1969, as amended (42 U.S.C. § 4321 et seq.), is the foundation of environmental policymaking in the United States. Recognizing the profound impact of human activity on the interrelations of all components of the natural environment, Congress declares in National Environmental Policy Act that it is the continuing policy of the Federal Government, in cooperation with State and local governments and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare; to create and maintain conditions under which humans and nature can exist in productive harmony; and to fulfill the social, economic, and other requirements of present and future generations of Americans. Congress authorizes and directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in National Environmental Policy Act. The National Environmental Policy Act process is intended to help Federal officials make decisions based on an understanding of environmental consequences and take actions that protect, restore, and enhance the environment.

National Environmental Policy Act established two primary mechanisms for this purpose:

1. The Council on Environmental Quality was established to advise Federal Agencies on the environmental decisionmaking process and to oversee and coordinate the development of Federal environmental policy.
2. Federal Agencies must include an environmental review process early in the planning for proposed actions.

Congress first established the Council on Environmental Quality as part of the National Environmental Policy Act. Additional responsibilities were provided by the Environmental Quality Improvement Act of 1970. The Council on Environmental Quality established uniform procedures by issuing regulations (40 CFR, parts 1500 through 1508) to implement the procedural provisions of National Environmental Policy Act. These regulations include procedures to be used by Federal Agencies for the environmental review process. The regulations provide for the use of the National Environmental Policy Act process to identify and assess reasonable alternatives to proposed Federal actions that avoid or minimize adverse effects of these actions on the quality of the human environment.

National Environmental Policy Act requires all Federal Agencies to use a systematic, interdisciplinary approach to protect the human environment. Such an approach ensures the integrated use of natural and social sciences in any planning and decisionmaking that may have an impact on the environment. National Environmental Policy Act also requires the preparation of a detailed environmental impact statement (EIS) on any major Federal action that may have a significant impact on the environment. The EIS must address any adverse environmental effects that cannot be avoided or mitigated, alternatives to the Proposed Action, the relationship between short-term resources and long-term productivity, and irreversible and irretrievable commitments of resources. Environmental assessments (EA's) are prepared to determine if significant impacts may occur. If an EA finds that significant impacts may occur, National Environmental Policy Act requires the preparation of an EIS. The briefest form of National Environmental Policy Act review is the categorical exclusion review, which verifies that neither an EA nor an EIS is needed before making a decision on the activity being considered for approval.

For compliance with the National Environmental Policy Act, see 40 CFR, parts 1500 through 1508.

A.3. The Clean Air Act of 1970 and the Clean Air Act Amendments of 1990

The Clean Air Act of 1970 (42 U.S.C. § 7401 et seq.), authorizes the U.S. Environmental Protection Agency (EPA) to establish National (primary or secondary) standards within air-quality-control regions of each state in addition to National emission standards for hazardous air pollutants (National Ambient Air Quality Standards). The Act requires Federal departments or agencies that have jurisdiction over any property or facility or that are engaged in any activity resulting from the discharge of air pollutants to comply with all Federal, State, interstate, and local requirements in the control and abatement of air pollution. Section 5(a)(8) of the OCS Lands Act requires Minerals Management Service, through the Secretary of the Interior, to ensure that OCS regulations incorporate and comply with National Ambient Air Quality Standards.

Section 309 requires the EPA to review and comment on the environmental impact of certain proposed actions of other federal agencies in accordance with the National Environmental Policy Act (NEPA). The comments must be in writing and made available to the public at the conclusion of a review. If the EPA determines that the proposed action is unsatisfactory from the standpoint of public health or welfare or environmental quality, they must publish that determination and the matter must be referred to the Council on Environmental Quality.

The 1990 Clean Air Act Amendments delineate jurisdiction of air quality between the U.S. Environmental Protection Agency and the U.S. Department of the Interior, Minerals Management Service and affect the attainment and maintenance of National Ambient Air Quality Standards (Title I), motor vehicles and fuel reformulation (Title II), hazardous air pollutants (Title III), acid deposition (Title IV), facility operating permits (Title V), stratospheric ozone protection (Title VI), and enforcement (Title VII).

Section 328 of the Clean Air Amendments transfers authority for air quality on the OCS to the U.S. Environmental Protection Agency. Under the Clean Air Amendments, the Secretary of the Interior is required to consult with the U.S. Environmental Protection Agency “to assure coordination of air pollution control regulations for OCS emissions and emissions in adjacent onshore areas.” On September 4, 1992, the U.S. Environmental Protection Agency promulgated requirements (40 CFR, part 55) to control air pollution from OCS sources to attain and maintain Federal and State air-quality standards and to comply with Clean Air Amendments provisions for the Prevention of Significant Deterioration. The promulgated regulations require OCS sources to comply with applicable onshore air-quality rules in the corresponding onshore area.

On November 30, 1993, the U.S. Environmental Protection Agency instituted final rules for determining general conformity of Federal actions with Federal and State air-quality implementation plans. Section 176(c) of the Clean Air Amendments, the General Conformity Rule, requires Federal Agencies to ensure that actions undertaken in nonattainment or maintenance areas are consistent with the applicable implementation plan. A Federal Agency must make a determination that a Federal action conforms to the applicable implementation plan before the Federal action is taken.

To comply with the Clean Air Amendments, the Minerals Management Service established regulations to address air quality concerning OCS operations. These regulations are found under 30 CFR 250.302, 250.303, and 250.304. The regulated pollutants include carbon monoxide, particulates, sulfur dioxide, nitrogen oxides, and volatile organic compounds (as a precursor to ozone). In areas where hydrogen sulfide may be present, OCS operations are regulated by 30 CFR 250.417. The Minerals Management Service regulations allow for the collection of information about potential sources of pollution for the purpose of determining whether the projected emissions of air pollutants from a facility could result in ambient onshore air-pollutant concentrations above maximum levels provided in the regulations. These regulations also stipulate appropriate emissions controls considered necessary to prevent accidents and air-quality deterioration.

A.4. The Federal Water Pollution Control Act and Clean Water Act

The Federal Water Pollution Control Act of 1972, as amended (33 U.S.C. § 251 et seq.), established water-pollution-control activities to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters. The Clean Water Act of 1977 (91 Stat. 1566) amended the Federal Water Pollution Control Act. Most activities are administered by the U.S. Environmental Protection Agency.

Title III of the Clean Water Act requires the U.S. Environmental Protection Agency to establish national effluent limitation standards for existing point sources of wastewater discharges that reflect the application of the best practical control technology currently available. These standards apply to existing OCS exploratory drillships, semisubmersible vessels, and jackup rigs used in exploration activities. The Clean Water Act also requires the U.S. Environmental Protection Agency to establish regulations for effluent limitations for categories and classes of point sources that require the application of “best available control technology economically achievable.”

Section 311 of the Clean Water Act (33 U.S.C. § 1321), as amended, prohibits the discharge of oil or hazardous substances into the navigable waters of the United States that may affect natural resources, except under limited circumstances, and establishes civil penalty liability and enforcement procedures to be administered by the U.S. Coast Guard.

Title IV of the Clean Water Act establishes requirements for Federal permits and licenses to conduct an activity (including construction or operation of facilities) that may result in any discharges into navigable waters. Section 402 of the Clean Water Act (33 U.S.C. § 1342) gives the U.S. Environmental Protection Agency the authority to issue National Pollutant Discharge Elimination System permits for discharges of any pollutant from a point source into navigable waters. The National Pollutant Discharge Elimination System permits are issued in compliance with U.S. Environmental Protection Agency’s guidelines for

determining the degradation of marine waters, and they apply to all sources of wastewater discharges from exploratory vessels and production platforms operating on the OCS.

Section 404 of the Clean Water Act (33 U.S.C. § 1344) authorizes issuance of permits, under certain criteria, for discharge of dredged or fill material into navigable waters at specified disposal sites. The Secretary of the Army, acting through the U.S. Army Corps of Engineers, has the authority to administer Section 404. Permits may be issued only after a determination is made that the activities involving discharges of dredged or fill material are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effects on the environment.

Pursuant to the 1984 Memorandum of Understanding between the U.S. Environmental Protection Agency and the U.S. Department of the Interior concerning the coordination of National Pollutant Discharge Elimination System permit issuance with the OCS oil and gas lease program, the Minerals Management Service Alaska OCS Region and the U.S. Environmental Protection Agency Region 10 entered into a Cooperating Agency Agreement to prepare EIS's for oil and gas exploration and development and production activities on the Alaskan OCS. Section 402 of the Clean Water Act authorizes the U.S. Environmental Protection Agency to issue National Pollutant Discharge Elimination System permits to regulate discharges to waters of the United States, including the territorial seas, contiguous zone, and oceans. The National Pollutant Discharge Elimination System permits for OCS oil and gas facilities many contain effluent limitations developed pursuant to sections of the Clean Water Act, including sections 301, 302, 306, 307, and 403. With the offshore subcategory under the Clean Water Act, the U.S. Environmental Protection Agency may have National Environmental Policy Act responsibilities for permits issued to new sources (Section 306 of the Clean Water Act), that overlap with those of the Minerals Management Service. The U.S. Environmental Protection Agency's primary role in the Cooperating Agency Agreement is to provide expertise in those fields specifically under its mandate.

In conjunction with the issuance of an National Pollutant Discharge Elimination System permit, the U.S. Environmental Protection Agency is responsible for publishing an Ocean Discharge Criteria Evaluation that evaluates the impacts of waste discharges proposed for oil and gas projects. The purpose of the Ocean Discharge Criteria Evaluation is to demonstrate whether or not a particular discharge will cause unreasonable degradation to the marine environment.

For multiple-use conflicts, see the U.S. Environmental Protection Agency listing of ocean-dumping sites found under 40 CFR part 228.

The Minerals Management Service pollution prevention and control regulations are found under 30 CFR 250.300.

A.5. The Coastal Zone Management Act and the Coastal Zone Reauthorization Amendments

Congress passed the Coastal Zone Management Act of 1972, as amended (16 U.S.C. § 1451 et seq.) and created the Coastal Zone Management Program to improve the management of the Nation's coastal areas. Both the Coastal Zone Reauthorization Amendments of 1990 (P.L. No. 101-508), enacted November 5, 1990, and the Coastal Zone Protection Act of 1996 (P.L. No. 104-150), enacted June 3, 1996, amended and reauthorized the Coastal Zone Management Act. The Program, a voluntary partnership between the Federal Government and the coastal states and territories, is administered at the Federal level by the National Oceanic and Atmospheric Administration within the U.S. Department of Commerce. The Program's goal is to reduce conflict between environmental and economic interest in the coastal area through the use of federally approved coastal management programs. Each state's coastal zone management program sets forth objectives, policies, and standards regarding public and private use of land and water resources in that state's coastal zone.

The Coastal Zone Management Act allows a coastal state or territory with a federally approved coastal management program to review Federal activities for Federal consistency. Consistency applies whenever a Federal activity initiates a series of events where coastal effects are reasonably foreseeable (see H.R. Rep.

No. 1012, 96th Cong., 2d Sess. 4382). The Coastal Zone Management Act requirement that all Federal activity, including OCS oil and lease sales, regardless of location (in or outside the coastal zone) that is reasonably likely to affect any land or water use or natural resource of the coastal zone be consistent with the enforceable policies of a state's/territory's coastal management program. Section 307 of the Coastal Zone Management Act (16 U.S.C. § 1456) contains the following Federal consistency provisions that impose certain requirements on Federal Agencies to comply with enforceable policies detailed in the federally approved coastal management programs:

Section 307(c)(1) requires that Federal Agencies must conduct their activities, regardless of location, if coastal effects are reasonably foreseeable, that affects any land or water use or natural resources of the coastal zone in a manner that is fully consistent to the maximum extent practicable with enforceable policies of the affected state's coastal zone management program. This section applies to OCS lease sales. On May 3, 1995, the Minerals Management Service Regional Director, Alaska OCS Region, and the Director, Alaska Division of Governmental Coordination signed a Memorandum of Understanding Between State of Alaska Division of Governmental Coordination and U.S. Department of the Interior, Minerals Management Service Alaska OCS Region. This document facilitates and coordinates both agencies' efforts with respect to consistency determination procedures prior to Minerals Management Service Alaska OCS Region's oil and gas lease sales.

Section 307(c)(3)(A) requires that any Federal licenses/permits affecting any land or water use or natural resources of the coastal zone be consistent with enforceable policies of the state's coastal management program. This section applies to geological and geophysical permits. Additionally, this section prohibits the Federal Agency from issuing the license/permit until the affected state(s) has concurred with or presumed to concur with the applicant's consistency certification or until the Secretary of Commerce has overridden the state's consistency objection to the licensed/permitted activity.

Section 307(e)(3)(B) requires that activities affecting any land or water use or natural resources of the coastal zone, described in detail in OCS exploration or development and production plans, be consistent with enforceable policies of the state's coastal management program. The Minerals Management Service is prohibited from approving an OCS plan until the affected state(s) has concurred with or is presumed to concur with the applicant's consistency certification, or until the Secretary of Commerce has overridden the state's consistency objection. On August 7, 1980, a Memorandum of Understanding Between Division of Policy and Development and Planning and U.S. Geological Survey was signed between the State of Alaska and Minerals Management Service (formerly USGS). This document establishes procedures for coordinating plans and programs for consistency review and includes procedures for approvals of exploration plans, development and production plans, and other licenses and permits for OCS activities.

On December 8, 2000, National Oceanic and Atmospheric Administration revised the regulations that implement the Federal consistency provisions of the Coastal Zone Management Act with federally approved coastal management program's. These regulations are found under 15 CFR § 930.

The Minerals Management Service regulations for Coastal Zone Management Act consideration affecting OCS lease sales are found under 30 CFR 256.20. The Minerals Management Service regulations for Coastal Zone Management Act consideration affecting OCS operations and/or permit activities are found under 30 CFR 250.203, 250.204, 250.414, and 250.417.

A.6. The Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 (42 U.S.C. § 6213 et seq.) prohibits joint bidding by major oil and gas producers. Bidders submitting bids on OCS leases are subject to the provisions of 18 U.S.C. 1860, prohibiting unlawful combination or intimidation of bidders (30 CFR 256.46(f)).

The Minerals Management Service authority and regulations for compliance with the Energy Policy and Conservation Act of 1975 are found under 30 CFR 256.4, 256.41, and 256.44.

A.7. The Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972, as amended (16 U.S.C. § 1361 et seq.) was enacted to ensure that marine mammals are maintained at or, in some cases, restored to healthy population levels.

Jurisdiction and regulatory responsibility for the conservation and protection of these marine mammals under the Marine Mammal Protection Act is split between two Federal Agencies. The Secretary of the Interior is responsible for walruses, polar bears, sea otters, manatees, and dugongs and has delegated this responsibility to the Fish and Wildlife Service. The Secretary of Commerce is responsible for the protection of all other marine mammals (i.e., cetaceans and pinnipeds [except walruses]) and has delegated the authority for implementing the Marine Mammal Protection Act to the National Marine Fisheries Services.

The Marine Mammal Commission is responsible for reviewing and advising Federal Agencies on the protection and conservation of marine mammals. The commission has a Committee of Scientific Advisors that provides advice on actions needed to fulfill the purposes of the Marine Mammal Protection Act. The commission is authorized to make recommendations on the prohibition of taking and importing marine mammals and marine mammal products, except as expressly provided for by an international treaty, convention, or agreement to which the United States is a party.

The Marine Mammal Protection Act established a moratorium on the taking or importing of marine mammals in waters under United States jurisdiction except during certain activities that are regulated and permitted. Such activities include scientific research, public display, and the incidental take of marine mammals in the course of commercial-fishing operations. The Marine Mammal Protection Act defines “take” to mean “hunt, capture, or kill or attempt to harass, hunt, capture, or kill any marine mammal.” “Harass” is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns including, but not limited to, migrating, breathing, nursing, breeding, feeding, or sheltering.

The moratorium may be waived when the affected species or population stock is within its optimum sustainable population range and would not be disadvantaged by authorized taking (for example, be reduced below its maximum net productivity level), which is the lower limit of the optimum sustainable population range. On request, the Secretary (of either the U.S. Department of the Interior or the U.S. Department of Commerce, depending on jurisdiction) can authorize the unintentional taking of small numbers of marine mammals incidental to activities other than commercial fishing (for example, offshore oil and gas exploration and development) when, after notice and opportunity for public comment, the Secretary finds that the total of such taking during the 5-year (or less) period would have a negligible impact on the affected species. Also, the Secretary will withdraw, or suspend for a specified time, permission to take marine mammals incidental to oil and gas production, and other activities if the applicable regulations concerning the methods of taking, monitoring, or reporting are not being complied with, or the taking is having, or may be having, more than a negligible impact on the affected species or stock.

In 1994, a new subparagraph (D) was added to Section 101(a)(5) of the Marine Mammal Protection Act to simplify the process of obtaining “small take” exemptions when unintentional taking is by incidental harassment only. Specifically, the incidental take of small numbers of marine mammals by harassment can now be authorized for periods of up to 1 year without the rulemaking as required by Section 101(a)(5)(A), which remains in effect for other authorized types of incidental taking.

To ensure that activities on the OCS adhere to Marine Mammal Protection Act regulations, the Minerals Management Service must actively seek information concerning impacts of OCS activities on local species of marine mammals. The Marine Mammal Protection Act provides exemptions to taking of certain marine mammals by Alaskan Natives under certain conditions. The Minerals Management Service coordinates with the Fish and Wildlife Service and National Marine Fisheries Services to ensure that the Minerals Management Service and offshore operators comply with the Marine Mammal Protection Act and to identify mitigation and monitoring requirements for permits or approvals for OCS activities, such as seismic surveys and platform removals.

A.8. The Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703-712), is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources.

The Migratory Bird Treaty Act governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nests. The take of all migratory birds is governed by the Migratory Bird Treaty Act's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent overutilization. Section 704 of the Migratory Bird Treaty Act states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take. The Secretary in adopting regulations is to consider such factors as distribution and abundance to ensure that take is compatible with the protection of the species.

The provisions of the Migratory Bird Treaty Act apply equally to Federal and non-Federal entities and prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). Certain exceptions apply to employees of the Department of the Interior to enforce the Migratory Bird Treaty Act and to employees of Federal agencies, State game departments, municipal game farms or parks, and public museums, public zoological parks, accredited institutional members of the American Association of Zoological Parks and Aquariums (now called the American Zoo and Aquarium Association) and public scientific or educational institutions.

A.9. The International Convention of the Prevention of Pollution from Ships and Marine Plastics Pollution Research and Control Act

In 1978, the International Convention of the Prevention of Pollution from Ships (MARPOL) was updated to include five annexes on ocean dumping. By signing onto MARPOL, countries agree to enforce Annexes I and II (oil and noxious liquid substances) of the treaty. Annexes III (hazardous substances), IV (sewage), and V (plastics) are optional. The United States is signatory to two of the optional MARPOL Annexes (III and V). Annex V is of particular importance to the maritime community (for example, shippers, oil-platform personnel, fishers, and recreational boaters) because it prohibits the disposal of plastics at sea and regulates the disposal of other types of garbage at sea. The Coast Guard is the enforcement agency for MARPOL Annex V within the U.S. Exclusive Economic Zone (within 200 miles of the United States shoreline).

The Marine Plastic Pollution Research and Control Act of 1988 (33 U.S.C. § 1901 et seq.) is the Federal law implementing MARPOL Annex V in all United States waters. Under the Marine Plastic Pollution Research and Control Act, it is illegal to throw plastic trash off any vessel within the U.S. Exclusive Economic Zone. It also is illegal to throw any other garbage (for example, orange peels, paper plates, glass jars, and monofilament fishing line) overboard while navigating in inland waters or within 3 miles offshore. The greater the distance from shore, the fewer restrictions apply to nonplastic garbage. However, dumping plastics overboard in any waters anywhere is illegal at anytime. Fixed and floating platforms, drilling rigs, manned production platforms, and support vessels operating under a Federal oil and gas lease are required to develop waste management plans and to post placards reflecting discharge limitations and restrictions. Garbage must be brought ashore and properly disposed of in a trash can, dumpster, or recycling container. Docks and marinas are required to provide facilities to handle normal amounts of garbage from their paying customers. Violations of MARPOL or Marine Plastic Pollution Research and Control Act may result in a fine of up to \$50,000 for each incident. If criminal intent can be proven, an individual may be fined up to \$250,000 and/or imprisoned up to 6 years. If an organization is responsible, it may be fined up to \$500,000 and/or receive 6 years of imprisonment.

A.10. The Marine Protection, Research, and Sanctuaries Act

The Marine Protection, Research, and Sanctuaries Act of 1972, as amended (33 U.S.C. § 1401-1445 and 16 U.S.C. § 1431-1445) regulates ocean dumping of waste, provides for a research program on ocean dumping, and provides for the designation and regulation of marine sanctuaries. Also known as the Ocean Dumping Act, the Marine Protection, Research, and Sanctuaries Act regulates the ocean dumping of all material beyond the territorial limit (3 miles from shore) and prevents or strictly limits dumping material that “would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.” Material includes, but is not limited to, dredged material; solid waste; incinerator residue; garbage; sewage; sewage sludge; munitions; chemical and biological warfare agents; radioactive materials; chemicals; biological and laboratory waste; wrecked or discarded equipment; rocks; sand; excavation debris; and industrial, municipal, agricultural, and other waste. The term does not include sewage from vessels or oil, unless the oil is transported via a vessel or aircraft for the purpose of dumping. Disposal by means of a pipe, regardless of how far at sea the discharge occurs, is regulated by the Clean Water Act through the National Pollutant Discharge Elimination System permit process. Permits under Section 103 of this Act for dumping dredged material into ocean waters are issued by the U.S. Army Corps of Engineers. Title I, Section 102, provides authority to the Environmental Protection Agency (EPA) to designate ocean disposal sites. The EPA regulations are codified in Title 40, Code of Federal Regulations, subsections 220 through 230.

Title III of the Marine Protection, Research, and Sanctuaries Act, later called the National Marine Sanctuaries Act, charged the Secretary of Commerce to identify, designate, and manage marine sites based on conservation and ecological, recreational, historical, aesthetic, scientific, or educational value within significant national ocean and Great Lakes waters. Twelve national marine sanctuaries, representing a wide variety of ocean environments, have been designated. The National Marine Sanctuary Program is administered by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

The regulations regarding designation and management of marine sanctuaries are found under 15 CFR § 922.

A.11. The National Fishing Enhancement Act

The National Fishing Enhancement Act of 1984 (33 U.S.C. § 2101 et seq.), also known as the Artificial Reef Act, established broad artificial reef development standards and a national policy to encourage the development of artificial reefs that will enhance fishery resources and commercial and recreational fishing. The national plan identifies oil and gas structures as acceptable material of opportunity for artificial reef development. The Minerals Management Service adopted a rigs-to-reefs policy in 1985 in response to this Act and to broaden interest in the use of petroleum platforms as artificial reefs.

A.12. The Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 (16 U.S.C. § 1801 et seq.) established and delineated an area from the states’ seaward boundary to approximately 200 nautical miles out as a fisheries conservation zone for the U.S. and its possessions. The Act created eight regional Fishery Management Councils and mandated a continuing planning program for marine fisheries management by the Fishery Management Councils. The Act, as amended, requires that a Fishery Management Plan (50 CFR 600), based on the best available scientific and economic data, be prepared for each commercial species (or related group of species) of fish in need of conservation and management within each respective region.

The Fishery Conservation and Management Act was reauthorized by Congress through passage of the Sustainable Fisheries Act of 1996. This reauthorization implements a number of reforms and changes. One change required the National Marine Fisheries Services to designate and conserve Essential Fish

Habitat for those species managed under an existing Fishery Management Plan. By designating Essential Fish Habitat's, Congress hoped to minimize, to the extent practicable, any adverse effects on habitat caused by fishing or nonfishing activities and to identify other actions to encourage the conservation and enhancement of such habitat. The phrase "essential fish habitat," as defined in the Sustainable Fisheries Act of 1996, encompasses "those waters and substrate necessary to fishes for spawning, breeding, feeding, or growth to maturity." As a result of this change, Federal Agencies must consult with National Marine Fisheries Services on those activities that may have direct (for example, physical disruption) or indirect (for example, loss of prey species) effects on Essential Fish Habitat.

Of the Fishery Management Plan's for Alaskan fisheries, the plans for the Gulf of Alaska groundfish and statewide salmon and scallop management plans designate Essential Fish Habitat present within the Alaska OCS Cook Inlet Planning Area. The Fishery Management Plan's are amended and updated as new information from studies and public input is received and assessed. For OCS activities in the Alaska Region's Cook Inlet Planning Area, the Minerals Management Service consults with National Marine Fisheries Services at each project stage individually (for example, the lease sale, the exploration plan, and the development and production plan). The Minerals Management Service will enter into formal consultation with National Marine Fisheries Services for Essential Fish Habitat as part of this EIS process.

A.13. The Endangered Species Act

The Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.), establishes the National policy for the protection and conservation of threatened and endangered species and the ecosystems on which they depend. The Endangered Species Act is administered by U.S. Department of the Interior, Fish and Wildlife Service and the U.S. Department of Commerce, National Marine Fisheries Services. Section 7 of the Endangered Species Act (16 U.S.C. § 1536) governs interagency cooperation and consultation requiring Federal Agencies to formally consult with the National Marine Fisheries Services and Fish and Wildlife Service, when there is a reason to believe that a species listed (or proposed to be listed) as endangered or threatened may be affected by an action, such as an OCS lease sale. Section 7 mandates Federal Agencies to consult with the Fish and Wildlife Service or National Marine Fisheries Services to ensure that any agency action is not likely to jeopardize the continued existence of any endangered or threatened species, and/or destroy or adversely modify an endangered or threatened species' critical habitat.

Formal endangered species consultation is required to provide a threshold examination and to allow both the Fish and Wildlife Service and National Marine Fisheries Services to each prepare a biological opinion on the likelihood that the proposed activity will or will not jeopardize the continued existence of the resource, and on the effect of the potential activities on the endangered species. The biological opinion may include recommendations for modification of the proposed activity. If, as a result of the threshold examination, insufficient information is available to conclude that the proposed activity is not likely to jeopardize the species or its habitat, the Federal Agency (i.e., Minerals Management Service) is notified in writing by the Fish and Wildlife Service or National Marine Fisheries Services. In such cases, the Federal Agency must obtain additional information and, if recommended by the Fish and Wildlife Service or National Marine Fisheries Services, conduct appropriate biological surveys or studies to determine how the proposed activity may affect the endangered species or its critical habitat. After such additional information is received, Fish and Wildlife Service or National Marine Fisheries Services usually concludes the consultation process by issuing a formal biological opinion.

As needed during the early stages and throughout prelease processes, the Minerals Management Service will formally consult with both Fish and Wildlife Service and National Marine Fisheries Services to ensure that the Federal activities proposed in the Cook Inlet Planning Area do not jeopardize the continued existence of threatened or endangered species and/or result in adverse modification or destruction of their critical habitat. This consultation covers only the proposed OCS lease sales and exploration activity scenarios. A separate Section 7 consultation is conducted for development, production, and decommissioning phases for OCS activities. The Fish and Wildlife Service and National Marine Fisheries Services make recommendations regarding modifications to proposed OCS activity to minimize adverse environmental impacts; however, it remains the responsibility of the Minerals Management Service to ensure that proposed actions do not impact threatened or endangered species.

Joint regulations published in 50 CFR § 402 by the U.S. Department of the Interior (Fish and Wildlife Service) and the U.S. Department of Commerce (National Marine Fisheries Services) establish procedures and rules governing interagency consultation under Section 7 of the Endangered Species Act.

Section 9 of the Endangered Species Act (16 U.S.C. § 1538) contains prohibitions (except as provided in law) with respect to any endangered species of fish, wildlife, and plant. For example, it is unlawful for any person subject to the jurisdiction of the United States to (1) take any species within the United States or the territorial seas of the United States and (2) take any species upon the high seas. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.

The regulations that provide the rules for determining and listing endangered and threatened species and designating their critical habitats are found under 50 CFR § 424.

A.14. The National Historic Preservation Act

The National Historic Preservation Act of 1966, as amended (16 U.S.C. § 470 et seq.), established a program for the preservation of historic properties throughout the United States and established the Advisory Council on Historic Preservation. This Act requires the head of any Federal Agency possessing licensing authority or having direct or indirect jurisdiction over a proposed Federal or federally assisted activity to consider the proposed activity’s effect on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historical Places (30 CFR 60.4 or its successor). The historic properties (i.e., archaeological resources) on the OCS include historic shipwrecks, sunken aircraft, lighthouses, and prehistoric archaeological sites that have become inundated due to the 120-meter rise in global sea level since the height of the last ice age (about 19,000 years ago).

Because the OCS is not federally owned land and the Federal Government has not claimed direct ownership of historic properties on the OCS, the Minerals Management Service has the authority under Section 106 of the National Historic Preservation Act only to ensure that any Minerals Management Service funded and permitted actions do not adversely affect significant historic properties. Beyond avoidance of adverse impacts, the Minerals Management Service does not possess the legal authority to manage the historic properties on the OCS.

The Minerals Management Service has conducted archaeological baseline studies of the OCS to determine where known historic properties may be located and to outline areas where presently unknown historic properties may be located. These baseline studies are used to identify “archaeologically sensitive” areas that may contain significant historic properties. When proposing a Federal action (i.e., an oil and gas lease sale), the Minerals Management Service may request comments concerning geological conditions, including archaeological sites on the seabed or nearshore (30 CFR 256.24).

Before approving any OCS exploration or development activities within an archaeologically sensitive area, the Minerals Management Service requires the lessee to conduct a marine remote-sensing survey and to prepare an archaeological report (30 CFR 250.194).

Archaeological surveys are required both onshore and offshore in areas where there is the potential for archaeological resources to exist, so that potential impacts to archaeological resources from physical disturbance could be mitigated. If the marine remote-sensing survey indicates any evidence of a potential historic property, the lessee must either:

- Move the site of the proposed lease operations a sufficient distance to avoid the potential historic property, or
- Conduct further investigations to determine the nature and significance of the potential historic property. If further investigation determines that there is a significant historic property within the area of proposed OCS operations, National Historic Preservation Act consultation procedures are followed.

The Minerals Management Service Alaska Region and the State of Alaska Historic Preservation Office have an agreement regarding procedures for invoking Section 106 of the National Historic Preservation Act. The Minerals Management Service responsibilities in archaeological resource management and

protection on the OCS are found under 30 CFR 250.203(b)(15), 250.203(o), 250.204(b)(8)(v)(A), 250.204(s), 250.1007(a)(5), and 250.1009(c)(4).

A.15. The Oil Pollution Act

The Oil Pollution Act of 1990 (OPA 90), as amended (33 U.S.C. § 2701 et seq.), establishes a single uniform Federal system of liability and compensation for damages caused by oil spills in United States navigable waters. The OPA 90 requires removal of spilled oil and establishes a national system of planning for and responding to oil-spill incidents. The OPA 90 includes provisions to:

- Improve oil-spill prevention, preparedness, and response capability;
- Establish limitations on liability for damages resulting from oil pollution;
- Provide funding for natural resource damage assessment;
- Implement a fund for the payment of compensation for such damages; and
- Establish an oil pollution research and development program.

The U.S. Coast Guard is responsible for enforcing vessel compliance with OPA 90. The U.S. Coast Guard regulations on the oil-spill liability of vessels and operators are found under 33 CFR §§ 132, 135, and 136.

Section 1016 of OPA 90 (33 U.S.C. § 2716), as amended by the Coast Guard Authorization Act of 1996, supersedes the offshore oil-spill financial-responsibility provision of Title III of the OCS Lands Act Amendments of 1978, previously administered by the U.S. Coast Guard. Under OPA 90 and Executive Order 12777 (October 18, 1991), the Secretary of the Interior is given authority over covered offshore facilities and associated pipelines (except deepwater ports) for all Federal and State waters, including responsibility for spill prevention, oil-spill-contingency plans, oil-spill-containment and -cleanup equipment, financial-responsibility certification, and civil penalties. The Secretary delegated this authority to the Minerals Management Service.

The Minerals Management Service regulations found under 30 CFR § 253 that implement Title I of the OPA 90 establish the requirements for demonstrating oil-spill financial responsibility for covered offshore facilities requiring responsible parties to demonstrate they can pay for cleanup and damages caused by facility oil spills. These regulations govern financial responsibility requirements for oil spills for covered offshore facilities and related requirements for certain crude oil wells, production platforms, and pipelines located in the OCS and certain State waters became effective in October 1998. Responsible parties can be required to demonstrate as much as \$150 million in oil-spill financial responsibility if the Minerals Management Service determines that it is justified by the risks from potential oil spills from the covered offshore facilities. The minimum amount of oil-spill financial responsibility that must be demonstrated is \$35 million for covered offshore facilities located in the OCS, and \$10 million for covered offshore facilities located in State waters. The regulations exempt persons responsible for facilities having a potential worst-case, oil-spill discharge of 1,000 barrels or less, unless the risks posed by a facility justify a lower threshold.

A.16. The Rivers and Harbors Appropriation Act

The geographic jurisdiction of the Rivers and Harbors Act of 1899 (33 U.S.C. § 401 et seq.) includes all navigable water of the United States (defined in 33 CFR § 329) as “those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce.” This jurisdiction extends seaward to include all ocean waters within a zone 3 nautical miles from the coastline (the “territorial seas”). Limited authorities extend across the OCS for artificial islands, installations, and other devices (43 U.S.C. § 333 (e)).

Various sections of the Act establish permit requirements to prevent unauthorized obstruction or alteration of any navigable water of the United States. The U.S. Army Corps of Engineers, through the Secretary of the Army, has permitting authority for any structure work conducted in or affecting United States navigable waters and for construction of artificial islands, fixed structures, and other installations on the OCS. This

authority arises from a provision in the OCS Lands Act (43 U.S.C. § 1333(e)) that extends the Secretary of the Army's authority to prevent obstruction to navigation in United States navigable waters from structures located on the OCS that are used for exploring, developing, producing, or transporting natural resources.

In addition, Section 10 of the Act (33 U.S.C. § 403) authorizes the U.S. Army Corps of Engineers, through the Secretary of the Army, to issue permits for all offshore construction in United States navigable waters, including pipelines, exploratory drilling vessels, fixed and mobile platforms, piers, wharves, bulkheads, or other works. Permits also must be issued for onshore facilities that involve dredging, filling, and excavating in United States navigable waters.

A.17. The Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. § 6901 et seq.), and as amended through 1996, provides a framework for the safe disposal and management of hazardous and solid wastes. Most oil-field wastes have been exempted from coverage under the RCRA hazardous-waste regulations. Any hazardous wastes generated on the OCS that are not exempt must be transported to shore for disposal at a hazardous-waste facility.

A.18. The Ports and Waterways Safety Act

The Ports and Waterways Safety Act of 1972, as amended (33 U.S.C. § 1221 et seq.), authorizes the U.S. Coast Guard to designate safety fairways, fairway anchorages, and traffic separation schemes to provide unobstructed approaches through oil fields for vessels using ports. The Coast Guard regulations provide listings of these designated areas along with special conditions related to oil and gas production. In general, no fixed structures such as platforms are allowed in fairways. Temporary underwater obstacles such as anchors and attendant cables or chains attached to floating or semisubmersible drilling rigs may be placed in a fairway under certain conditions. Fixed structures may be placed in anchorages, but the number of structures is limited.

The Coast Guard regulations on port access routes are found under 33 CFR § 164.

A.19. The Merchant Marine Act of 1920 (Jones Act)

The Merchant Marine Act of 1920, commonly referred to as the Jones Act (P.L. 66-261), regulates coastal shipping between United States ports and inland waterways. The Act provides that “no merchandise shall be transported by water, or by land and water...between points in the United States...in any other vessel than a vessel built in and documented under the laws of the United States and owned by persons who are citizens of the United States...” The Act requires that all goods shipped between different ports in the United States or its territories must be:

- Carried on vessels built and documented (flagged) in the United States,
- Crewed by United States citizens or legal aliens licensed by the U.S. Coast Guard, and
- Owned and operated by United States citizens.

The rationale behind the Jones Act and earlier sabotage laws was that the United States needed a merchant marine fleet to ensure that its domestic waterborne commerce remains under government jurisdiction for regulatory, safety, and national defense considerations. The same general principles of safety regulations are applied to other modes of transportation in the United States. While other modes of transportation can operate foreign-built equipment, these units must comply with United States standards. However, many foreign-built ships do not meet the standards required of United States-built ships and, thus, are excluded from domestic shipping.

The United States Customs Service has determined that facilities fixed or attached to the OCS for the purpose of oil exploration, as described under 43 U.S.C. § 333(a), are considered points within the United States. The OCS oil facilities are considered United States sovereign territory and fall under the requirements of the Jones Act. This carries the implication that all shipping to and from these facilities related to oil exploration on the OCS can be conducted only by vessels meeting the requirements of the Jones Act. Therefore, OCS facilities can be legally served only by United States-registered vessels and aircraft that are properly endorsed for coastwise trade under the laws of the United States.

A.20. The Federal Oil and Gas Royalty Management Act

The Federal Oil and Gas Royalty Management Act (FOGRMA) of 1982 (30 U.S.C. § 701 et seq.), was enacted to ensure that all oil and gas originating on public land and on the OCS are properly accounted for under the direction of the Secretary of the Interior. This Act defines the responsibilities and obligations of lessees, operators, and other persons involved in the transportation of oil and gas from Federal, Indian, and OCS lands. The Secretary of the Interior has the responsibility to maintain a royalty management system and enforce the prompt collection and disbursement of oil and gas revenues owed to the United States, Indian lessors, and the states.

The Secretary of the Interior oversees a comprehensive inspection and collection system with fiscal and production accounting and auditing system to accurately determine oil and gas royalties, interest, fines, penalties, fees, deposits, and other payments owed and to collect and account for the payments in a timely manner.

The FOGRMA requires a lessee, operator, or other person directly involved in the developing, producing, transporting, purchasing, or selling of oil and gas to establish and maintain records, make reports, and provide information as required by the Secretary of the Interior.

Regulations at 30 CFR 201 through 243 were published by the Minerals Management Service to implement the provisions of the FOGRMA. For royalties, net profit shares, and rental payments on Federal OCS leases, see 30 CFR 218.150 through 156.

A.21. The Arctic Research and Policy Act

The Arctic Research and Policy Act of 1984 (15 U.S.C. § 4101 et seq.) provides national policy, priorities, and goals and a Federal program plan for basic and applied scientific research with respect to the Arctic, including natural resources and materials, physical, biological and health sciences, and social and behavioral sciences.

The Arctic Research Commission, in cooperation with the Interagency Arctic Research Policy Committee, both established under this Act, were directed to develop a national arctic research program plan to implement the arctic research policy and facilitate cooperation between the Federal Government and State and local governments with respect to research in the Arctic. The Commission guides the Interagency Arctic Research Policy Committee in the performance of its duties and submits to the President and Congress a report each year describing the activities and accomplishments of the Commission during the immediately preceding fiscal year.

The Interagency Arctic Research Policy Committee, with the National Science Foundation as lead agency, works with the Commission in developing and establishing an integrated National Arctic Research Policy that guides Federal Agencies in developing and implementing their research program in the Arctic. The public is provided with an opportunity to participate in the development and implementation of National Arctic Research Policy through public meetings. The Committee is directed to submit to Congress, through the President, a biennial statement of activities and accomplishments of the Interagency Committee and a description of the activities of the Commission with respect to Federal activities in arctic research.

Section 201 of the Arctic Research and Policy Act is cited as the National Critical Materials Act of 1984. The purpose of this section is to (1) establish National Critical Material Council, (2) establish a national

Federal program for advanced materials research and technology, and (3) to stimulate innovation and technology use in basic as well as advanced materials industries.

A.22. The Bald Eagle Protection Act

The Bald Eagle Protection Act (16 U.S.C. § 668-668d) prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions. The Act imposes criminal and civil penalties on anyone (including associations, partnerships and corporations) in the U.S. or within its jurisdiction who, unless excepted, takes, possesses, sells, purchases, barter, offers to sell or purchase or barter, transports, exports or imports at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest or egg or these eagle; or violates any permit or regulations issued under the Act. The Secretary may permit the taking of golden eagle nests which interfere with resource development or recovery operations. Bald eagle may not be taken for any purpose unless the Secretary issues a permit prior to taking. Authorized Department of the Interior employees who witness a violation of this Act may arrest the violator without a warrant and take the person to an officer or court.

A.23. The Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. § 661-667e) requires that all Federal agencies consult with the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and State wildlife agencies for activities that affect, control, or modify waters of any stream or bodies of water. The USFWS or NMFS may recommend denial of a permit application, the incorporation of additional permit conditions to minimize adverse effects, or mitigation actions. Under the Act, USFWS and NMFS have responsibility for project review. This includes addressing concerns about general plant and wildlife species which may not be considered under the National Environmental Policy Act and the Endangered Species Act.

B. EXECUTIVE ORDERS

B.1. Executive Order 13212 – Actions to Expedite Energy-Related Projects (May 18, 2001)

Executive Order 13212 states that "... in order to take additional steps to expedite the increased supply and availability of energy to our Nation ...," it is necessary to improve the Federal Government's internal management of actions associated with energy-related projects. In general, the executive order directs executive departments and agencies to take appropriate actions to expedite projects that will increase the production, transmission, or conservation of energy. Departments and agencies must expedite their review of permits or take other actions as necessary to accelerate the completion of such projects while maintaining safety, public health, and environmental protections. Agencies must take such actions to the extent permitted by law, the regulations, and where appropriate.

B.2. Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994)

Executive Order 12898 on environmental justice provides that each Federal Agency must make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately

high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Agencies are required to incorporate into their National Environmental Policy Act documents analysis of the environmental effects of their proposed action on minorities and low-income populations and communities. The environmental justice issues encompass a broad range of impacts covered by National Environmental Policy Act, and concerns may arise from impacts on the natural or physical environment or from interrelated social, cultural, and economic effects. These effects must be considered in EIS's and EA's.

The Department of the Interior has developed guidelines in accordance with Executive Order 12898 on environmental justice. The Minerals Management Service participated in the development of these guidelines. In August 1994, the Secretary of the Interior directed the Department's bureaus to include environmental justice in National Environmental Policy Act documentation and, in February 1998, the Council on Environmental Quality issued guidance to assist Agencies in addressing environmental justice.

Environmental justice concerns are considered anywhere (including the Minerals Management Service Pacific and Gulf of Mexico regions) where OCS projects and associated National Environmental Policy Act documentation take place; however, issues concerning Alaska OCS-related impacts primarily have focused on the subsistence hunting, fishing, and gathering activities that occur in coastal areas.

The Minerals Management Service's existing process of involving all affected communities, Native Alaskans, and minority groups in the National Environmental Policy Act compliance process meets the intent and spirit of Executive Order 12898. Scoping and review for the EIS is an open process that provides an opportunity for all participants, including minority and low-income populations, to express concerns that can be addressed in the EIS. It should be emphasized that the reason the Minerals Management Service holds scoping meetings is to encourage and facilitate public involvement into the EIS process. Valuable public input ensures that the EIS will be thorough and will address all pertinent issues that affect the quality of the human environment to the fullest extent possible and that will contribute a major role in the Minerals Management Service's planning and final decisionmaking. The Minerals Management Service will continue to identify ways to improve the input from all Alaskan residents, not only in commenting on official documents but also contributing their knowledge to the scientific and analytical sections of the EIS.

B.3. Executive Order 13175 – Consultation and Coordination With Indian Tribal Governments (November 6, 2000)

The United States has a unique legal relationship with Indian tribal governments as set forth in the Constitution of the United States, treaties, statutes, Executive Orders, and court decisions. Since the formation of the Union, the United States has recognized Indian tribes as domestic dependent nations under its protection. The Federal Government has enacted numerous statutes and promulgated numerous regulations that establish and define a trust relationship with Indian tribes.

To strengthen the United States government-to-government relationships with Indian tribes (Indian tribe is defined as Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a), Executive Order 13175 requires the Secretary of the Interior to establish regular and meaningful consultation and collaboration with Indian tribal officials in the development of Federal policies that have tribal implications. Policies that have tribal implications refers to regulations, legislative comments or proposed legislation, and other policy statements or actions that have substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. The United States continues to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, tribal trust resources, and Indian tribal treaty and other rights.

B.4. Executive Order 13007 – Indian Sacred Sites (May 24, 1996)

The Indian Sacred Sites executive order directs Federal land-managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. It is Minerals Management Service's policy to consider the potential effects of all aspects of plans, projects, programs, and activities on Indian sacred sites, and to consult, to the greatest extent practicable and to the extent permitted by law, with tribal governments before taking actions that may affect Indian sacred sites located on Federal lands.

B.5. Executive Order 12114 – Environmental Effects Abroad (January 1979)

Executive Order 12114 requires that Federal officials be informed of environmental considerations, and take those considerations into account when making decisions on major Federal actions that could have environmental impacts anywhere beyond the borders of the United States, including Antarctica. Such Federal actions include the following:

- All major Federal actions significantly affecting the environment outside the jurisdiction of any nation (the oceans or Antarctica). This would apply to proposals that result in actions within the United States that, because of ocean currents, winds, stream flow, or other natural processes, may affect parts of the oceans not claimed by any nation (high seas). Included in this category would be an OCS project that, because of ocean currents, could result in effluents or spilled oil reaching fishing grounds or areas not claimed by another nation.
- All major Federal actions significantly affecting the environment of a foreign nation not involved in the action. This would apply to proposals that result in actions within United States territory, or within the U.S. Exclusive Economic Zone that, because of ocean currents, winds, stream flow, or other natural processes, may affect parts of another nation, or seas or oceans within the jurisdiction of other nations. This category would include an OCS project located upcurrent from the Mexican coastline that could affect Mexico's territory in the event of an oil spill. Also in this category are all major Federal actions in which a foreign nation is a participant and that normally would be covered by the EIS addressing the United States part of the Proposal. An example would be an OCS right-of-way pipeline bringing Canadian energy resources to the northeast United States.
- All major Federal actions providing a foreign nation with a product or involving a project that produces an emission or effluent prohibited or regulated by United States Federal law because of its effects on the environment or the creation of a serious public health risk.

Federal actions causing significant impacts on environments outside the United States are to be addressed in:

- EIS's (generic, program [5-year OCS programmatic EIS]), and project-specific (OCS lease-sale EIS);
- Documents prepared for decisionmakers containing reviews of environmental issues involved in Federal actions, or summaries of environmental analyses (for example, OCS lease-sale decision documents, Records of Decision); and
- Environmental studies or research prepared by the United States and one or more foreign nations, or by an international body in which the United States is a member or participant.

The United States, Canada, and Mexico are negotiating a Transboundary Environmental Impact Assessments (TEIA) Agreement through the North Atlantic Free Trade Agreement (NAFTA) Commission on Environmental Cooperation (CEC). The CEC deals with a wide range of environmental and natural resource protection issues common to Canada, the United States, and Mexico. Developing a TEIA process is one of the requirements of the 1991 North American Agreement on Environmental Cooperation. Under this agreement, a transboundary environmental impact is any impact on the environment within the area under the jurisdiction of Canada, the United States, or Mexico caused by a proposed project, the physical origin of which is situated wholly or in part within the area under the jurisdiction of one of the three countries. For example, a proposed project on the United States OCS that, because of ocean currents,

winds, or proximity to the Mexican coastline, could affect Mexican waters (fishing industry, fish resources, etc.) or the Mexican coastline (oil-spill contacts, etc.) would be a project considered to have the potential to cause transboundary environmental impacts. The agreement recognizes that there is a significant bilateral nature to many transboundary issues and calls upon the three countries to develop an agreement to:

- Assess the environmental impacts of proposed projects in any of the three countries party to the agreement (NAFTA) that would be likely to cause significant adverse transboundary impacts within the jurisdiction of any of the other parties;
- Develop a system of notification, consultation, and sharing of relevant information between countries with respect to such projects; and
- Give consideration to mitigating measures to address the potential adverse effects of such projects.

Negotiations are under way between the three parties to the agreement, but the final language has yet to be worked out. Because the requirements of the assessment portion of the agreement are somewhat similar to the requirements imposed by Executive Order 12114 (i.e., impacts to foreign territory must be addressed in National Environmental Policy Act documents), the Minerals Management Service requires that EIS's prepared on major Federal OCS actions contain an assessment of potential significant impacts to foreign territory.

B.6. Executive Order 13158 – Marine Protected Areas (May 26, 2000)

Executive Order 13158 defines Marine Protected Areas (MPA's) as any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.

This executive order directs Federal Agencies to work closely with State, local, and nongovernmental partners to create a comprehensive system of MPA's "representing diverse United States marine ecosystems, and the Nation's natural and cultural resources." Ultimately, the MPA system will include new sites, as well as enhancements to the conservation of existing sites. Five principal components of this executive order are:

1. **National MPA List:** The U.S. Department of Commerce and the U.S. Department of the Interior will develop and maintain a National list of MPA's in United States waters. Candidate sites for the list are drawn from existing programs for Federal, tribal, State, and local protected areas. When completed, the list and the companion data on each site will serve several purposes such as ensuring that agencies "avoid harm" to MPA's, providing a foundation for the analysis of gaps in the existing system of protections, and helping improve the effectiveness of existing MPA's.
2. **The MPA Web Site:** The U.S. Department of Commerce and U.S. Department of the Interior will develop and maintain a publicly accessible web site to provide information on MPA's and Federal Agency reports required by Executive Order 13158. Also, the web site will be used to publish and maintain the National MPA List and other useful information, such as maps of MPA's; a virtual library of MPA reference materials, including links to other web sites; information on the MPA Advisory Committee; activities of the National MPA Center; MPA program summaries; and background materials such as MPA definitions, benefits, management challenges, and management tools.
3. **The MPA Federal Advisory Committee:** This committee was created to provide expert advice on, and recommendations for, a national system of MPA's. This advisory committee will include non-Federal representatives from science, resource management, environmental organizations, and industry.
4. **The Mandate to Avoid Harmful Federal Actions:** This mandate directs Federal Agencies to avoid harm to MPA's or their resources through activities that they undertake, fund, or approve.
5. **The MPA Center:** The executive order directs National Oceanic and Atmospheric Administration to create an MPA Center. In cooperation with the U.S. Department of the Interior and working closely with other organizations, the MPA Center will coordinate the effort to implement the executive order and will:
 - Develop the framework for a national system of MPA's;

- Coordinate the development of information, tools, and strategies;
- Provide guidance that will encourage efforts to enhance and expand the protection of existing MPA's and to establish or recommend new ones;
- Coordinate the MPA web site;
- Partner with Federal and non-Federal organizations to conduct research, analysis, and exploration;
- Help maintain the National MPA List; and
- Support the MPA Advisory Committee.

B.7. Executive Order 13112 – Invasive Species (February 3, 1999)

Executive Order 13112 defines an “invasive species” as a species that is not native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. This executive order requires all Federal Agencies to:

- Identify any actions affecting the status of invasive species;
- Prevent invasive-species introduction;
- Detect and respond to and control populations of invasive species in a cost-effective and environmentally sound manner;
- Monitor invasive-species populations accurately and reliably;
- Provide for restoration of native species and habitat conditions in invaded ecosystems;
- Conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species;
- Promote public education on invasive species and the means to address them; and,
- Refrain from authorizing, funding, or carrying out actions that are likely to cause or promote invasive species introduction or spread, unless the Federal Agency has determined that the benefits of such actions clearly outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize risk of harm will be taken.

Additionally, this executive order established the National Invasive Species Council (Council), co-chaired by the Secretaries of Agriculture, Commerce, and the Interior and comprised of the Secretaries of State, Treasury, Defense, and Transportation, and the Administrator of the Environmental Protection Agency. The Council:

- Provides national leadership on invasive species;
- Sees that Federal efforts are coordinated and effective;
- Promotes action at local, State, tribal, and ecosystem levels;
- Identifies recommendations for international cooperation;
- Facilitates a coordinated network to document and monitor invasive species;
- Develops a web-based information network;
- Provides guidance on invasive species for Federal Agencies to use in implementing the National Environmental Policy Act; and
- Prepares an Invasive Species Management Plan to serve as the blueprint for Federal action to prevent introduction; provide control; and minimize economic, environmental, and human health impacts of invasive species.

The Minerals Management Service requires that EIS's prepared on major Federal OCS actions (for example, 5-year OCS program and OCS lease sales) contain an assessment of the proposed action's contribution to the invasive species problem.

B.8. Executive Order 11990 – Protection of Wetlands (May 23, 1995)

The basic requirement of Executive Order 11990 is that a Federal agency avoid construction or management practices that would adversely affect wetlands unless that agency finds that (1) there is no practicable alternative, and (2) the proposed action includes all practicable measures to minimize harm to the wetlands. It directs all Federal agencies to minimize the destruction, loss, or degradation of wetlands; and preserve and enhance the natural beneficial values of wetlands in the conduct of the agency's responsibilities.

B.9. Executive Order 11988 – Floodplain Management (May 25, 1994)

The basic requirement of Executive Order 11988 is that a Federal agency avoid construction or management practices that would adversely affect floodplains unless that agency finds (1) there is no practical alternative and (2) the proposed action has been designed or modified to minimize harm to or within the floodplain.

The order directs all Federal agencies to reduce the risk of flood loss; minimize the impact of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial values served by floodplains in carrying out the agency's responsibilities.

C. MITIGATION MEASURES

C.1. Lease Term Stipulations

In each OCS planning area, oil and gas exploration and development activities have the potential for causing adverse environmental impacts. Many measures have been implemented by the Minerals Management Service to "mitigate" or prevent and lessen possible impacts on environmental resources from both OCS and non-OCS activities. Mitigating measures are protective measures designed to prevent adverse impacts and to lessen and mitigate unavoidable impacts. Some of these protective measures are developed and applied to specific blocks in a planning area before leasing a block. The Minerals Management Service develops and administers these requirements, which become a part of the lease-term conditions at lease issuance.

If a block is leased as a result of a lease sale, these protective measures are identified as lease-term stipulations and are attached to and become part of the lease and its conditions. These stipulations are designed to protect potentially sensitive resources in the affected block and to reduce possible multiple-use conflicts and are the requirements that the lessee must meet to mitigate adverse impacts. They also may be considered to apply to all activities that occur on the leased area throughout the life of the lease.

All stipulations are considered part of this proposed Federal action. All lease-term stipulations are considered part of this proposed Federal action and all alternatives are discussed in this EIS.

C.2. Special Stipulations

To mitigate adverse environmental impacts for actions associated with a specific project (i.e., proposed plans for exploration, development and production plans, and site-clearance activities in an area located on an OCS lease block), mitigating measures may be necessary. Mitigating measures are special stipulations that limit OCS operations and are in addition to the aforementioned lease-term stipulations.

Conditions of plan approval are mechanisms determined by the Minerals Management Service to control or mitigate potential environmental or safety problems that are associated with a specific proposed Federal action. During the life of the action, these protective measures are applicable specifically to the individual activities proposed in a plan and are imposed following environmental reviews (according to the National Environmental Policy Act) of the OCS lease location and potential resources.

Protective measures for certain resources may be suggested or identified during the scoping process for this EIS and mitigating measures may develop as a result. The Minerals Management Service will evaluate additional stipulations, if any, that may develop during this EIS process.

APPENDIX F

SCOPING REPORT COOK INLET PROPOSED OIL AND GAS LEASE SALES 191 (2004) AND 199 (2006)

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Summary of Public Scoping Comments

Outer Continental Shelf (OCS), Alaska, Region, Cook Inlet, Oil and Gas Lease Sales 191 and 199 for Years 2004 and 2006. Environmental Impact Statement

INTRODUCTION

In October 2001, the Secretary of the Interior issued the Proposed OCS Oil and Gas Leasing Program for 2002-2007. That document presented her preliminary decision to consider two sales in Cook Inlet, Sale 191 in 2004 and Sale 199 in 2006.

In the *Federal Register* of December 31, 2001, MMS issued a Call for Information and Nominations and a Notice of Intent to Prepare an Environmental Impact Statement (EIS) and also advertised in the Alaskan media the opportunity for public involvement. The EIS will cover both sales.

Through scoping, MMS receives information used to determine the issues, alternatives, and mitigating measures that will be analyzed in depth in the EIS as well as those that will not be addressed. This report presents a summary of the comments submitted to MMS. It does not present an exhaustive list of all the comments received. Neither does it present responses to the comments, conclusions, or decisions related to the content of the comments. Section I.D of the EIS will discuss and evaluate all of the scoping issues and concerns listed in the summary of comments below and the significant issues will be identified for further detailed analysis in the Section IV (Analysis of Effects) of the EIS.

BACKGROUND

Since 1977, the MMS has written four Cook Inlet lease sale EIS's. The pre-sale process for Sale 191 will require a minimum of 2 ½ years to complete. After the final multiple sale EIS is published and the coastal zone management consistency determination for Sale 191 have been completed, the MMS will prepare an environmental assessment (and, if needed, a supplemental EIS), and a consistency determination for Sale 199. The consistency determinations will address any new issues or relevant changes in the State of Alaska's federally approved coastal management plan.

The public will have opportunities to comment on each sale proposal. Preparation of the multiple-sale EIS does not indicate a decision to lease in the Cook Inlet. The final delineation of the areas to be offered for leasing will be made at a later date in the pre-sale process for each sale included in the Secretary's Final 5-Year Program. This delineation will comply with all applicable laws including the National Environmental Policy Act and the OCS Lands Act.

SCOPING PROCESS

During the scoping process, six ways were provided to submit comments to the MMS on the Cook Inlet Oil and Gas Lease Sales:

- Open public meetings in Homer, Seldovia, Ninilchik, Kenai, Kodiak, Port Graham, Nanwalek, and Anchorage, Alaska;
- Government-to-government contacts with Native Alaskan tribes, the State of Alaska, and local governments;
- Outreach and information meetings with non-government organizations;
- Traditional mail delivery;
- Hand delivery;
- Toll-free voice message.

During the scoping comment period, MMS, as part of the Department of the Interior, was under a court order (Cobell vs. Norton) to be disconnected from all external e-mail and internet connections. As a result, we could not receive comments through e-mail or the internet, as originally planned. We alerted attendees of each scoping meeting of this situation.

More than 100 people participated in the scoping process. In addition, approximately 20 organizations, including Alaska Natives, environmental organizations, private industry, and local, state, tribal and federal government agencies provided comments. We documented many of the comments made during the public meetings. Approximately half of the participants submitted input at the public meetings and outreach meetings, with the other half submitting comments by fax, letter, or phone. Some commenters submitted input through multiple channels. The comments originated predominantly from Alaska.

SUMMARY OF SCOPING COMMENTS

The following paragraphs summarize the comments received during the scoping period. The wording is intended to categorize and summarize the substance of the comments, not reproduce the exact wording of individual comments. The order in which the issues are presented is not intended to reflect their relative importance. The summary does not evaluate the comments, nor does it attempt to depict any majority opinions or trends. Because of the wide range of interests and opinions about the Cook Inlet OCS oil and gas lease sales, many of the comments in each issue category are illustrative of the varied, and perhaps contradictory, issues, concerns, and desired future conditions expressed by individuals, organizations, and public agencies. While some overlap between categories is unavoidable, effort has been made to reduce repetition of issues between the categories.

Infrastructure: Commenters recommended that aging infrastructure of State oil and gas pipelines that could result in leaks, new codes for seismic safety of onshore facilities, use of appropriate technology, and the current status of decommissioned of onshore/offshore facilities be considered in evaluating the proposed lease sales.

Air quality: Commenters noted that the analysis should utilize the latest information on air quality impacts from existing oil and gas facilities, with particular consideration given to protecting Class 1 and 2 areas under the Clean Air Act. Class I areas include Chisik and Duck Island in the lower Cook Inlet.

Archeological, historical, cultural resources: Some people recommended that the EIS consider the effects of leasing, oil spills, and oil-spill clean-up activities on archaeological, historic, and cultural resources, including impacts to national historic landmarks and national natural landmarks.

Catastrophic incidents: Commenters asserted that offshore oil and gas infrastructure is subject to catastrophic events from seismic and volcanic activity, breaches of security, and severe environmental conditions such as those in the Kennedy Entrance and Shelikof Strait. Others questioned the security of maritime commerce and the safety of marine navigation, with and without escort tugs, in severe environmental conditions and the potential for collisions and grounding in the Cook Inlet.

The ability of operators and the government to respond to prevent or control oil spills was questioned. Commenters expressed attendant concerns regarding the adequacy of existing contingency plans, response coordination among agencies, distribution and adequacy of response capabilities, response in adverse weather conditions, training and deployment of local respondents, the cost of clean-up and the identification of critical habitat. Particular reference was made to the past and continuing impact of the Exxon Valdez oil spill on the area. Some commenters requested the EIS include the “worst case scenario” analysis or that a variety of approaches be used in evaluating the potential effects of oil spills.

Land use: Some commenters suggested that the EIS analysis separately consider impacts from leasing to special areas, that is, areas that are legally defined and regulated with the objective of protecting resources for their inherent biological or ecological values. These areas include units within the national park system, national wildlife refuges, national estuaries, designated wilderness areas and State critical areas. Units specifically identified by commenters include the Aniakchak National Preserve, Duck and Chisik Islands, Katmai National Park, Lake Clark National Park, Alaska Maritime National Wildlife Refuge, and the McNeil River Bear Sanctuary. People asked that the siting of onshore facilities and impact on land use and private property rights also be examined. Some commenters asked that the EIS examine impacts to Areas Meriting Special Attention.

Tri-Borough Agreement: Several commenters noted that MMS needs to specifically consider the five issues in the January 24, 2002 Tri-Borough Agreement prepared and approved by the Kenai Peninsula Borough, Kodiak Island Borough, and the Lake and Peninsula Borough. The five issues are: no offshore loading of tankers; specific plans to minimize and avoid commercial fishing gear conflicts with exploration and development activities; exploration company must have adequate spill prevention and response

capability; critical habitat areas must be identified; and, provisions for local government revenue sharing.

Commercial and recreational fishing: Commenters emphasized the importance of the commercial and recreational fishery of the lower Cook Inlet to the economic well being and quality-of-life aspects of the area. They also expressed concerns over the effects leasing may have on these resources including conflicts that may result between offshore energy activity and fishing activity. Input suggested that specific plans be developed to minimize and avoid commercial fishing gear conflicts with the exploration and development. Examples of areas identified where conflicts may result include riptide areas favored by driftnet fishing, areas of set net fishing, and the potential restoration of the Tanner crab fishery around Cape Douglas.

Socioeconomics: Input indicated that the direct and indirect positive and the negative effects from the lease sales on the cultural, social and economic well being of people should be considered. These impacts include the effects from the lease sale, including oil spills, to the tourism, recreational, and quality of life uses of the area, labor migration and population in-migration to communities, demand for public services, and effect on public finances and revenues. Respondents suggested we consider the potential diversification of local economy, changes to the character of the communities, and the potential for local use of resources that may result from the lease sale. Comments recommended evaluation of the indirect effects of revenues, royalties, and corporate profits from the lease sale.

Subsistence: Commenters requested that a broad definition be given to subsistence, noting the importance of all ocean resources in the area for Alaska Natives. A particular concern is the potential contamination of some of these resources from post-lease and other non-OCS activities. Commenters emphasized the impacts of the Exxon Valdez oil spill on subsistence. The input identified a number of reports that may provide information for evaluating this issue. Commenters requested that specific plans be developed to avoid impacts from exploration and development on subsistence resources and asked that the eastern portion of lower Kenai Peninsula be considered as a deferral alternative.

Wildlife and Aquatic Habitat: Commenters asserted that fish, wildlife, and their habitats, including migration routes, could be impacted by offshore oil and gas activities. People remarked on the need to identify sensitive fish habitat and endangered species habitat, monitor these habitats, and acquire geographic information system based maps of the biologically sensitive areas as an aid in decision making. Input identified several biologically sensitive locations, including Anchor Point. Commenters noted the importance of the Barren Islands to marine mammals and migrating birds and requested the area be considered for deferral. Commenters identified several species that may be affected in varying degrees by offshore oil and gas including bears, beluga whales, kelp, Pacific herring, Stellar sea lion, salmon, sea otters, Steller's eiders, Tanner and other crab species, and shore, marine, and coastal birds. Commenters requested that Kachemak Bay be considered as a deferral alternative.

Visual Impacts: Commenters thought that the effect to visual resources from OCS operations should be considered. Areas specifically identified by respondents include communities such as Homer and Seldovia, lodges on the west side of the Inlet, and national historic landmarks and national natural landmark sites, such as Yukon Island and McNeil River State Game Sanctuary.

Water quality. Commenters highlighted the concerns over contamination of sediments, the water column, and the food chain that may be associated with offshore oil and gas development and other sources, such as non-point source pollution. These substances may be further concentrated in certain areas by eddies that form in the Cook Inlet. Their input accentuates the concern over accumulation of toxins in organisms and the potential health effect that may have on subsistence consumers of the resource. The input identified a number of reports that may provide information for evaluating this issue. Some commenters expressed a preference for zero discharge of muds and cuttings during exploration, development, and production. They also asked for an explanation of why this may not be achievable in some circumstances, other than that the discharge is allowed under a regional exemption to the Clean Water Act for platform discharge. Questions were also raised regarding disposal of ballast water and introduction of non-native species attached to tankers and ships.

Past Impacts: Commenters stated that the actual impacts of past offshore oil and gas operations on the environment should be considered when the future impacts from the lease sale are being evaluated.

Other actions with implications for the lease sale. Comments were received opposing or supporting some or all of the following: continued leasing, maintaining lease sale schedule, maintain or reducing the sale area, balancing environmental concerns with energy concerns, and alternative energy sources and technology.

INCORPORATION OF SCOPING INFORMATION INTO THE EIS

The information gathered during scoping provides direction for the preparation of the EIS through the identification and issues and concerns. The information collected has helped MMS identify the alternatives, mitigating measures, resource topics, and issues to be evaluated in the EIS.

The EIS will evaluate, in addition to the Proposal and the No Action alternatives, two deferral alternatives, the Lower Kenai Peninsula Deferral and the Barren Island Deferral. Deferral of these areas was suggested in meetings in Port Graham, Seldovia, Nanwalek, and Homer and reflect their subsistence and resources concerns for the offshore area bordering their communities and the Barren Islands. The Lower Kenai Peninsula Deferral would consider removing 34 whole or partial blocks (about 66,000 hectares/163,100 acres) on the eastern side proposed lease sale offshore of Homer, Seldovia, Port Graham, and Nanwalek. The Barren Island Deferral would evaluate the benefits and costs of deferring 36 whole or partial blocks (about 64,000 hectares/158,000 acres) north and west of the Barren Island from one or both of proposed lease sales.

The EIS will analyze five stipulations and six information to lessee clauses (ITL's) adopted for the most recent Cook Inlet OCS oil and gas lease sale, Sale 149 (1998). Wording may be adjusted pending the EIS review. We have added a discussion of the status of the Cook Inlet Beluga whale population into the Sale 149 ITL on Stellar Sea Lions.

Stipulations

- No. 1 - Protection of Fisheries
- No. 2 - Protection of Biological Resources
- No. 3 - Orientation Program
- No. 4 - Transportation of Hydrocarbons
- No. 5 - Zero Discharge

Information to Lessee (ITL's) Clauses

- No. 1 - Information on Bird and Marine Mammal Protection
- No. 2 - Information on Steller Sea Lions and Beluga Whales
- No. 3 - Information on Sensitive Areas to be Considered in the Oil-Spill-Contingency Plan
- No. 4 - Information of Coastal Zone Management Plan
- No. 5 - Information on Oil-Spill-Response Preparedness
- No. 6 - Discharges into the Marine Environment

The EIS will include description of and analysis of effects to the physical, biological, and human environment. The following categories will be included in the EIS: (1) Geology, (2) Climate and Meteorology, (3) Oceanography, (4) Water Quality, (5) Air Quality, (6) Lower Trophic-Level Organisms, (7) Fisheries Resources, (8) Essential Fish Habitat, (9) Marine and Coastal Birds, (10) Non-endangered Marine Mammals, (11) Endangered and Threatened Species (12) Terrestrial Mammals (13) the Economy, (14) Commercial Fisheries, (15) Subsistence-Harvest Patterns, (16) Sociocultural Systems, (17) Environmental Justice, (18) Archaeological and Cultural Resources, (19) National and State Parks and special areas, and (20) Coastal Zone Management. The EIS will also include a cumulative assessment.

Section I.D of the EIS will discuss and evaluate all of the scoping issues and concerns listed in the summary of comments above and the most significant issues will be identified for further detailed analysis in the Section IV (Analysis of Effects) of the EIS.

FURTHER PUBLIC INVOLVEMENT

Additional opportunities for public involvement will be provided during the preparation of the EIS. The next public comment period will commence with publication of the Draft EIS, scheduled for Fall of 2002.

The MMS appreciates the public's and interested organizations' participation and comments during the scoping process and welcomes their continued involvement in the next stage of the EIS process.

Attachment to Scoping Report Additional Information Regarding Cook Inlet EIS Scoping

The Cook Inlet Scoping report lists information MMS received during public scoping. It provides information about the issues, environmental resource categories, alternatives, and mitigating measures that will be analyzed in the EIS.

This attachment provides additional scoping information. First, it discusses the EIS content and format. Second, it provides information about issues that will be discussed in Section I.D of the EIS, but not evaluated in further detail in effects and cumulative sections of the EIS (Sections IV and V).

I. Hydrocarbon Resource Levels and Exploration and Development Scenarios.

For analytical purposes, the EIS assumes the amount of oil under consideration in the planning area to be 140 MMbbls along with 0.19 TCF of gas, all developed from a single platform. The analysis for the 2002-2007 5-Year Program was based upon two sales with each producing that volume of oil and gas. Our revised numbers for this EIS are consistent with the low end of the scenario range developed and analyzed in the 5-Year EIS. These resource levels are reflective of the information subsequently provided by industry in response to the Call for Nominations and Information for Sales 191 and 199. The oil will be produced first and the gas will be reinjected to maximize oil recovery. Natural gas production will start after oil production in the reservoir is largely depleted.

The lease sales are scheduled in 2004 and 2006. We are assuming exploration, development and production activities from Sale 191 and exploration activities as a result of Sale 199. However, the results of exploration from Sale 199 could help shape the development and production activity resulting from Sale 191. That is, in considering the collective results of exploration from both sales, MMS assumes that a single development of an oil and gas reservoir at one location will occur. For analysis purposes, the proposals and the cumulative effects' analysis in the EIS assume exploration from 2005 through 2007 and the single the development in 2008, if either or both sales are actually held. MMS also assumes that production would start in 2009. The EIS clearly indicates that if, instead of the above scenario, development activity results from Sale 199, the development and production scenario would be expected to be essentially the same as that assumed for Sale 191 and will not be repeated.

The EIS will present the resources in the sales and alternatives in relationship to an "Opportunity Index." This concept was developed to better reflect the economic and geologic conditions in Alaska. For development to occur, a company must find a field that is economic in size. It must be big enough so that potential income will exceed the costs of development and provide some level of profit to offset the economic and geologic risks. For Cook Inlet, we assume that if oil is discovered on the OCS, the pool would have to be at least approximately 140 MMbbls or more in size for it to be developed. It would be misleading for the EIS to assume that quantities of oil below that threshold could be assigned to a deferral area (e.g., 10,000 bbls). Removing a deferral

area that has oil and gas resource potential from a proposed lease sale, lowers the likelihood of discovering an economic field, hence the "opportunity index." This number represents MMS's best professional judgment of the "contribution" that deferral area provides to the potential discovery of an economic oil and gas development. That number represents the importance or opportunity lost if the deferral is chosen.

Under this concept, the EIS does not assign a specific amount of oil to the deferral area, therefore the evaluation of the deferral alternative(s) does not decrease the amount of oil in our oil spill model. The launch points within a deferral area will be removed from the model and new probability of contacts are calculated for the resource area(s) and land segments of interest, but the overall quantity of oil is not decreased. The platform size, the number of well, the miles of pipeline, the amount of disturbance, discharges, etc., do not decrease with the deferral alternative. They just occur in a different location.

II. Issues to be Evaluated in Section I.D of the EIS only.

As part of the scoping process, MMS must identify and eliminate for detailed study those issues (raised in scoping) that are not significant to the proposed action or that have been covered by prior environmental review. This process is sometimes described as "scoping out." Those issues are covered below. The scoping issue as described in the scoping meetings is provided in the first column. The second column describes our rationale for discussing them only in Section I.D.

1. Water Quality

Kenai peninsula communities dumping untreated wastes into Cook Inlet.	This issue is not related to the proposed action but may be considered in the cumulative analysis and is part of the baseline condition.
Stop new development until we know more, need baseline studies about contaminants in species.	The EIS will evaluate the effects of contaminants from proposed operations to water quality and the environment. It will also evaluate effects to water quality in the cumulative analysis. There is considerable information about contaminants from existing and potential oil and gas operations, which MMS feels is adequate to proceed with the preparation of the EIS. Several commenters identified much of this information during scoping.

2. Oil Spills and Aging Infrastructure in State Waters

Use worst-case oil spill to study socioeconomic effects to tourism economy using park attendance as an indicator, to subsistence, and to the commercial and sport fishing industry.	The EIS analyzes oil spill risk and is considered adequate. Worse case analysis is not required by NEPA CEQ regulations when there is adequate information.
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Commenters were concerned about the aging oil and gas infrastructure associated with existing platforms and pipelines in State waters.	MMS does not manage nor can we regulate existing oil and gas facilities in State waters. Effects from this infrastructure may be considered in the cumulative analysis and effects to resources.
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3. Administrative Issues that Relate to the Terms and Conditions of the Sale, but are not Environmental in Nature

Explore whether variable terms and options in lease sale will attract new interest.	This issue is not environmental in nature, therefore it is beyond the scoping of the EIS
Compare royalties received by the state with profit received by corporations from operations in the lower Cook Inlet.	This issue is not environmental in nature, therefore it is beyond the scoping of the EIS
Limit scope of sale to those tracts that might hold industry interest.	The Call for Information and Nominations was issued on December 31, 2001, and it requested this information. That information was considered in the Area Identification Process and the selection of the sale area in the Proposal (Alternative 1)

4. Administrative Issues beyond the Scope of the EIS

What are they doing with the drilling byproducts from onshore drilling around Anchor Point?	OCS activities from this proposed sale or from past OCS Cook Inlet sales have not generated byproducts from this drilling site. This topic is beyond the scope of the EIS, but may be considered in the cumulative analysis
Eastland patent for power transmission. (HAARP)	This comment was received but is not applicable to the proposed project and EIS
Pilots for tankers in the Cook Inlet.	This issue is not germane to the proposed action.
Security for tankers and offshore structures against terrorist threats.	The security of tankers and other vessels engaged in maritime commerce is beyond the scope of the EIS. The security of offshore structures are confidential and should not be displayed and distributed in public documents.
Can the EIS force alienation of property rights?	The purpose of the EIS is to evaluate environmental impacts. It has no effect on property rights. This issue is an administrative and legal issue, with no apparent direct environmental impacts to the EIS; it is an allegation that must be resolved in other forums, if at all.
Space vehicle launch trajectory from Kodiak Island and offshore structures.	The launch trajectory footprint from the onshore facility at Kodiak Island is outside

	the affected area of the proposed action.
Impact Assistance	One of the 5 points of the Tri-borough agreement is the request for impact assistance. However, only the U.S. Congress can appropriate funds, not MMS.
Consider new technologies as suggested by Dr. Nick Begich in the "Earth Rising, the Revolution."	MMS reviewed the book and found the proposed technology is neither technically nor economically feasible at this time.

5. Non-Sale Related Issues that are beyond the Scope of the EIS

Cook Inlet tribes would like follow up to the 1998 EPA subsistence contamination study to determine the potential contribution of contaminants produced by Cook Inlet oil and gas operations.	These comments and concerns relate to issues under direction of the Department of the Interior, the MMS, and other government agencies and their guiding regulations, statutes, and laws. While MMS takes note of these concerns, they were considered, but not included for analysis in the EIS.
Port Graham native village would like to be informed of the release of contaminant studies before it is available to the public.	
Open Alaska National Wildlife Refuge rather than Cook Inlet to leasing.	
Indicate how MMS will carry out its Section 106 of National Historic Preservation Act responsibilities.	
OCS revenues (which include Land and Water Conservation Fund) should be set aside in trust funds, shared with local governments, or used to assist local fishermen.	
Stipulations must reflect known environmental and operational risks.	

In addition to the proposal (Alternative I), the EIS will evaluate the two alternatives (Lower Kenai Peninsula Deferral and Barren Islands Deferral) identified in the Area ID and scoping report, which were suggested during the scoping process. MMS did not receive any suggestions to consider the alternatives that were evaluated in Sale 149. Most of the alternatives evaluated in Sale 149 were suggested by the public as a way to help avoid potential conflicts with commercial fishing activities. However, the analysis in Sale 149 found they were not that effective in eliminating the potential use conflicts.

The Sale 149 EIS and lease sale process did result in the development of the Protection of Fisheries stipulation, which requires the oil and gas industry to meet and work with the commercial fishing industry to minimize conflicts. At the scoping meetings, MMS indicated that stipulation would be evaluated in the EIS. No new mitigating measures were proposed for this EIS during scoping.

APPENDIX G

BACKGROUND INFORMATION AND ANALYSIS OF POTENTIAL EFFECTS ON KITTLITZ'S MURRELETS

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APPENDIX G: BACKGROUND INFORMATION AND ANALYSIS OF POTENTIAL EFFECTS ON KITTLITZ'S MURRELETS

A. SUMMARY AND GENERAL DESCRIPTION

The Kittlitz's murrelet (*Brachyramphus brevirostris*) is a small diving seabird that nests solitarily (Day and Nigro, 1999) and is endemic to the North Pacific (Alaska Natural Heritage Program, 1998). Very little is known about most aspects of the biology of this species (Piatt, Naslund, and van Pelt, 1999). Available evidence indicates that, except for small populations in the Russian Far East, most of the world's Kittlitz's murrelets breed in Alaska. They occur from Glacier Bay to western Alaska, including areas along the Alaska Peninsula and portions of the Kodiak Archipelago (Alaska Natural Heritage Program, 1998). Data indicate that regions within and near the proposed Cook Inlet sales area, including Kachemak Bay, lower Cook Inlet, and the eastern Kenai Peninsula, are important summer habitat areas for this species. Kittlitz's murrelets probably winter primarily over open ocean (Day, Kuletz, and Nigro, 1999).

As assessed using the Oil Spill Vulnerability Index (King and Sanger, 1979), this species had the second highest oil-spill-vulnerability index, indicating it is highly vulnerable to oil pollution (Alaska Natural Heritage Program, 1998). Kittlitz's murrelets suffered what was likely significant mortality following the 1989 *Exxon Valdez* oil spill. However, estimates of loss vary widely, the population structure of this species is mostly unknown, and population abundance estimates for most of the range are uncertain. Thus, interpretation of the significance also varies. Another potentially significant and more chronic threat is incidental take in gillnet fisheries (van Vliet and McAllister, 1994). Piatt and Anderson (1996) have suggested that changes in availability of forage fish may be impacting populations in the Gulf of Alaska regions, including Cook Inlet. The retreat of glaciers due to global warming may pose a major potential long-term threat to the Kittlitz's murrelet.

We refer readers to the relatively recent species' summary in Day, Kuletz, and Nigro (1999) for detail beyond the scope of this document. Updated species status information is also contained in a draft species status assessment and the candidate listing document, both of which will be released in the near future by the Fish and Wildlife Service (Kuletz, 2002, pers. commun.), but which are unavailable to the MMS at the time of preparation of this EIS.

B. CURRENT AND PAST PROTECTIVE STATUS

At the time of writing of this EIS, there was no mandated protection for Kittlitz's murrelet (Alaska Natural Heritage Program, 1998). This species was formerly federally listed as a Species of Special Concern by the Fish and Wildlife Service (1995), but that classification no longer exists (Day, Kuletz, and Nigro, 1999). Day, Kuletz, and Nigro (1999:20) summarized that "...there is cause for concern about the long-term

survival of the species, but so little is known about it that no management decisions really are possible.” Much of their presumed nesting habitat (Alaska Natural Heritage Program, 1998) is protected because of its location in national parks and preserves (for example, Glacier Bay National Park and Preserve, Wrangell-St. Elias National Park and Preserve, and Katmai and Kenai National Parks); national wildlife refuges (for example, Becharof, Alaska Maritime, and Alaska Peninsula National Wildlife Refuges); and state parks (for example, Kachemak Bay State Park and State Wilderness Park) (Alaska Natural Heritage Program, 1998).

On May 9, 2001, the Center for Biological Diversity, Coastal Coalition, Eyak Preservation Council, and the Lynn Canal Conservation, Inc. jointly petitioned the Secretary of the Interior to list the Kittlitz’s murrelet as endangered under the Endangered Species Act (Center for Biological Diversity et al., 2001). The Fish and Wildlife Service is developing a document to designate the Kittlitz’s murrelet as a candidate species under the Endangered Species Act.

C. POPULATION STRUCTURE

Very little is known about the population structure of this species or related features such as the mating system and sex-specific postnatal dispersal. However, recent data indicate that there are multiple populations of Kittlitz’s murrelets in Alaska. Recent data on allozyme and mitochondrial DNA variability among Attu Island in southwestern Alaska and Kachemak Bay in southcoastal Alaska indicate birds in these two locations belong to separate biological populations. Friesen, Piatt, and Baker (1996) estimated an average rate of exchange between the sites at about 0.40 individuals per generation.

D. HABITAT ASSOCIATIONS, MOVEMENTS, DISTRIBUTION, AND ABUNDANCE

Because nests are very rarely found, the best information about the distribution and abundance of this species comes from at-sea data (Ralph et al., 1995). However, a major problem with interpreting information about distribution, abundance, and habitat use from the available at-sea data is that the species identify of *Brachyramphus* murrelet individuals are typically not distinguished. Therefore, reported information must be interpreted cautiously. With that caveat, Kessel and Gibson (1978) and Day, Kuletz, and Nigro (1999) summarized that this species occupies five general and disjunct geographic regions within Alaska: Southeastern Alaska, Southcoastal Alaska, western Alaska, Southwestern Alaska, and Northern Alaska (Center for Biological Diversity et al., 2001:Figure 1). Piatt, Naslund, and van Pelt (1999:12) summarized that the current distribution of Kittlitz’s murrelets “...reflects their ancient association with glacial ice.” The known current at-sea and nesting distribution of Kittlitz’s murrelet is disjunct and is associated with large glacier fields (Glacier Bay National Park, Yakutat Bay, Prince William Sound, Kenai Peninsula, and Kachemak Bay), high-elevation remnant glaciers (Kodiak Island, Katmai National Park, Alaska Peninsula, and Atka and Attu Islands in the Aleutians), as well as recently deglaciated coastal mountains (such as those in the Seward Peninsula and Cape Lisburne). A detailed discussion of distribution is given in Day, Kuletz, and Nigro (1999) and Center for Biological Diversity et al. (2001).

In summer, murrelets generally are observed in large, sheltered waters such as Prince William Sound, Glacier Bay, and Cook Inlet and associated bays. Available data indicate that Kittlitz’s murrelets often forage in the “milky” water at the outflows of glacial rivers. Kittlitz’s murrelets are best studied in Prince William Sound and in Glacier Bay. In Prince William Sound, Day and Nigro (1999) found that Kittlitz’s murrelets preferred glacial stream affected habitats. Marine-sill-affected and glacial-unaffected habitats were the least-preferred habitats. During the breeding season, they are rarely observed on open continental shelves (Sanger, 1987).

These birds generally are observed alone or in very small groups (for example, average flock size is less than two) (see data in Day, Kuletz, and Nigro, 1999). Much larger flocks are seen, but very rarely. However, reports of typical flock size must be interpreted in light of the aforementioned fact that the

species identify of *Brachyramphus* murrelet individuals are typically not distinguished. One flock of approximately 130 birds was seen in Kachemak Bay near the outflow of Grewing Glacier in May of 1989, and about 300 were observed in Harriman Fjord in April 1984 (see references in Day, Kuletz, and Nigro, 1999). They are sometimes observed in mixed-foraging flocks.

Migration patterns are not well documented. Citing M. McAllister (in litt.), Day, Kuletz, and Nigro (1999:6-7) summarized: "Movement of "numerous" pairs southwest-northeast up Shelikof Strait on April 28-29 suggests spring migration to inshore areas in Gulf of Alaska from unknown wintering areas to southwest." Data from Prince William Sound indicate that birds move from offshore areas to fjords between mid-April and early May. Movement into the fjords continues into June, and Day, Kuletz, and Nigro (1999) suggest that the birds may be moving primarily during crepuscular (i.e., twilight) hours during that period.

Observed abundance also increases greatly in Kachemak Bay between mid-April and early May. Survey data from the outer coast of the Kenai Peninsula also indicate inshore movement between mid-April and early May (Day, Kuletz, and Nigro, 1999).

In Prince William Sound, birds begin leaving nesting bays in mid-July. It is not known where most of the birds overwinter, but there is some indication of at least some wintering in the northeast Gulf of Alaska. Kittlitz's murrelets in northern Alaska may linger until forced out by ice. Observations of small flocks passing St. Lawrence Island in autumn suggest there could be a fall migration (see references in Day, Kuletz, and Nigro, 1999).

Day, Kuletz, and Nigro (1999) state that most of these birds probably move to open waters over the continental shelf during the winter. However, we reiterate that the locations of wintering areas are very poorly known (Day, Kuletz, and Nigro, 1999).

In studies in Prince William Sound in the summers of 1996-1998 during early (May-June), mid (late June-early July), and late (July-August) summer, Day and Nigro (1999) found that Kittlitz's murrelets were common on nearshore (less than or equal to 200 meters from shore within bays) and offshore (more than 200 meters from shore within bays) boat surveys, but rare on pelagic (more than 200 meters from shore in open parts of the Sound between bays). Densities were highest in 1997. Densities were also highest in College and Harriman Fjords and lowest in Unakwik Inlet and Blackstone Bay. Day and Nigro reported that variations in ice cover or sea-surface temperature, or both, were associated with variation in both arrival times and among bay distribution in early summer. However, by early summer, the birds were widely distributed in the bays. Based on available data from Prince William Sound, the use of nearshore and offshore habitats used in summer is short term. In Prince William Sound, Day and Nigro (1999) found that the numbers of Kittlitz's murrelets in the bays increased rapidly in early summer, peaked around July 1, and decreased rapidly in late summer as the birds apparently abandoned the bays. Day and Nigro (1999) reported that Kittlitz's murrelets probably arrived in May in most bays and probably as early as April in some bays.

The abundance of Kittlitz's murrelet worldwide has been variously estimated to be about 18,300 (van Vliet, 1993), to 25,000-100,000+ (Ewins, Carter, and Shibaev, 1993). Day, Kuletz, and Nigro (1999) reported that the fall population in the Chukchi Sea was estimated to be 450 by van Vliet (1983) and 1,000-5,000+ by G.V. Divoky (cited as in litt in Day, Kuletz, and Nigro, 1999). Day, Kuletz, and Nigro (1999) concluded that there is no evidence for the large estimates of Ewins, Carter, and Shibaev (1993) and that the total world abundance of Kittlitz's murrelets is probably a few tens of thousands or slightly higher than van Vliet's (1993) estimate and near the lower estimate of Ewins, Carter, and Shibaev (1993). These estimates are based on very limited information.

Available information indicates that most Kittlitz's murrelets nest in Alaska with small populations in the Russian Far East (Konyukhov et al., 1998). Available information indicates the largest populations occur in Southeast and Southcentral Alaska, although a relatively high percentage of nests have been located on the Seward Peninsula (see Figure III.B-6). Day and Nigro (1999: see references cited therein) summarized that Prince William Sound is believed to one of two population centers for the Kittlitz's murrelet within Alaska. Day, Kuletz, and Nigro (1999), citing van Vliet (1993), state that the northern Gulf of Alaska of Alaska is where most of the world's population nests. Day, Kuletz, and Nigro (1999) reported that recent summer estimates were $3,353 \pm 1,718$ (95% confidence interval) for Cook Inlet, $3,368 \pm 4,073$ for Prince

William Sound, and $5,408 \pm 7,039$ for Southeastern Alaska. The recent winter estimate for Cook Inlet was 0 and 410 ± 744 for Prince William Sound (Kendall and Agler, 1998).

Both Cook Inlet and Shelikof Strait are important habitats for this species. With respect to areas where birds could potentially be impacted by activities associated with the proposed action, Figure 1 in Piatt, Naslund, and van Pelt (1999) shows densities of this species to be approximately 0.02-0.30 Kittlitz's murrelets per square kilometer in upper Shelikof Strait and parts of outer Kachemak Bay. Densities are lower in the Kamishak Bay and adjacent areas in lower Cook Inlet. Data collected during a small boat survey of lower Cook Inlet in the summer of 1993 indicate areas of highest densities of *Brachyramphus murrelets* (species not distinguished) to be in outer northwest and southwest areas of Kachemak Bay, the back of Kachemak Bay and bays on the south side of Kachemak Bay directly across from Homer. During these surveys, Agler, Kendall, and Irons (1998) observed a total of 73 Kittlitz's murrelets in Cook Inlet. Fifty-seven of these individuals were in offshore strata (more than 200 meters from land). Agler, Kendall, and Irons (1998) observed a total of 235 Kittlitz's murrelets in Prince William Sound (59 in offshore strata) and 39 (24 offshore) in Southeast Alaska. Agler, Kendall, and Irons (1998) reported that winter estimates for both lower Cook Inlet and Prince William Sound were lower than summer estimates, suggesting that many of these birds winter outside of lower Cook Inlet and Prince William Sound. However, it may also be more difficult to see birds in the winter due to differences in light conditions and other factors that influence detectability during surveys.

Day and Nigro (1999) reported that in all of the summers of 1996-1998, a total of about 1,300 Kittlitz's murrelets (per year) inhabited studied bays within four glacial fjords in Prince William Sound. However, within all bays, population estimates varied dramatically among years.

E. POPULATION TRENDS

Day, Kuletz, and Nigro (1999) concluded that "...at this time, there is no reliable evidence of population changes in this species. Nevertheless, known mortality..." from factors listed below "...and the small world population size necessitate extreme caution on the part of researchers and resource managers." Previously, van Vliet (1993) compared 1972 estimates of abundance in Prince William Sound of about 57,000 (Isleib and Kessel, 1973) to about 63,000 (Agler et al., 1994) with current estimates and suggested that there has been a substantial decline in abundance of Kittlitz's murrelets in Prince William Sound.

F. REPRODUCTION

There is very little definitive information about the reproductive biology of Kittlitz's murrelets (Piatt, Naslund, and van Pelt, 1999). As evident below, very few known or probable nests (about 25) have been found (Day and Nigro, 1999) all but two of which were in Alaska (Day, Oakley, and Barnard, 1983; Day, 1995; Piatt, Naslund, and van Pelt, 1999) (see Figure III.B-6). Thus, "breeding distribution" is based on observations of birds during the presumed breeding season at sea, with the assumption (but rarely the confirmation) that they are breeding on nearby mainlands (Day, Kuletz, and Nigro, 1999). They are presumed, but not confirmed, to be monogamous (Day, Kuletz, and Nigro, 1999). Figure 1 in Piatt, Naslund, and van Pelt (1999) depicts presumably these same nests and the documented at-sea nesting distribution of Kittlitz's murrelets.

All known nests have been found on the ground. Day (1995; Day, Oakley, and Barnard, 1983) reported that Kittlitz's murrelets nests have been found on the ground on barren lowlands in the northern part of their range and at high to moderate elevations on alpine talus slopes in the southern part of their range.

In mid-June of 1993, near Kachemak Bay, hikers discovered a new Kittlitz's murrelet nest containing a single egg near Red Mountain on the Kenai Peninsula (Piatt, Naslund, and van Pelt, 1999). This nest was at about a 900-meter elevation on a 22 degree slope in an area "scoured by winds and free of snow during early spring" (Piatt, Naslund, and van Pelt, 1999:8) and was therefore more typical of nest sites found in the southern part of its range. Piatt, Naslund, and van Pelt (1999) reported that the area of the Kenai Peninsula

near to where the 1993 nest was observed had what appeared to be considerable suitable Kittlitz's murrelet nesting habitat, and they speculated that there may be many other such nests in the region. One of 14 nests that Day, Oakely, and Barnard (1983) reported was in a nearby region in the Windy River Valley. Piatt, Naslund, and van Pelt (1999) suggested that Kittlitz's murrelets' choice of a breeding habitat over a large spatial scale may be affected by proximity to foraging habitat such as sheltered bays and glacial river outflows. Because these birds have a limited period of time in which to complete incubation and raise chicks to fledging (a process that takes about 60 days in the marbled murrelet) (Sealy, 1974), an important factor in nest-site selection may be that it is snow-free early in the season (Day, 1995, 1996; Day, Kuletz, and Nigro, 1999; Piatt, Naslund, and van Pelt, 1999).

The period during which nesting occurs in a given area is not well documented, due to the small number of nests that have been discovered. Time of nesting is believed to vary among the five geographic regions in which this species is known to nest (Day, 1996). Documented nesting is earlier and occurs over a wider period of time in the southern portions of the range (Day, 1996). Based on incubation data from the marbled murrelet and the limited available data, Day suggests that egg-laying may occur from about mid-May to mid-June in southern portions of the ranges and from about June 16-28 in the northern portions of the range. These dates should not be interpreted too strongly, however, due to the extremely limited data upon which they are based.

The limited available data indicate that Kittlitz's murrelets lay a single egg and build only a rudimentary nest (Day, Oakely and Barnard, 1983; Piatt, Naslund, and van Pelt, 1999). Piatt, Naslund, and van Pelt (1999) found evidence suggesting that nest sites may be reused.

Typical rates of reproduction are not known, nor is there information about reproductive success. However, data from birds collected in 1907 and 1968, as well as observations of young of the year in bays, led Day, Kuletz, and Nigro (1999:16) to report that there some evidence that "...large-scale nonbreeding may be common in this species.

G. FORAGING ECOLOGY

During recent studies in Prince William Sound, the documented summer foraging of Kittlitz's murrelets was concentrated in shallow water, particularly in turbid water near glaciers (Day and Nigro, 1999). Forage fish from the continental shelf are the primary prey of this species in the summer. Macrozooplankton from the continental shelf is also taken probably secondarily. Winter diet is essentially unknown. Day, Kuletz, and Nigro (1999) state that Kittlitz's murrelets use tide rips to an unknown extent for foraging; they also reported that in Cook Inlet, Kittlitz's murrelets are seen "sparsely" in tide rips in late April.

Documented summer diet is primary fish species (capelin, Pacific sand lance, Pacific herring, Pacific sandfish, and unidentified fishes) (about 70% based on a small sample of individuals primarily from the Kodiak region) and euphausiids (about 30%). Amphipods were documented in trace amounts (Sanger, 1987; Vermeer, Sealy, and Sanger, 1987). Birds shot in Kachemak Bay in the summer of 1990 had recently fed on juvenile Pacific sand lance and pollock (Piatt, Naslund, and van Pelt, 1994). In the Aleutians and in Russia, they have been observed to feed on crustaceans in May. Based on 13 Kittlitz's murrelets collected from Kachemak Bay in 1990, 97% of their diet was sand lance and 2.8% was pollock. In 1996 in Kachemak Bay, Kittlitz's murrelets ate 80.2% sand lance, 13.9% capelin, 4.6% flatfish, and 9.5% gadoids (J. Piatt, cited in Day, Kuletz, and Nigro, 1999).

The foraging ecology of this species is not well documented with scant or no data available on summer foraging for most of its range and almost no information on winter foraging. During studies during the summer in both Southeast Alaska and Prince William Sound, the documented foraging of Kittlitz's murrelets was concentrated in shallow water, particularly water near glaciers (Day and Nigro, 1999; Day and Nigro, 2000; U.S. Geological Survey, 2001).

They tended to forage alone or in small groups (Day and Nigro, 1999; Day, Kuletz, and Nigro, 1999), taking prey under water.

Available data indicate that during the summer, Kittlitz's murrelets primarily eat fish that inhabit continental shelf waters and secondarily eat macrozooplankton, such as euphausiids (Day, Kuletz, and Nigro, 1999; Ewins, Carter, and Shibaev, 1993; Sanger, 1987; Vermeer, Sealy, and Sanger, 1987). Based on data on 16 birds from primarily the Kodiak Island region as well as from the Bering Sea, Day, Kuletz, and Nigro (1999) reported that the summer diet of Kittlitz's murrelets was about 70% fish (including capelin, Pacific sand lance and, to a lesser extent, Pacific herring, Pacific sandfish, and unidentified species) and 30% euphausiids. Trace amounts of gammarid amphipods were also detected (e.g., Vermeer, Sealy, and Sanger, 1987). Based on these data, Day, Kuletz, and Nigro (1999) classified Kittlitz's murrelets as secondary carnivores. They reported: "This trophic level from nonglaciated areas is identical to that estimated for Kittlitz's Murrelets collected off of Grewingk Glacier (Hobson et al., 1994) [in Kachemak Bay], suggesting widespread similarity in trophic position, regardless of proximity to glaciers."

Thirteen Kittlitz's murrelets that were collected in Kachemak Bay in the summer of 1990 had been feeding on juvenile Pacific sand lance (97.2% by mass) and pollock (2.8%) (J.F. Piatt, in litt., cited in Day, Kuletz, and Nigro, 1999). Fifteen Kittlitz's murrelets that were collected in Kachemak Bay in 1995 were eating (again by mass) sand lance (80.2%), capelin (8.0%), and flatfishes (species not specified) (11.8%) (J.F. Piatt, in litt., cited in Day, Kuletz, and Nigro, 1999).

Four Kittlitz's murrelets at Unalaska in 1989 had been feeding on pollock (100%) (J.F. Piatt, in litt., cited in Day, Kuletz, and Nigro, 1999). Information from Kittlitz's murrelets collected in the 1800's near Unalaska indicated they were feeding on crustaceans (see Day, Kuletz, and Nigro, 1999:9 and references cited therein).

Data are insufficient to speculate about winter diet with information from only one bird collected in 1977 cited in recent reviews (for example, see Day, Kuletz, and Nigro, 1999:8-9).

H. MORTALITY RATES AND CAUSES

There is almost nothing known about natural causes or rates of mortality in this species or typical lifespans (Day, Kuletz, and Nigro, 1999).

I. Other Identified Factors of Conservation Concern Including Human-Related Mortality

I.1. Oil Spills

Kittlitz's murrelets suffered mortality due to the *Exxon Valdez* oil spill, but the magnitude of this loss is unclear. Multiple estimates have been derived. van Vliet and McAllister (1994) estimated 1,000-2,000 Kittlitz's murrelets may have been killed by the spill. If this estimate is accurate (but see discussion following), as high as 5-10% of the total estimated world's population might have been killed (Day and Nigro, 1999). However, Day and Nigro (1999:1) also pointed out: "Subsequent evaluation of carcasses suggested that ~370 Kittlitz's murrelets were killed in Prince William Sound although several other estimates are possible from the numbers presented (see Table 8 and text in Kuletz, 1996:781). Although the accuracy of these estimates is unclear, the species' small total world population makes any substantial mortality of concern to wildlife managers and conservation biologists." Further discussion of the effects of the *Exxon Valdez* is provided in Section I.3.

I.2. Take in Fisheries

There is documented take of Kittlitz's murrelets in domestic salmon drift gillnet fisheries in Southcentral Alaska. Wynne, Hicks, and Munro (1992) estimated 133 Kittlitz's murrelets were killed in Prince William Sound salmon drift gillnet fisheries in 1991. A tagged museum specimen taken in a salmon net in Yakutat Bay in 1936 suggests this problem is not new or novel. Day, Kuletz, and Nigro (1999:17) reported that "Kittlitz's murrelets may be highly susceptible to mortality in these nearshore salmon gillnets: they represented only 0.5% of all cases of birds seen less than or equal to 10 meters from nets but accounted for 11.3% of all birds killed by nets..." Two of four Prince William Sound fishing districts occur in or near Kittlitz's murrelet habitat (Day, Kuletz, and Nigro, 1999). Based on this estimated level of kill and the recent estimated population size (based on Kendall and Agler, 1998) of 3,368 for Kittlitz's murrelets for Prince William Sound, the Center for Biological Diversity et al. (2001:30) pointed out that "...nearly 4% of the population in Prince William Sound is killed by commercial fishing vessels each year." Based on information on estimates of take of murrelets (both marbled and Kittlitz's) in fisheries in both Prince William Sound and in Southeast Alaska, the Center for Biological Diversity et al. (2001:31) concluded that "nearshore gill-net fisheries clearly have the potential to represent a significant source of mortality for the Kittlitz's murrelet, wherever they co-occur with aggregations of the species."

There is no information indicating mortality of Kittlitz's murrelets in Japanese, Korean, or Taiwanese drift gillnet fisheries for salmon or squid in the Bering Sea or North Pacific (Day, Kuletz, and Nigro, 1999).

I.3. Decreases in Stocks of Prey

Piatt and Anderson (1996) have suggested that changes in availability of forage fish may be affecting populations in the Gulf of Alaska regions, including Cook Inlet.

I.4. Global Warming

A long-term threat to Kittlitz's murrelets may come from the loss of preferred foraging habitat due to the retreat of coastal glaciers associated with global warming (Day and Nigro, 1997; Kendall and Agler, 1998). Day, Kuletz, and Nigro (1999) concluded that it is probable that the general retreat of low altitude glaciers in coastal Alaska will have a major impact of the distribution and abundance of Kittlitz's murrelet.

I.5. Disturbance

Day, Kuletz, and Nigro (1999:18) stated that the preference of Kittlitz's murrelet to forage in glaciated fjords results in the bird being in the "...one habitat most often disturbed by tour boats, private boats, and kayakers..." Day and Nigro (1999) expressed specific concern about potential impacts resulting from increased disturbance due the opening of the road to Whittier, Alaska. They concluded (Day and Nigro, 1999:60) that protecting glacial-affected and glacial-stream-affected foraging habitats in Prince William Sound from disturbance "...will be important in conserving this species." Day, Kuletz, and Nigro (1999) point out that preference of Kittlitz's murrelets to feed in glaciated fjords results in their being in areas most disturbed tour and private boats, as well as kayakers. This overlap could result in disturbance, but whether the birds are disturbed by such boats, if so, in what manner, and the significance of such disturbance is unknown.

I.6. Collisions

Day, Kuletz, and Nigro (1999) reported that there is no record of Kittlitz's murrelets colliding with stationary or moving structures or objects. There is no information indicating that this species is eaten or

hunted by humans (Day, Kuletz, and Nigro, 1999). There is no indication that ingestion of plastic is a serious conservation concern for this species. There is no information indicating that this species is eaten or hunted by human (Day, Kuletz, and Nigro, 1999).

J. POTENTIAL EFFECTS OF PROPOSED ACTION ON KITTLITZ'S MURRELET

J.1. Noise and Other Disturbance

The effects of noise and disturbance during exploration, development, and production activities associated with the proposed action would be expected to be similar for Kittlitz's murrelets as described in sections on marine and coastal birds. Sources of noise and disturbance that could possibly result in local displacement of Kittlitz's murrelets include seismic exploration, helicopters, other aircraft, ships, and boats. Effects associated with exploration would be expected to be short-term lasting only as long as the exploration activity itself. Birds could potentially be displaced for decades in the immediate area directly around the production platform. Data are not adequate to determine whether these birds would be likely to habituate to such disturbance. However, all potential adverse effects from noise and disturbance are likely to minor and exert only local displacement of the birds within parts of lower Cook Inlet. Birds outside of the proposed leasing area are unlikely to be negatively affected by such noise and disturbance unless flight patterns of support aircraft took such aircraft over subalpine and alpine nesting areas.

Day and Nigro (1999) suggested that excessive human disturbance has resulted in Kittlitz's murrelets abandoning Blackstone Bay in Prince William Sound in the summer. This area is heavily impacted by motorized boating (Center for Biological Diversity et al., 2001). We assume that exploration activities will result in an additional one to two boat trips and helicopter trips per day to the site of exploration. However, more, or less, frequent trips could occur, as needed. Other types of disturbance would include: seismic profiling activities, emplacement of a semisubmersible, jackup, or other type of bottom-founded unit for exploration drilling; installation of a steeljacket, bottom-founded drilling platform for production; pipeline placement; and decommissioning activities (see Sections II.A and II.B and Appendix B for details on the scenario assumed for analysis purposes).

Many of these activities would be separated in time. If the conclusion of Day and Nigro (1999) is correct that disturbance can lead to abandonment of areas, the presumed level of activity, over a sustained period of time, could potentially lead to Kittlitz's murrelets avoiding the site within Cook Inlet where the activity was occurring. However, the amount of disturbance due to boat activity added by exploration and development potentially associated with the proposed action is very small compared the levels already existing in Cook Inlet. Birds could avoid the area in which exploration drilling units are located. It is likely that if avoidance occurs, it is likely to be highly local in effect. It is unlikely that such localized avoidance would have significant impacts on this species unless focused in those few areas where the birds typically and regularly congregate. These areas are not particularly well-defined specifically for Kittlitz's murrelets. In the summer, data indicate that *Brachyramphus* murrelets (species not specified) (Agler, Kendall, and Irons, 1998:Figures 1 and 2) and forage fish (Piatt et al., 1997:Figure 6) are both present in relatively high abundance especially in areas offshore just south of Anchor Point and southwest of Nanwalek.

Other areas where relatively high summer abundance of *Brachyramphus* murrelets exist within Cook Inlet include the south side of Kachemak Bay. If the distribution of *Brachyramphus* murrelets in general corresponds generally with that of Kittlitz's murrelets specifically, disturbance that resulted in displacement of birds from these areas could result in the loss of important, possibly non-replaceable (because of the combination of forage fish and other unidentified variables) habitats. However, conclusions about the importance of these habitats to Kittlitz's murrelets specifically are difficult to determine at present, primarily because Marbled and Kittlitz's murrelets are not distinguished in the vast majority (81% of the sightings in lower Cook Inlet were only identified as *Brachyramphus* murrelets). Additionally, available survey data are extremely limited, providing only a momentary glimpse of murrelet use of the inlet. Lower

densities were observed during these specific surveys throughout the central and eastern portions of the Inlet (Agler, Kendall, and Irons, 1998). The area available to Kittlitz's murrelets for use within Cook Inlet is extremely large compared to the area in which exploration, development, or production would potentially cause noise and disturbance at any one time.

The Center for Biological Diversity et al. (2001) stated that Kittlitz's murrelets could be impacted by underwater noise in several ways. First, the birds could be disturbed by the noise, resulting in disruption of feeding and/or reproductive behavior. Second, their prey could be scattered by the sound, impacting feeding efficiency. Lastly, temporary or permanent hearing loss could result. However, the impact of underwater noise, such as that associated by supply boats and/or with shallow hazards geophysical seismic surveying, on Kittlitz's murrelets or closely related birds has not been studied. As summarized in the section on the effects on essential fish habitat, the decibel or noise level of seismic waves, especially during exploration, will make essential fish habitat temporarily uninhabitable and displace fish toward the bottom. The noise level of seismic waves will cause very short-term (less than one week in any one location) Cook Inlet disturbances to essential fish habitat during exploration phases. The effect would be spread out across the lower Cook Inlet multiple-sale area and continue late summer to early fall seasons from 2005-2008. It likely would displace fish and zooplankton over the same area for the duration of the survey. We do not expect zooplankton to be displaced, but there could be sublethal effects on these organisms, from which it is expected they would recover within one week. See Section IV.C.2 - Effects on Lower Trophic-Level Organisms for more detail. Short-term effects on essential fish habitat from turbidity created during pipeline placement are considered low.

J.2. Collisions

It is possible that Kittlitz's murrelets could collide with drilling, development, or production platforms. However, based on the lack of reports of Kittlitz's murrelets colliding with structures (Day, Kuletz, and Nigro, 1999), it is unlikely that such mortality or injury due to collisions with exploration and/or development platforms is likely to occur.

J.3. Effects of Oil Spills on Kittlitz's Murrelets

It is clear that Kittlitz's murrelets are highly vulnerable to oil spills in their marine habitat. Potential effects of spills on this species are likely to vary greatly depending on: (a) the amount of oil spilled; (b) the area in which the spill occurred; (c) the time of year the spill occurred; and d) the weather at the time of the spill.

Small oil spills are unlikely to cause serious population level adverse effects to Kittlitz's murrelets, primarily because of the low probability that the spilled oil would actually contact Kittlitz's murrelet. If an individual bird was oiled, it is likely that it would be harmed or, depending on the extent of the oiling, killed. Based on direct mortality following the *Exxon Valdez* oil spill, it is clear that Kittlitz's murrelets could be killed if a large or a very large oil spill occurred in Cook Inlet. Effects would likely be greater in the summer and fall than in the winter, because available evidence indicates that the species does not overwinter in appreciable numbers within or near the proposed Sales 191 and 199 areas. However, as discussed previously, this statement should not be interpreted too strongly, since information about wintering distribution of this species is very sparse. Additionally, available information suggests that predictions about the numbers, extent, or significance of loss of Kittlitz's murrelets due to large and very large oil spills are difficult and fraught with uncertainty. This uncertainty arises not only due to the lack of good information about the number and distribution of Kittlitz's murrelets in Cook Inlet, the southern coast of the Alaska Peninsula, the Kodiak Archipelago, and Shelikof Strait, but also from a paucity of information indicating mortality following the many small spills, and the few large spills, that have previously occurred in the range of the Kittlitz's murrelet. As is the case for most marine birds, if a Kittlitz's murrelet is oiled, it is likely to die due primarily to loss of insulation and subsequent hypothermia. However, while hundreds of small spills have occurred within the range of the Kittlitz's murrelet, including spills where large amounts of oil entered waters within and near the proposed sales area, there is a dearth of information (except following the *Exxon Valdez* oil spill) about effects on this species. This lack of

documented mortality, however, needs to be interpreted cautiously since post-spill studies after most spills have been minimal. It can be very difficult to recover carcasses of species that die at sea after spills, especially if such recovery requires researchers and research vessels to venture into heavily oiled areas.

Available evidence, including evidence available after the *Exxon Valdez* oil spill (which impacted areas that could also be affected by a large or very large spill in Cook Inlet) in nearby Prince William Sound, indicates that the Kittlitz's murrelet is highly vulnerable to oil spills and that mortality after a very large oil spill could have significant population-level effects. However, as summarized below, the general dearth of information about this species and lack of agreement about what can confidently be said following the *Exxon Valdez* oil spill makes it difficult to predict more than general potential impacts of an oil spill in Cook Inlet on this species. It is known that Kittlitz's murrelets breed on land adjacent to Cook Inlet, they are highly vulnerable to oil spills, they may have very low productivity at present in the region, they were affected more than 13 years ago by a very large crude oil spill in the region, their forage base may be declining, their habit altered due to glacial retreat, and, thus, both direct and cumulative effects of an oil spill resulting from the Proposed Action could potentially have significant effects on this species.

Consideration of aspects of the biology of this species, literature on well-documented impacts of oil on other species of seabirds, documented mortality after *Exxon Valdez* oil spill and the slow recovery of the closely related marbled murrelet, all indicate that this species is highly vulnerable to direct oil contamination. Potential vulnerability to indirect effects, due to prey contamination or declines in prey availability after oiling, or both, is not well understood. While information on the lifespan and generation length in this species makes it difficult to confidently estimate potential effects in terms of number of generations, it is clear from studies of the closely related marbled murrelet, and from consideration of its apparent low productivity rate in the region, that effects could last for over a decade. This species has an Oiling Vulnerability Index score of 88 on a scale of 1-100 that makes it the second most highly vulnerable species (after the endangered Short-tailed albatross) to oil spills (King and Sanger, 1979). Day, Kuletz, and Nigro (1999) summarized: "This high ranking was attributed to the species' small breeding and wintering ranges, strong marine orientation, low productivity, marine roosting and foraging habits, escape behavior by diving, probably high mortality when exposed to oil, and other attributes."

After the *Exxon Valdez* oil spill, the largest oil spill in North American history, Kittlitz's murrelets were killed due to oiling, but the magnitude of this loss is unclear. Multiple estimates have been derived and vary considerably. Relatedly, interpretations about the population significance of the post- *Exxon Valdez* mortality of this species also vary. For example, van Vliet (1993) initially estimated that more than 500 birds, or 3% of the population, were killed by the *Exxon Valdez* oil spill. van Vliet and McAllister (1994) reported that 67 birds were found dead. Based on these data they estimated that 1,000-2000 Kittlitz's murrelets, or about 5-10% of the world population, were killed. Carter and Kuletz (1995) documented 51 Kittlitz's murrelets carcasses after the *Exxon Valdez* oil spill. They estimated 255 individuals were killed. Kuletz (1996) estimated 370 birds were killed. Day and Nigro (1999:1) also pointed out that

Subsequent evaluation of carcasses suggested that approximately 370 Kittlitz's murrelets were killed in Prince William Sound, although several other estimates are possible from the numbers presented (see Table 8 and text in Kuletz, 1996:781). Although the accuracy of these estimates is unclear, the species' small total world population makes any substantial mortality of concern to wildlife managers and conservation biologists.

Interpretation of any of the significance of any of these estimates is confounded by the fact that the population boundaries and size of the population(s) to which the individual that died belonged is unknown. For example, if the high estimate of 1,000-2,000 birds killed was correct and if important population subdivision exists in this species, it is possible that a very large proportion of the biological population was killed. If no such subdivision exists, and the lower estimates are correct, the significance of the mortality is much lower.

After the *Exxon Valdez* oil spill, the primary effects on this species "...had to have occurred as a result of the initial at-sea mortality in late winter 1989" (Day, Kuletz, and Nigro, 1999:57). In the Cook Inlet and Shelikof Strait area, this is also likely to be true, unless fresh oil traveled into Kachemak Bay and entered the fiord areas on the southern side.

Because of the inadequacy of prespill data on local and worldwide abundance as well as uncertainties in interpretation of available carcass data, there is not overall scientific agreement on the magnitude or the population-level significance of effects on this species. Day and Nigro (1999:57) state: “The effects of the *Exxon Valdez* oil spill on Kittlitz’s murrelets probably will never be known. At this point, all that is known is that some birds at sea died, representing an unknown percentage of an unknown population size of this species from somewhere in the northern Gulf of Alaska...” Such opinions have been seconded by the Trustee Council, which stated in 1999 that “the original extent of the injury and its...recovery status are still unknown and probably will never be resolved” (*Exxon Valdez* Oil Spill Trustee Council, 1999). However, more recently, the *Exxon Valdez* Oil Spill Trustee Council (2002:14) summarized:

It’s estimated that more than 1,000 individuals died from the oil spill, which would represent a substantial fraction of the world population...Small population, low reproductive success, and affinity to tidewater glaciers (some of which are receding rapidly) are reasons for concern about the long-term conservation of Kittlitz’s murrelet.

In the latest Status of Injured Resources, the Trustee Council (2002, http://www.oilspill.state.ak.us/facts/status_kittlitzsmurrelet.html) stated that :

Seventy-two Kittlitz’s murrelets were positively identified among the bird carcasses recovered after the oil spill. Nearly 450 more *Brachyramphus* murrelets were not identified to the species level, and it is reasonable to assume that some of these were Kittlitz’s. In addition, many more murrelets probably were killed by the oil than were actually recovered. It is likely that about 500 individuals died as an acute effect of the oil spill, which would represent a substantial fraction of the world population.

They summarized (bold font in original) that:

Specifically, with reference to the effects of the oil spill, however, the original extent of the injury and its recovery status are still unknown and may never be resolved. Therefore, this species is in the recovery unknown category.

Estimation of the number of Kittlitz’s murrelets that could be killed or seriously harmed by a large or very large spill originating in Cook Inlet is difficult due to the lack of basic information about this species. Genetic data, discussed above, indicates that there is population subdivision of Kittlitz’s murrelets in Alaska. However, only data from two regions were available. There could be multiple populations. If so, any assumed loss from an oil spill in Cook Inlet would be from a much smaller (and be a higher percentage of its parent population) than if the loss was from a single, statewide, randomly breeding population. Another significant hurdle to evaluating the likely effects of the proposed action, and specifically of an oil spill, on this species is that most (about 90%) of the murrelets observed in Cook Inlet are not identified to species. Thus, the actual abundance of this species in particular areas, or even in the inlet, Shelikof Strait, or other nearby regions could vary considerably and significantly, depending on whether there is any bias in species identification probability that leads to one or the other murrelet species in being unidentified more frequently than one would expect based on the proportions of the small numbers of birds that are identified.

Both Cook Inlet and Shelikof Strait, areas that could be impacted by oil from a spill in Cook Inlet, are important habitats for this species. With respect to areas where birds could potentially be impacted by activities associated with the Proposed Action, Figure 1 in Piatt, Naslund, and van Pelt (1999) shows densities of this species to be approximately 0.02-0.30 Kittlitz’s murrelets per square kilometer in upper Shelikof Strait and parts of outer Kachemak Bay. Densities are lower in the Kamishak Bay and adjacent areas in lower Cook Inlet. Data collected during a small boat survey of lower Cook Inlet in the summer of 1993 indicates areas of highest densities of *Brachyramphus* murrelets (species not distinguished) to be in outer northwest and southwest areas of Kachemak Bay, the back of Kachemak Bay and bays on the south side of Kachemak Bay directly across from Homer. During surveys, Agler, Kendall, and Irons (1998) observed a total of 73 Kittlitz’s murrelets in Cook Inlet. Fifty-seven of these individuals were in offshore strata (more than 200 meters from land). Agler, Kendall, and Irons (1998) reported that winter estimates for both lower Cook Inlet and Prince William Sound were lower than summer estimates, suggesting that many of these birds winter outside of lower Cook Inlet and Prince William Sound.

Day, Kuletz, and Nigro (1999) reported that recent summer estimates were: $3,353 \pm 1,718$ (95% confidence interval) for Cook Inlet, $3,368 \pm 4,073$ for Prince William Sound, and $5,408 \pm 7,039$ for Southeastern Alaska. The recent winter estimate for Cook Inlet was 0 and 410 ± 744 for Prince William Sound (Kendall and Agler, 1998).

APPENDIX H

AIR QUALITY MODELING

FOR

COOK INLET SALE

191 AND 199

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**Table 1 OCD Modeling Results for Cook Inlet Exploration,
concentrations in $\mu\text{g}/\text{m}^3$**

**Table 2 PSD Maximum Allowable Increases and Class I
Significance Levels, Concentrations in $\mu\text{g}/\text{m}^3$**

**Table 3. OCD Modeling Results for Cook Inlet Production
Facility, concentrations in $\mu\text{g}/\text{m}^3$**

Table 4. Summary of VISCREEN Modeling Results

APPENDIX H. AIR QUALITY

H.1 ABSTRACT

Air quality modeling was performed using OCD5 to assess potential air quality impacts from OCS oil and gas development associated with the proposed lease sales 191 and 199 in the Cook Inlet in the Alaska Region. Emission scenarios were developed based on projected exploration and production activities. The modeling emphasized possible impacts on the Tuxedni National Wilderness Area (NWA), which is a PSD Class I area. The modeling showed that the highest concentrations of NO₂, SO₂, and PM₁₀ would occur in close proximity to the facility. The modeled concentrations decrease rapidly with distance. Projected concentrations within Tuxedni NWA were well within the PSD Class I maximum allowable increases. Visibility screening was performed using VISCREEN. The model indicated that the plume from an exploration or production facility near Tuxedni NWA could be visible for the most restrictive meteorological conditions. The plume would not be visible under average meteorological conditions.

H.2 Introduction

OCS oil and gas exploration and development activities result in emissions of nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), particulate matter, and volatile organic compounds (VOC). The U.S. EPA has set ambient air quality standards for NO₂, SO₂, CO, and PM₁₀ to provide for the protection of public health and welfare. The Clean Air Act also established the Prevention of Significant Deterioration (PSD) program designed to set limits to the amount of air quality degradation from new industrial sources. This program sets maximum allowable increases above baseline levels for concentrations of NO₂, SO₂, and PM₁₀. These limits are the most stringent in areas that are designated as Class I (national parks and wilderness areas).

As part of the NEPA analysis for the proposed lease sales, air quality modeling needed to be performed in order to determine whether any OCS activities would be able to meet the national ambient air quality standards (NAAQS) and the PSD maximum allowable increments. In addition, the possibility of any impacts on visibility in the Tuxedni NWA needed to be examined. Visibility is one of the air quality related values which the Federal Land Manager of a PSD Class I area is responsible for protecting.

H.3 Existing Air Quality

Information on air emissions in the area may be obtained from an EPA database on www.epa.gov/ttn/naaqs/ozone/areas/state/cnty/akcy.htm. Industrial emissions on the Kenai Peninsula primarily arise from gas processing, oil refining, power generation, and petrochemical production. Other emissions result from motor vehicles (highway and off-highway activities). Vessel traffic in Cook Inlet is also a significant source of emissions. In Anchorage the largest emissions are attributed to motor vehicles. Off-highway vehicular sources also contribute a significant fraction of the total emissions. Industrial sources consist mainly of power generation and refuse burning.

Air quality monitoring in the area is primarily limited to the Anchorage urban center. Measurements have shown that pollutant levels are well within the ambient air quality standards. The 8-hour average concentration of carbon monoxide in Anchorage violated the ambient standard once each in 1996 and in 2001, but no other violations have occurred since 1996. Ambient levels of pollutants in the Cook Inlet should be well within the NAAQS.

H.4 Climate

The climate of the Cook Inlet is characterized by cold winters and cool summers. Temperatures are moderated by the marine influences from the inlet and the Gulf of Alaska waters to the south. At Homer, Alaska the average maximum and minimum temperatures in January are around -1°C and -10°C, respectively. In July, the average maximum temperature is around 15°C, while the minimum is around 9°C. Precipitation is distributed fairly evenly throughout the year, but tends to be highest in the fall and lowest in the spring. Winds are strongly channeled by the surrounding high topography and tend to blow along the length of the Cook Inlet, except in areas where there are gaps in the mountain ranges.

H.5 Sales 191 and 199 Development Scenarios

It was assumed that for these proposed lease sales 140 million barrels of oil and 190 billion cubic feet of gas would be discovered and produced from a single development project. Production would result from either one or both of the lease sales. Exploration would peak in the years 2007 and 2008 with the drilling of two exploration/delineation wells. This would be followed by the installation of one production platform in the year 2011. Oil and gas production would peak in the years 2012 through 2014 with an annual production of 18.3 million barrels of oil and 12.4 billion cubic feet of gas. For the first phase of operation, a fraction of the gas produced would be used on the platform, while the remainder would be reinjected. However, starting in the year 2022, the remaining gas produced would be sold. The amount of gas sold would peak in the years 2024 through 2031 with an annual production rate of 17.9 billion cubic feet.

H.6 Development of Emission Scenarios

Exploration and delineation wells could be carried from a semisubmersible, a jack-up rig, or similar type of bottom-founded unit. For this analysis it was assumed that drilling would take place from a bottom-founded drilling unit. The equipment inventory, power requirements, and duration were based on information from a permit application for the Kuvlum Exploration Project in the Beaufort Sea. The primary emission sources were the main diesel engines, emergency generator, deck cranes, and fork lifts. It was assumed that well drilling would take place over a 120-day period. Total emissions from one drilling project were 258 tons of NO_x, 15.3 tons of SO₂, and 14.6 tons of PM₁₀.

Emissions for a production platform were calculated using a method developed by Jacobs Engineering Group (1989). This approach estimates power requirements based on the projected oil and gas production rates. It was determined that the greatest power requirements would be associated with the period of peak gas sales in the years 2024 through 2031. Total annual facility emissions were 98.4 tons of NO_x, 3.6 tons of SO₂, and 10.8 tons of PM₁₀. It was assumed that the primary power source on the platform would be three 6,000 hp turbines. Other emission sources would include an emergency generator, cranes, and flare.

H.7 Meteorological Data

The OCD model requires offshore meteorological data, onshore surface data, and onshore radiosonde data. There are no meteorological buoys in Cook Inlet; however, there are two C-MAN (Coastal-Marine Automated Network) stations. The Drift River Terminal (DRFA2) station is located just to the north of the proposed lease sale area, while the Augustine Island (AUGA2) site is near the west-central boundary of the sale area. A National Weather Service (NWS) surface observation station is located at Homer. Wind roses were constructed to compare the wind climatology from the three stations. At DRFA2 the winds are primarily from the north and north-northwest, with a secondary maximum from the south. It is very evident that the winds are channeled strongly by the surrounding topography. At AUGA2 the most frequent wind directions are from the northeast, west and west-northwest. The westerly winds are the result of a gap in the topography to the west of the island. At the Homer site, the most frequent wind

directions are from the northeast and north-northeast. There also is a secondary maximum for winds from the west-southwest. The winds are again strongly influenced by the topography as they are mainly aligned along the length of the Kachemak Bay. The frequency distribution of wind direction in the Cook Inlet therefore varies by location. For the area around Tuxedni Island, winds will tend to be similar to those observed at DRFA2 with prevailing northerly directions. This would result in a low frequency of occurrence of direct transport of pollutants to Tuxedni NWA, and hence the overall impacts. However, the winds at Homer were selected to use in the modeling as a longer term record is available for this site. The calculated pollutant concentrations would be less conservative because a larger percentage of northeasterly winds occur in that dataset.

Since no sea surface temperature observations are taken at the two C-MAN stations, certain values for long-term averages of air-sea temperature differences were assumed. The Cook Inlet does not freeze over entirely in winter. Therefore, with air temperatures generally below freezing, one would expect the sea surface temperature to be higher than the air temperature. In the summer, the sea surface temperatures will lag behind the air temperatures, so one would expect the air temperature generally to be warmer than the sea surface temperature. For the modeling input for OCD, the air-sea temperature difference was varied by season with a lowest value of -3.0°C for December and January and a highest value of 2.0°C for July and August.

The data from the Homer NWS site were used to derive the onshore stability classification, while the upper air soundings from the Anchorage radiosonde station were used to estimate the over land mixing height values. Three years of meteorological data were used, consisting of the years 1992 through 1994. For over water, a default value of 500 m was used for the mixing height.

H.8 OCD Model Input

For the exploration phase, OCD modeling runs were made for an exploration drilling unit. For the development and production phase, modeling was performed for a production facility. In order to evaluate a worst-case impact on the Tuxedni NWA, in each case the source was placed 6 km to the northeast of Tuxedni. In the model runs, some of the emission sources having similar stack parameter characteristics were grouped. For grouped sources, a single set of stack parameters was generated by a weighted average of the individual emission sources. Overwater receptors were generated using a polar grid with concentric circles ranging from 0.5 to 3.0 km from the source. A total of 29 onshore receptors were generated. Of these, 16 receptor points were placed within the Tuxedni NWA, and the remaining ones were located just inland within the Lake Park National Park and Reserve. Receptor elevations were estimated by examining USGS topographic maps. Separate model runs were performed for the annual average NO_2 ; annual, 24-hour, and 3-hour average SO_2 ; and annual and 24-hr PM_{10} concentrations.

H.9 OCD Modeling Results

Table 1 lists the modeling results for the exploratory drilling operations. The concentrations over water are far higher than any of the values onshore. The highest predicted concentrations were found within 0.5 km of the source. At the 3-km distance from the source, the concentrations were lower by a about factor of 10, while the highest onshore concentrations were lower by about a factor of 100. Table 2 lists the values of the NAAQS, PSD Class II and Class I maximum allowable increments, and the PSD Class I significance levels. The highest onshore pollutant concentrations are well within the PSD Class II and Class I maximum allowable increments. Within the Tuxedni NWA the annual average NO_2 , maximum 24-hour and 3-hour SO_2 , and the maximum 24-hour PM_{10} values exceed the Class I significance levels. If the projected concentrations from a proposed facility exceed the significance levels, a comprehensive PSD increment consumption analysis would need to be conducted by the permit applicant.

Table 3 shows the modeling results for a production facility. The concentrations are significantly lower than the values for the exploration activity. The annual average NO_2 concentrations within Tuxedni NWA are just equal to the Class I significance levels. The SO_2 and PM_{10} concentrations are below the Class I significance levels for all averaging times.

Air quality impacts at other possible locations near the shoreline would be similar to those projected here. Impacts from locations further away from shore would be lower. For most locations in Cook Inlet, the effects on the Tuxedni NWA would be smaller because the prevailing winds would in most cases transport emissions away from the island.

H.10 Cumulative Impacts

There are very few emission sources within about 50 km of the Tuxedni NWA. The nearest significant emission sources consist of a group of industrial facility around Kenai about 90 km to the northeast of Tuxedni. The SCREEN3 screening model was run to estimate worst-case impacts from those facilities to the Tuxedni NWA. The model considered the maximum effects of the plume impinging on the terrain. For NO_x , the combined maximum 24-hour average concentration from the facilities was $5.7 \mu\text{g}/\text{m}^3$. The screening model does not yield annual average concentrations. However, annual average concentrations were estimated by applying the ratio of annual to maximum 24-hour average concentrations that was based on the OCD modeling runs for the proposed OCS activities. This ratio was found to be around 8.0. The use of this ratio yielded an annual average NO_2 concentration of $0.7 \mu\text{g}/\text{m}^3$. This is comparable to the annual average NO_2 concentration of $0.27 \mu\text{g}/\text{m}^3$ that was projected for the Cook Inlet OCS activities. If one combines the two values, the total concentration would be just below $1.0 \mu\text{g}/\text{m}^3$, which is within the PSD Class I maximum allowable increment of $2.5 \mu\text{g}/\text{m}^3$.

The maximum 24-hour PM_{10} concentration from the Kenai facilities using SCREEN3 was $0.2 \mu\text{g}/\text{m}^3$. This is also comparable to the maximum 24-hour value of $0.5 \mu\text{g}/\text{m}^3$ for the Cook Inlet lease sale modeling. If one combines the two concentrations, the total value is $0.7 \mu\text{g}/\text{m}^3$, which is well within the maximum PSD Class I increment of $8 \mu\text{g}/\text{m}^3$. The projected annual average PM_{10} concentration is $0.02 \mu\text{g}/\text{m}^3$. The annual average PM_{10} concentration from the proposed lease sale activities was also $0.02 \mu\text{g}/\text{m}^3$. The combined value is well within the PSD Class I allowable increment of $4 \mu\text{g}/\text{m}^3$.

Cumulative impacts may result from any additional OCS activities in the Cook Inlet as well as contributions from oil and gas development in State waters. The additional impacts would depend on the locations of these activities with respect to those associated with the proposed lease sales. If several more OCS facilities were to be located in close proximity to the one modeled, the combined concentrations would still be within the PSD Class I limits. In reality, facilities would most likely be spread in different locations, and the combined effects would not be significantly higher than the ones associated with a single facility.

H.11 Visibility

A number of visibility screening runs were performed using VISCREEN to evaluate potential effects of OCS activities on visibility from the Tuxedni NWA. For a certain distance between a source and an observer and a given set of meteorological conditions, the model calculates plume perceptibility and color contrast for a range of different viewing angles. These parameters are calculated for both a sky and a terrain background. The model does not assess impacts on regional haze; it only evaluates the visibility effects from a single plume. The model runs assumed a 100 km background visual range a value of 0.04 ppm for background ozone. Table 4 summarizes the model runs. For the exploration activity, the screening criteria for plume perceptibility and color contrast were exceeded by a large margin for a 12-km distance between the source and the observer. When the distance is increased to 30 km, the screening thresholds were still exceeded, but by much smaller margins. For a 50-km distance, none of the screening criteria were exceeded.

For a production facility, the screening criteria were exceeded for the 12-km distance between the source and the observer, while none if the criteria are exceeded for a 30-km distance. The modeling was performed using the worst-case meteorological conditions, which are light winds and stable atmosphere. For more typical meteorological conditions, the screening criteria were not exceeded. The model results indicate that under certain meteorological conditions, emission sources within about 50 km from the

Tuxedni NWA may result in a visible plume for an observer there, but that more rigorous analyses would be needed to more precisely evaluate any effects.

Table 1. OCD Modeling Results for Cook Inlet Exploration, concentrations in $\mu\text{g}/\text{m}^3$.									
	Overwater			Tuxedni NWA			Other Onshore		
Year	1992	1993	1994	1992	1993	1994	1992	1993	1994
Annual Avg NO ₂	36	35	36	0.27	0.26	0.27	0.05	0.06	0.06
Annual Avg SO ₂	2.2	2.2	2.2	0.02	0.02	0.02	0.00	0.00	0.00
Max 24-hr SO ₂	43	34	44	0.38	0.55	0.58	0.22	0.62	0.47
Max 3-hr SO ₂	100	115	105	1.6	2.7	2.4	1.4	2.3	2.0
Annual Avg PM ₁₀	2.1	2.1	2.1	0.02	0.02	0.02	0.00	0.00	0.00
Max 24-hr PM ₁₀	42	34	43	0.34	0.51	0.44	0.19	0.57	0.36

Table 2. PSD Maximum Allowable Increases and Class I Significance Levels, concentrations in $\mu\text{g}/\text{m}^3$.				
	NAAQS	Class II	Class I	Class I Significance Levels
Annual Avg NO ₂	100	25	2.5	0.1
Annual Avg SO ₂	80	29	2	0.1
Max 24-hr SO ₂	365	91	5	0.2
Max 3-hr SO ₂	1300	512	25	1.0
Annual Avg PM ₁₀	50	17	4	0.2
Max 24-hr PM ₁₀	150	30	8	0.3

Table 3. OCD Modeling Results for Cook Inlet Production Facility, concentrations in $\mu\text{g}/\text{m}^3$.									
	Overwater			Tuxedni NWA			Other Onshore		
Year	1992	1993	1994	1992	1993	1994	1992	1993	1994
Annual Avg NO_2	2.0	1.9	1.9	0.10	0.10	0.10	0.02	0.02	0.02
Annual Avg SO_2	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Max 24-hr SO_2	0.46	0.48	0.52	0.03	0.04	0.04	0.01	0.04	0.03
Max 3-hr SO_2	4.8	4.5	5.2	0.18	0.28	0.25	0.13	0.24	0.20
Annual Avg PM_{10}	0.20	0.20	0.20	0.01	0.01	0.01	0.00	0.00	0.00
Max 24-hr PM_{10}	1.74	1.69	1.94	0.08	0.10	0.12	0.05	0.12	0.08

Table 4. Summary of VISCREEN Modeling Results.							
Scenario and Meteorology	Distance, km	Plume Perceptibility			Color Contrast		
		Critical value	Sky	Terrain	Critical Value	Sky	Terrain
Exploration, 1 m/sec, F Stab	12	2.0	15.8	20.3	0.05	-0.091	0.199
Exploration, 2 m/sec, F Stab	30	2.0	4.8	4.1	0.05	-0.035	0.052
Exploration, 3 m/sec, F Stab	50	2.0	1.4	1.2	0.05	-0.009	0.016
Production 1 m/sec, F Stab	12	2.0	7.7	11.3	0.05	-0.047	0.104
Production, 2 m/sec, F Stab	30	2.0	1.8	2.0	0.05	-0.010	0.026

APPENDIX I

FEDERAL REGISTER NOTICES

List of Items in Appendix I

66 FR 67543. Department of the Interior, Minerals Management Service, Outer Continental Shelf (OCS), Alaska Region, Cook Inlet, Oil and Gas Lease Sales 191 and 199 for Years 2004 and 2006. Call for Information and Nominations and Notice of Intent (CALL/NOI) to Prepare and Environmental Impact Statement. December 31, 2001

67 FR 76189. Department of the Interior, Minerals Management Service, Outer Continental Shelf (OCS), Alaska Region, Notice of Availability of the Draft Environmental Impact Statement (EIS) for Proposed Oil and Gas Lease Sales in Cook Inlet, Alaska. December 11, 2002

67 FR 76740. Environmental Protection Agency. Environmental Impact Statements: Notice of Availability. December 13, 2002

67 FR 77981. Environmental Protection Agency. Amended Notices. December 20, 2002

issues based on the Memorandum of Understanding between the two agencies.

The ROD is the last step in the National Environmental Policy Act process. The ROD summarizes the proposed action and the alternatives evaluated in the EIS, the conclusions of the EIS impact analyses, and other information considered in reaching the decision.

Dated: December 13, 2001.

Carobita D. Kallaur,
Associate Director for Offshore Minerals
Management.
NFR Doc. 01-32094 Filed 12-28-01; 8:45 am
BILLING CODE 4310-MR-P

DEPARTMENT OF THE INTERIOR

Minerals Management Service

Outer Continental Shelf (OCS), Alaska Region, Cook Inlet, Oil and Gas Lease Sales 191 and 199 for Years 2004 and 2006

AGENCY: Minerals Management Service, Interior.

ACTION: Call for Information and Nominations and Notice of Intent (CALL/NOI) to prepare an Environmental Impact Statement (EIS).

SUMMARY: The Secretary's preliminary decision to consider two sales in the Cook Inlet area in the Proposed OCS Oil and Gas Leasing Program for 2002-2007 provides for the first sale to be held in 2004, with a second sale in 2006. The MMS has modified its prelease planning and decision process for proposed Cook Inlet sales included in the proposed program. This Call/NOI reflects that change and is in keeping with the Secretary's preliminary decision to analyze these two sales in a multi-sale EIS. The Secretary's preliminary decision is to offer only the Cook Inlet portion of the Cook Inlet/Shelikof Strait planning area as the program area for this 5-year program. The sale process for this first sale will require a minimum of 2½ years to complete. In order to meet the requirements of that schedule, we are issuing this Call/NOI at this time, recognizing that the final decision on the 2002-2007 5-year program has not been made and final delineation of the program areas and number of sales may change from that included in the proposed program.

The multi-sale review process is based on over 25 years of leasing in the Cook Inlet/Shelikof Strait area. The process will incorporate planning and analysis for two sales: Sales 191 and 199. From the initial step in the process

(the Call for Information and Nominations) through the final EIS/Consistency Determination (CD) step, this process will cover multiple sale proposals. However, there will also be complete National Environmental Policy Act (NEPA), OCS Lands Act, and Coastal Zone Management Act coverage for each sale after the first sale—either an Environmental Assessment or Supplemental EIS, CD, and a proposed and final Notice of Sale. The environmental analysis and the CD for the subsequent sale, Sale 199, will focus primarily on new issues or changes in the State of Alaska's federally-approved coastal management plan.

This process will:

- Focus the environmental analysis by making impact types and levels that change between sales more easily recognizable for all reviewers,
- Result in new issues being more easily highlighted for the public,
- Eliminate issuance and public review of repetitive, voluminous EIS's for each sale a practice that has resulted in "review burnout" in Federal, state, local and tribal governments, and the public,
- Result in a more efficient and responsive application of NEPA.

This Call does not indicate a preliminary decision to lease in the area described below. Final delineation of the areas for possible leasing will be made at a later date in the presale process for each sale in compliance with the final 5-year program and with applicable laws including all requirements of the NEPA and the OCS Lands Act.

DATES: Nominations and comments must be received on or before February 14, 2002 in envelopes labeled "Nominations for Proposed 2002-2007 Lease Sales in the Cook Inlet," or "Comments on the Call for Information and Nominations for Proposed 2002-2007 Lease Sales in the Cook Inlet," as appropriate.

FOR FURTHER INFORMATION CONTACT: Please call Tom Warren at (907) 271-6691 in MMS's Alaska OCS Region regarding questions on the Call/NOI.

SUPPLEMENTARY INFORMATION:

Call for Information and Nominations

1. Authority

This Call is published pursuant to the OCS Lands Act as amended (43 U.S.C. 1331-1356, (1994)), and the regulations issued thereunder (30 CFR 256); and in accordance with the Proposed OCS Oil and Gas Leasing Program 2002 to 2007.

2. Purpose of Call

The purpose of the Call is to gather preliminary information for the following tentatively scheduled OCS Oil and Gas Lease Sales in the Cook Inlet area:

Sale No.	Tentative sale date
191	May 2004.
199	May 2006.

Information and nominations on oil and gas leasing, exploration, and development and production within the Cook Inlet area are sought from all interested parties. This early planning and consultation step is important for ensuring that all interests and concerns are communicated to the Department of the Interior for future decisions in the leasing process pursuant to the OCS Lands Act and regulations at 30 CFR 256.

Responses are requested relative to all sales included herein. This Call/NOI is being issued in accordance with the Proposed OCS Oil and Gas Leasing Program 2002 to 2007 released on October 26, 2001. The proposed program offers three options for leasing in the Cook Inlet area in the 2002-2007 5-year program: two sales, one sale, or no sales.

3. Description of Area

The area that is the subject of this Call is located offshore the State of Alaska in Cook Inlet as depicted on the map that accompanies this Call. This area consists of approximately 517 whole and partial blocks (about 2.5 million acres). A page size map of the area accompanies this Notice. A large scale Call map showing the boundaries of the area on a block-by-block basis is available without charge from the Records Manager at the address given below, or by telephone request at (907) 271-6438 or 1-800-764-2627. Copies of Official Protraction Diagrams (OPDs) are also available for \$2 each.

Alaska OCS Region, Minerals Management Service, 949 East 36th Avenue, Room 308, Anchorage, Alaska, 99508-4302,
akwebmaster@mms.gov

4. Instructions on Call

The Call for Information Map and indications of interest and/or comments must be submitted to the Regional Supervisor, Leasing and Environment, at the above address.

The Call map delineates the area that is the subject of this Call. Respondents are requested to indicate interest in and comment on any or all of the Federal

acreage within the boundaries of the Call area that they wish to have included in each of the proposed sales in the Cook Inlet Call area.

If you wish to comment, you may submit your comments by any one of the following methods:

- You may mail comments to the Alaska OCS Region, Minerals Management Service, 949 East 36th Avenue, Room 308, Anchorage, Alaska 99508-4302.
- You may also comment via e-mail to CookInletMulti-Sale@mms.gov. Please submit Internet comments as an ASCII file avoiding the use of special characters and any form of encryption. Please also include "Attn: Comments on Call for Information and Nominations for Proposed 2002-2007 Lease Sales in the Cook Inlet" and your name and return address in your Internet message.
- Finally, you may hand-deliver comments to the Alaska OCS Region, Minerals Management Service, 949 East 36th Avenue, Room 308, Anchorage, Alaska.

Our practice is to make comments, including names and addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their address from the rulemaking record, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold a respondent's identity, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. However, we will not consider anonymous comments. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

A. Areas of Interest to the Oil and Gas Industry. Specific nominations are being sought regarding the oil and gas industry area(s) of interest. The MMS is soliciting nominations of blocks that are of significant industry interest for exploration and development and production.

Nominations must be depicted on the Call map by outlining the area(s) of interest along block lines. Nominators are asked to submit a list of whole and partial blocks nominated (by OPD and block number) to facilitate correct interpretation of their nominations on the Call map. Although the identities of those submitting nominations become a matter of public record, the individual nominations are proprietary information.

Nominators also are requested to rank blocks nominated according to priority of interest (*e.g.*, priority 1 (high), or 2 (medium)). Blocks nominated that do not indicate priorities will be considered priority 3 (low). Nominators must be specific in indicating blocks by priority and be prepared to discuss their range of interest and activity regarding the nominated area(s). The telephone number and name of a person to contact in the nominator's organization for additional information should be included in the response. This person will be contacted to set up a mutually agreeable time and place for a meeting with the Alaska OCS Regional Office to present their views regarding the company's nominations.

B. Relation to Coastal Management Plans (CMP). Comments also are sought on potential conflicts with approved local coastal management plans that may result from the proposed sale and future OCS oil and gas activities. These comments should identify specific CMP policies of concern, the nature of the conflicts foreseen, and steps that MMS could take to avoid or mitigate the potential conflicts. Comments may be in terms of broad areas or restricted to particular blocks of concern. Commenters are requested to list block numbers or outline the subject area on the large-scale Call map.

5. Use of Information From Call

Information submitted in response to this Call will be used for several purposes. Responses will be used to:

- Help identify areas of potential oil and gas development
- Identify environmental effects and potential use conflicts
- Assist in the scoping process for the EIS
- Develop possible alternatives to the proposed action
- Develop lease terms and conditions/mitigating measures
- Identify potential conflicts between oil and gas activities and the Alaska CMP

6. Existing Information

The MMS has acquired a substantial amount of information, including that gained through the use of traditional knowledge, on the issues and concerns related to oil and gas leasing in the Cook Inlet area.

An extensive environmental, social, and economic studies program has been underway in this area since 1975. The emphasis has been on geologic mapping, environmental characterization of biologically sensitive habitats, endangered whales and marine mammals, physical oceanography, ocean-circulation modeling, and

ecological and socio-cultural effects of oil and gas activities.

Information on the studies program, completed studies, and a program status report for continuing studies in this area may be obtained from the Chief, Environmental Studies Section, Alaska OCS Region, by telephone request at (907) 271-6577, or by written request at the address stated under Description of Area. A request may also be made via the Alaska Region website at www.mms.gov/alaska/ref/pubindex/pubindex.htm.

7. Tentative Schedule

The following is a list of tentative milestone dates applicable to sales covered by this Call:

MULTI-SALE PROCESS MILESTONES FOR PROPOSED 2002-2007 COOK INLET SALES

Call/NOI published	December 2001.
Comments due on Call/NOI	February 2002.
Area Identification	March 2002.
Draft EIS published	November 2002.
Public Hearings	January 2003.
Final EIS/Consistency Determination/Proposed Notice of Sale issued.	November 2003.
Governor's Comments due (Sale 191)	January 2004.
Final Notice of Sale published (Sale 191)	April 2004.
Sale 191	May 2004.

SALE-SPECIFIC PROCESS MILESTONES FOR PROPOSED 2002-2007 COOK INLET SALE 199

Request for Information to Begin Sale 199 Process	December 2004.
Area Identification	February 2005.
NEPA Review published ...	October 2005.
Proposed Notice and Consistency Determination	December 2005.
Governor's Comments due (Sale 199)	February 2006.
Final Notice of Sale published	April 2006.
Tentative Sale 199	May 2006.

Notice of Intent To Prepare an Environmental Impact Statement

1. Authority

The NOI is published pursuant to the regulations (40 CFR 1501.7) implementing the provisions of the NEPA of 1969 as amended (42 U.S.C. 4321 et seq. (1988)).

2. Purpose of Notice of Intent

Pursuant to the regulations (40 CFR 1501.7) implementing the procedural provisions of the National Environmental Policy Act of 1969 (42

U.S.C. 4321 *et seq.*), MMS is announcing its intent to prepare a multi-sale EIS on the tentatively scheduled oil and gas lease sales in the Cook Inlet area off Alaska for the 5-year program period of July 2002 through June 2007. The EIS analysis will focus on the potential environmental effects of two sales, and exploration and development and production of the areas defined in the Area Identification procedure as the proposed areas of the Federal actions. Alternatives to the proposals which may be considered for each individual sale are to delay the sale, modify the sale, or cancel the sale. These and any additional alternatives developed through the process for each individual sale will be considered in the sale-specific decision process. This NOI also serves to announce the initiation of the scoping process for this EIS. Throughout the scoping process, Federal, State, tribal, and local governments and other interested parties aid MMS in determining the significant issues and alternatives to be analyzed in the EIS and the possible need for additional information.

3. New EIS Procedure

The MMS is proposing to prepare a single EIS for two proposed Cook Inlet sales tentatively scheduled with the first sale to be held in 2004 and the second sale in 2006. The resource estimates and scenario information on which the EIS analysis are based will be presented as a range of resources and activities that would encompass either of the two proposed sales in the Cook Inlet.

This proposal will provide several benefits. It will focus the NEPA process by making impact types and levels that change between sales more easily recognizable. New issues will be more easily highlighted for the decisionmakers and the public. The NEPA regulations at 40 CFR 1502.4 require federal agencies, as appropriate, to employ tiering and other methods to relate broad and narrow actions and "to avoid duplication and delay." The regulations further define broad actions at § 1502.4(c) as actions that relate geographically, including actions occurring in the same general location, and generically, including actions which have relevant similarities such as impacts, alternatives, methods of implementation, media, or subject matter. Further guidance is given at 40 CFR 1502.20 which encourage agencies to tier their EIS's to "eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review."

The proposed actions analyzed in the EIS will be the two sales on the proposed 5-year schedule for the Cook Inlet area. The EIS will include an analysis of the environmental effects of holding two sales. The scenario will cover a range of resources and activities that will encompass both proposed actions. The second sale can then be compared to the initial analysis in an Environmental Assessment or supplemental EIS. Formal consultation with the public will be initiated for the

second sale to obtain input to assist in the determination of whether or not the information and analyses in the original multi-sale EIS are still valid. A sale-specific Request for Information will be issued that will specifically describe the action for which we are requesting input. If the Secretary chooses to hold only one sale in Cook Inlet as part of the 5-year decision in June 2002, then the draft and final EIS's will be modified to evaluate a single sale.

4. Instructions on Notice of Intent

Federal, State, tribal, and local governments and other interested parties are requested to send their written comments on the Scope of the EIS, significant issues that should be addressed, and alternatives that should be considered to the Regional Supervisor, Leasing and Environment, Alaska OCS Region, at the address stated under Instructions on Call above. Comments should be enclosed in an envelope labeled "Comments on the Notice of Intent to Prepare an EIS on Proposed Cook Inlet Lease Sales included in the 5-Year Program, 2002-2007." Comments are due no later than 45 days from publication of this Notice. Scoping meetings will be held in appropriate locations to obtain additional comments and information regarding the scope of this EIS.

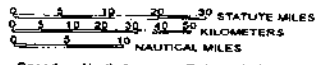
Dated: December 17, 2001.

Lucy Querques Denett,
Acting Director, Minerals Management
Service.

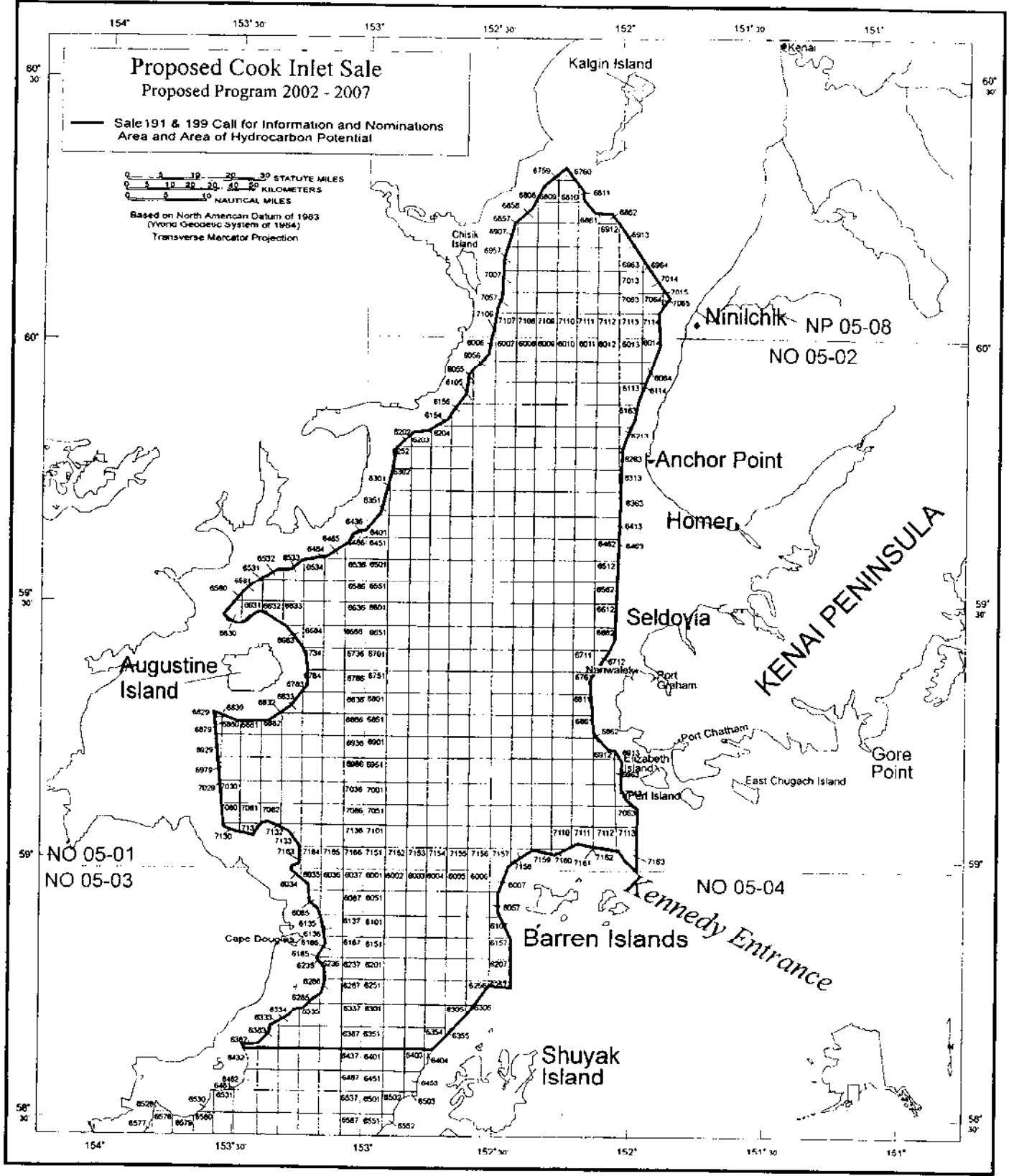
BILLING CODE 4310-MR-P

Proposed Cook Inlet Sale
Proposed Program 2002 - 2007

— Sale 191 & 199 Call for Information and Nominations
 Area and Area of Hydrocarbon Potential



Based on North American Datum of 1983
 (World Geodetic System of 1984)
 Transverse Mercator Projection



Nonetheless, all of the petitioner's 317 current members, have satisfied the petitioner's own criteria for membership: 202 have a direct ancestor listed on the 1910 census of the Schaghticoke reservation, and the remaining 115 individuals descend from Joseph D. Kilson (110) or from Julia M. Kilson (and her husband Truman Bradley) (5), who descend from the Parmelia (Mauwee) Kilson, and thus by tradition from Gideon Mauwee.

More importantly, the petitioner's descent from Schaghticoke Indians of the early 1800's, as identified by the State records, is well documented. While the exact "blood-line" connections to the previous generations in the 1700's are less sure, there is more than enough evidence to show the reasonable likelihood of the connection as well. Therefore, based on the evidence available at this time, the petitioner has demonstrated that it descends from the historical Schaghticoke tribe as identified by the State in the early 1800's and therefore meets the requirements of criterion 83.7(e).

The petitioner meets the requirements of criterion 83.7(d) because it has submitted a governing document, including a description of its membership criteria, criterion 83.7(f) because its members are not enrolled with federally recognized tribes, and criterion 83.7(g) because the group or its members have not been the subject of congressional legislation which has expressly terminated or forbidden the Federal relationship.

The evidence available for this proposed finding demonstrates that the Schaghticoke Tribal Nation does not meet all seven criteria required for Federal acknowledgment. In accordance with the regulations, failure to meet any one of the seven criteria requires a determination that the group does not exist as an Indian tribe within the meaning of Federal law (83.6(c), 83.10(m)).

A copy of this proposed finding, which summarizes the evidence, reasoning, and analyses that are the basis for decision is available upon written request (83.10(h)).

During the comment period, the Assistant Secretary shall provide technical advice concerning the proposed finding (83.10(j)(i)). Under the court-approved agreement any interested party, including any parties or amici curiae to the litigation, who wishes to request a formal on-the-record technical assistance meeting under 25 CFR 83.10(j)(2), must make their request not later than 30 days after service of the proposed finding. A formal technical

assistance meeting will be held within 60 days of the first such request. The proceedings of this meeting shall be on the record. The meeting record shall be available to any participating party and will become part of the record considered by the Assistant Secretary in reaching a final determination (83.10(j)(2)).

Parties to the litigation have six months from the service of the proposed finding to provide comments, documents and arguments on the proposed finding to the Department. Interested and informed parties who are not also parties to the litigation have 180 days from the date of publication of this notice in the Federal Register to provide comments to the Department. Comments on the proposed finding should be submitted in writing to the Office of the Assistant Secretary—Indian Affairs, 1849 C Street, NW., Washington, DC 20240, Attention: Branch of Acknowledgment and Research, Mail Stop 4660—MIB. The petitioner and all interested and informed parties commenting on the proposed finding must provide copies of their comments to all parties and amici curiae to the litigation at the same time. The addresses of the petitioners, parties and amici curiae are available from the Department upon request.

The petitioner shall file any reply to these comments with the Department within 30 days of the close of the comment period. After consideration of the written arguments and evidence submitted during the comment period and the petitioner's response to the comments, the AS—IA will make a final determination regarding the petitioner's status within four months of the end of the petitioner's reply period and publish notice of this final determination in the Federal Register.

Dated: December 5, 2002.

Neal A. McCaleb,
Assistant Secretary—Indian Affairs.
[FR Doc. 02-31229 Filed 12-6-02; 3:18 pm]
BILLING CODE 4310-02-P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[OR-957-00-1420-BJ; GP03-0032]

Filing of Plats of Survey: Oregon/Washington

AGENCY: Bureau of Land Management.

ACTION: Notice.

SUMMARY: The plat of survey of the following described lands is scheduled to be officially filed in the Oregon State

Office, Portland, Oregon, thirty (30) calendar days from the date of this publication.

Willamette Meridian

Oregon

T. 9 S., R. 13 E., accepted November 15, 2002

A copy of the plat may be obtained from the Oregon State Office, Bureau of Land Management, 333 S.W. 1st Avenue, Portland, Oregon 97204, upon required payment. A person or party who wishes to protest against a survey must file with the State Director, Bureau of Land Management, Portland, Oregon, a notice that they wish to protest.

For further information contact:
Bureau of Land Management (333 S.W. 1st Avenue), P.O. Box 2965, Portland, Oregon 97208.

Dated: November 20, 2002.

Robert D. DeViney, Jr.,
Branch of Realty and Records Services.
[FR Doc. 02-31192 Filed 12-10-02; 8:45 am]
BILLING CODE 4310-33-P

DEPARTMENT OF THE INTERIOR

Minerals Management Service

Outer Continental Shelf (OCS), Alaska OCS Region

AGENCY: Minerals Management Service, Interior.

ACTION: Notice of the availability of the draft environmental impact statement (EIS) for proposed oil and gas lease sales in Cook Inlet, Alaska.

SUMMARY: MMS announces the availability of the draft EIS prepared by MMS for proposed OCS Lease Sales 191 and 199 offshore Cook Inlet, Alaska.

DATES: Comments on the draft EIS are due February 11, 2003. Public hearings will be held in Alaska: Anchorage, January 16, 2003; Seldovia, January 21; Homer, January 23; Soldotna/Kenai, January 24; telephone call-in to MMS Anchorage, January 28.

SUPPLEMENTARY INFORMATION: This draft EIS assesses two sales in the Proposed Final 2002-2007 5-Year Oil and Gas Leasing Program for the Cook Inlet OCS Planning Area. Sale 191 is scheduled for 2004 and Sale 199 for 2006. Federal Regulations (40 CFR 1502.4) suggest analyzing similar or like proposals in a single EIS. The proposal analyzed for each sale is to offer 517 whole or partial lease blocks in the Cook Inlet OCS Planning Area, covering about 2.5 million acres (about 1 million hectares). The proposed sale area is seaward of the State of Alaska submerged lands boundary, extending from 3 miles to

approximately 30 miles offshore and to water depths more than 650 feet. It extends from below Kalgin Island south to approximately Shuyak Island.

EIS availability: Persons interested in reviewing the draft EIS "OCS EIS/EA, MMS 2002-065" (Volumes I and II) can contact the MMS Alaska OCS Regional Office. The documents are available for public inspection between the hours of 7:45 a.m. and 4:30 p.m., Monday through Friday at: Minerals Management Service, Alaska OCS Region, Resource Center, 949 East 36th Avenue, Room 330, Anchorage, Alaska 99508-4363, telephone: (907) 271-6070 or (907) 271-6621 or toll free at 1-800-764-2627. Requests may also be sent to MMS at akwebmaster@mms.gov. You may obtain single copies of the draft EIS, the Executive Summary, or a CD/ROM version, from the same address. You may also look at copies of the draft EIS in the following libraries:

Alaska Pacific University, Academic Support Center Library, 4101 University Drive, Anchorage, Alaska;
Alaska Resources Library and Information Service (ARLIS), U.S. Department of the Interior, 3150 C Street, Suite 100, Anchorage, Alaska;
Alaska State Library, Government Publications, State Office Building, 333 Willoughby, Juneau, Alaska;
Anchor Point Public Library, 73405 Milo Fitz Avenue, Anchor Point, Alaska;
Canadian Joint Secretariat Librarian, Inuvikon NT, Canada;
Chiniak Public Library, 42650 Chiniak Highway, Chiniak, Alaska;
Department of Indian and Northern Affairs, Yellowknife, NT, Canada;
Fairbanks North Star Borough, Noel Wien Library, 1215 Cowles Street, Fairbanks, Alaska;
Homer Public Library, 141 West Pioneer Avenue, Homer, Alaska;
Jessie Wakefield Memorial Library, 207 Spruce Drive, Port Lions, Alaska;
Johnson Memorial Library, 319 Lower Mill Bay Road, Kodiak, Alaska;
Juneau Public Library, 292 Marine Way, Juneau, Alaska;
Kachemak Bay Campus Library, 533 Pioneer Avenue, Homer, Alaska;
Kasilof Public Library, Mile 110 Sterling Highway, Kasilof, Alaska;
Kenai Community Library, 163 Main Street Loop, Kenai, Alaska;
Kenai Peninsula College Library, 34820 College Drive, Soldotna, Alaska;
Kodiak College Library, 117 Benny Benson Drive, Kodiak, Alaska;
Ninilchik Community Library, 15850 Sterling Highway, Ninilchik, Alaska;
North Slope Borough School District, Library/Media Center, Barrow, Alaska;

Northern Alaska Environmental Center Library, 218 Driveway, Fairbanks, Alaska;
Old Harbor Library, Three Saints Avenue, Old Harbor, Alaska;
Ouzinkie Tribal Media Center, 110 Third Street, Ouzinkie, Alaska;
Seldovia Public Library, 260 Seldovia Street, Seldovia, Alaska;
Soldotna Public Library, 235 Binkley Street, Soldotna, Alaska;
U.S. Army Corps of Engineers Library, U.S. Department of Defense, Elmendorf Air Force Base, Anchorage, Alaska;
U.S. Environmental Protection Agency, Region 10 Library, 1200 6th Avenue, OMP-104, Seattle, Washington;
U.S. Fish and Wildlife Service Library, 1011 East Tudor Road, Anchorage, Alaska;
University of Alaska Anchorage, Consortium Library, 3211 Providence Drive, Anchorage, Alaska;
University of Alaska Fairbanks, Elmer E. Rasmuson Library, Government Documents, 310 Tanana Drive, Fairbanks, Alaska;
University of Alaska Fairbanks, Geophysical Institute, Government Documents, Fairbanks, Alaska;
University of Alaska Fairbanks, Institute of Arctic Biology, 311 Irving Building, Fairbanks, Alaska;
University of Alaska, Southeast, 11120 Glacier Highway, Juneau, Alaska;
Valdez Consortium Library, 200 Fairbanks Street, Valdez, Alaska;
Z.J. Loussac Library, 3600 Denali Street, Anchorage, Alaska.

Public Hearings: Public hearings will be held to receive comments on the draft EIS. The hearings will provide us with additional information that will help in evaluating the potential effects of the proposed leasing program. Hearings will be held in Anchorage, Seldovia, Homer, and Kenai/Soldotna, and by telephone on the following dates and times:

Anchorage, Alaska—January 16, 2003, Minerals Management Service, Conference Room, 949 East 36th Avenue, 3rd Floor, 4 p.m. to 6:30 p.m.;
Seldovia, Alaska—January 21, 2003, Seldovia Community Center Multi-Purpose Room, 260 Seldovia Street, 7 p.m. to 9 p.m.;
Homer, Alaska—January 23, 2003, Homer City Council Chambers, 491 East Pioneer Way, 7 p.m. to 9 p.m.;
Soldotna/Kenai, Alaska—January 24, 2003, Merit Inn Banquet Room, South Willow Street, 7 p.m. to 9 p.m.
By telephone—January 28, 2003, 4:30 p.m. to 6:30 p.m., toll free 1-800-764-2627.

Village residents who are not able to attend one of the four on-site public meetings are especially encouraged to submit comments by telephone.

If you wish to testify at a hearing, you may register prior to the hearing to schedule a preferred time by contacting the Alaska OCS Region at the above address or Dr. James Lima at (907) 271-6690 or toll free 1-800-764-2627 not later than 5 days prior to the hearing date. Every effort will be made to accommodate individuals who have not pre-registered to testify. Time limitations may make it necessary to limit the length of oral statements to 10 minutes. You may supplement an oral statement with a more complete written statement and submit it to a hearing official at the hearing or by mail until February 11, 2003. Each hearing will recess when all speakers have had an opportunity to testify. If after the recess, no additional speakers appear, we will adjourn the hearing. Written statements submitted at a hearing will be considered part of the hearing record. If you are unable to attend the hearing, or if you prefer, you may submit written statements at the address below.

Written Comments: The MMS requests interested parties to submit their written comments on this draft EIS to the Regional Director, Alaska OCS Region, Minerals Management Service, 949 East 36th Avenue, Room 308, Anchorage, Alaska 99509-4663 or by electronic mail to AKEIS@MMS.GOV. Our practice is to make comments, including names and home addresses of respondents available for public review. An individual commenter may ask that we withhold their name, home address, or both from the public record, and we will honor such a request to the extent allowable by law. If you submit comments and wish us to withhold such information, you must state so prominently at the beginning of your submission. We will not consider anonymous comments, and we will make available for inspection in their entirety all comments submitted by organizations or businesses or by individuals identifying themselves as representatives or organizations or businesses. The comment period ends on February 11, 2003.

Dated: November 6, 2002.

Thomas A. Readinger,
Associate Director for Offshore Minerals Management.

Approved: November 12, 2002.

Willie R. Taylor,

Director, Office of Environmental, Policy and Compliance.

[FR Doc. 02-31185 Filed 12-10-02; 8:45 am]

BILLING CODE 4310-MR-P

[FR Doc. 02-31431 Filed 12-12-02; 8:45 am]
BILLING CODE 6450-01-C

ENVIRONMENTAL PROTECTION AGENCY

[ER-FRL-6635-7]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564-7167 or <http://www.epa.gov/compliance/nepa/>.

Weekly receipt of Environmental Impact Statements filed December 2, 2002, through December 6, 2002.

Pursuant to 40 CFR 1506.9.

EIS No. 020498, Draft EIS, SFW, WA. Daybreak Mine Expansion and Habitat Enhancement Project, Habitat Conservation Plan, Issuance of a Multiple Species Permit for Incidental Take, Implementation, Clark County, WA, Comment Period Ends: February 21, 2003. Contact: Tim Romanski (360) 753-4371.

EIS No. 020499, Final EIS, BLM, OR. Coos County Natural Gas Transmission Pipeline, Construction, Operation and Maintenance, Proposed Natural Gas Pipeline from Roseburg to Coos Bay, Right-of-Way Grant, Coos Bay District, Coos County, OR, Wait Period Ends: January 13, 2003, Contact: Bob Gunther (541) 751-4295.

EIS No. 020500, Draft EIS, AFS, CA. Giant Sequoia National Monument Management Plan, Implementation, To Establish Management Direction for the Land and Resources, Sequoia National Forest, Fresno, Kern and Tulare Counties, CA, Comment Period Ends: March 13, 2003, Contact: Jim Whitfield (559) 784-1500.

EIS No. 020501, Final EIS, FHW, KS. U.S. 59 Highway Construction Improvements, Lawrence to Ottawa, Funding, NPDES Permit Issuance and Possible US Army COE Permit Issuance, Douglas and Franklin Counties, KS, Wait Period Ends: January 24, 2003, Contact: J. Michael Bowen (785) 267-7287.

EIS No. 020502, Draft EIS, MMS, AK. Cook Inlet Planning Area Oil and Gas Lease Sales 191 and 199, Outer Continental Shelf, Offshore Marine Environment, Cook Inlet, AK, Comment Period Ends: January 27, 2003, Contact: George Valiulis (703) 787-1662.

EIS No. 020503, Draft EIS, STB, TX. Bayport Loop New Rail Line, Construction and Operation, Finance Docket No. 34079, Houston, Harris County, TX, Comment Period Ends:

January 27, 2003, Contact: Dana White (202) 565-1552. This document is available on the Internet at: <http://www.stb.dot.gov>.

EIS No. 020504, Draft EIS, AFS, ID. Gaylord North Timber Sale Project, Harvesting Timber, Council Ranger District, Payette National Forest, Adam County, ID, Comment Period Ends: January 27, 2003, Contact: Michael Hutchins (208) 253-0100.

EIS No. 020505, FINAL EIS, NAS, 00. Programmatic—Mars Exploration Rover-2003 (MER-2003) Project, Continuing the Long-Term Exploration of Mars, Implementation, Wait Period Ends: January 13, 2003, Contact: David Lavery (202) 358-4800.

EIS No. 020506, Final EIS, NRC, VA. Generic EIS—Surry Power Station, Unit 1 and 2, Supplement 6 to NUREG-1437, License Renewal of Nuclear Plants, COE Section 404 Permit and NPDES Permit, James River, VA, Wait Period Ends: January 13, 2003, Contact: Andrew Kugler (301) 415-2828.

EIS No. 020507, Final EIS, NRC, VA. Generic EIS—North Anna Power Station, Units 1 and 2, Supplement 7 to NUREG-1437, License Renewal, VA, Wait Period Ends: January 13, 2003, Contact: Andrew Kugler (301) 415-2828.

EIS No. 020508, Final EIS, DOE, KY. Kentucky Pioneer Integrated Gasification Combined Cycle Demonstration Project, Constructing and Operating a 540 megawatt-electric Plant, Clean Coal Technology Program, Clark County, KY, Wait Period Ends: January 13, 2003, Contact: Roy Spears (304) 285-5460.

Amended Notices

EIS No. 020421, Draft EIS, FHW, OR. Newberg-Dundee Transportation Improvement Project (TEA 21 Prog. #37), Proposal to Relieve Congestion on Ore. 99W through the Cities of Newberg and Dundee, Bypass Element Location (Tier 1), Yamhill County, OR, Comment Period Ends: December 16, 2002, Contact: Jim Cox (503) 986-3013. Revision of FR notice published on October 18, 2002; CEQ Comment Period Ending December 2, 2002 has been extended to December 16, 2002.

Dated: December 10, 2002.

Joseph C. Montgomery,
Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 02-31462 Filed 12-12-02; 8:45 am]
BILLING CODE 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

[ER-FRL-6635-8]

Environmental Impact Statements and Regulations; Availability of EPA Comments; Availability of EPA comments prepared pursuant to the Environmental Review Process (ERP), under section 309 of the Clean Air Act and section 102(2)(c) of the National Environmental Policy Act as amended

Requests for copies of EPA comments can be directed to the Office of Federal Activities at (202) 564-7167. An explanation of the ratings assigned to draft environmental impact statements (EISs) was published in FR dated April 12, 2002 (67 FR 17992).

Draft EISs

ERP No. D-FHW-E40796-NC Rating EC2. U.S. 64 Corridor Project.

Transportation Improvements in the vicinity of the City of Asheboro and Access Improvements to the NC Zoological Park, Funding and U.S. Army COE section 404 Permit Issuance, Randolph County, NC.

Summary: EPA expressed environmental concerns regarding primary impacts as a result of project implementation. These include a large number of residential relocations, with many residences experiencing excessive noise increases and the loss of deciduous forest and surface water habitat. EPA requested that deletion of one or two proposed interchanges be evaluated.

ERP No. D-FHW-F40409-IN Rating LO. IN-25 Transportation Corridor Improvements from I-65 Interchange to U.S. 24, Funding, Right-of-Way and U.S. Army COE section 404 Permit Issuance, Hoosier Heartland Highway, Tippecanoe, Carroll and Cass Counties, IN.

Summary: EPA believes that the proposed project will result in minimum adverse impacts to the environment with the appropriate mitigation. No additional analyses are required.

ERP No. D-FHW-K40253-CA Rating 3. Riverside County Integrated Project, Winchester to Temecula Corridor Construction of a New Multi-Modal Transportation Facility, Route Location and Right-of-Way Preservation, Riverside County, CA.

Summary: EPA found that the DEIS was inadequate to satisfy the requirements of NEPA and lead to the selection of a preferred alignment containing the least environmentally damaging practicable alternative to satisfy section 404 of the Clean Water

Project, improvement to the Existing Urban Transportation System, Updated and Additional Information, Clackamas and Multnomah Counties, OR, *Comment Period Ends:* February 07, 2003, *Contact:* Sharon Kelly (503) 797-1756.

Amended Notices

EIS No. 020502, Draft EIS, MMS, AK, Cook Inlet Planning Area Oil and Gas Lease Sales 191 and 199, Outer Continental Shelf, Offshore Marine Environment, Cook Inlet, AK, Comment Period Ends: February 11, 2003, *Contact:* George Valinlis (703) 787-1662. Revision of FR Notice Published on 12/13/2002; **Correction to Comment Period from 01/27/2003 to 02/11/2003.**

Dated: December 17, 2002.

Joseph C. Montgomery,
Director, NEPA Compliance Division, Office
of Federal Activities.
[FR Doc. 02-32127 Filed 12-19-02; 8:45 am]
BILLING CODE 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

[ER-FRL-6636-1]

Environmental Impact Statements and Regulations; Availability of EPA Comments

Availability of EPA comments prepared pursuant to the Environmental Review Process (ERP), under Section 309 of the Clean Air Act and Section 102(2)(c) of the National Environmental Policy Act as amended. Requests for copies of EPA comments can be directed to the Office of Federal Activities at (202) 564-7167.

An explanation of the ratings assigned to draft environmental impact statements (EISs) was published in **Federal Register** dated April 12, 2002 (67 FR 17992).

Draft EISs

ERP No. D-FHW-140175-UT Rating EC2, Reference Post (RP) 13 Interchange and City Road Project, Construction of New Interchange at RP 13 to I-15 and City Road in Washington City, Funding, Washington County, UT.

Summary: EPA expressed environmental concerns with water quality analysis and limiting the interchange analysis to only one build alternative. In addition, land use impacts were not quantified despite land use change expectation. EPA was pleased to see information on habitat fragmentation and impervious surface impacts documentation.

ERP No. D-JUS-K80043-CA Rating EC2, Juvenile Justice Campus (JJC) Construction and Operation of a 1,400 Bed and Related Functions Facility, Conditional Use Permit, Fresno County, CA.

Summary: EPA expressed environmental concerns regarding farmland protection and sole source aquifer issues.

ERP No. D-NPS-E65060-NC Rating LO, Carl Sandburg Home National Historic Site, General Management Plan, Implementation, Located in the Village of Flat Rock, Henderson County, NC.

Summary: EPA review did not identify any potential environmental impacts requiring substantive changes to the proposal

Final EISs

ERP No. F-DOE-L08061-00 McNary-John Day Transmission Line Project, Construction, Operation and Maintenance of a 79-mile-long 500-Kilovolt-Transmission Line between McNary Substation and John Day Substation, Umatilla and Sherman Counties, OR and Benton and Klickitat Counties, WA.

Summary: No formal comment letter was sent to the preparing agency.

ERP No. F-EDA-B99003-CT Adriaen's Landing Project, Development from Columbus Boulevard south of the Founders Bridge and Riverfront Plaza, City of Hartford, CT.

Summary: EPA had no objections to the proposed project and encouraged continued efforts to coordinate with impacted communities around the project site and to add pollution controls to construction equipment.

ERP No. F-MMS-G02011-00 Gulf of Mexico Outer Continental Shelf Oil and Gas Lease Sales: 2003-2007, Starting in 2002 the Proposed Central Planning Area Sales 185, 190, 194, 198, and 201 and Western Planning Area Sales 187, 192, 196, and 200, Offshore Marine Environment, Coastal Counties and Parishes of TX, LA, AL and MS.

Summary: EPA had no further comments to offer. EPA has a lack of objections to the preferred alternative.

ERP No. FS-AFS-G65049-00 Vegetation Management in the Ozark/Quachita Mountains, Proposal to Clarify Direction for Conducting Project-Level Inventories for Biological Evaluations (BEs), Ozark, Quachita and St. Francis National Forests, AR and McCurtain and LeFlore Counties, OR.

Summary: EPA has no objection to the selection of the preferred alternative. EPA has no further comments to offer.

Dated: December 17, 2002.

Joseph C. Montgomery,
Director, NEPA Compliance Division, Office
of Federal Activities.

[FR Doc. 02-32128 Filed 12-19-02; 8:45 am]

BILLING CODE 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

[FRL-7421-4]

Notice of Intent To Grant an Exemption for the Injection of Certain Hazardous Wastes to Environmental Disposal Systems, Inc. for Two Injection Wells Located at 28470 Citrin Drive, Romulus, MI

AGENCY: Environmental Protection
Agency (EPA).

ACTION: Notice.

SUMMARY: The United States Environmental Protection Agency, Region 5, Chicago office, proposes (through this notice) to grant an exemption from the ban on disposal of hazardous wastes through injection wells to Environmental Disposal Systems Inc. (EDS) of Birmingham, Michigan. If the exemption is granted, EDS may inject all Resource Conservation and Recovery Act (RCRA) regulated hazardous wastes through waste disposal wells #1-12 and #2-12. The regulations promulgated under the Hazardous and Solid Waste Amendments to RCRA, prohibit the injection of restricted hazardous waste into an injection well. Persons seeking an exemption from the prohibition must submit a petition demonstrating that, to a reasonable degree of certainty, there will be no migration of hazardous constituents from the injection zone for as long as the waste remains hazardous.

On January 21, 2000, EDS submitted a petition to the EPA, Region 5, Chicago office, seeking an exemption from the ban based on a showing that any fluids injected will not migrate vertically out of the injection zone or laterally to a point of discharge or interface with an underground source of drinking water (USDW) within 10,000 years. The EPA has conducted a comprehensive review of the petition, its revisions, and other materials submitted and has determined that the petition submitted by EDS, as revised on October 3, 6, 27, and 31, 2000; January 12, April 24, and October 16, 2001; and January 31 August 22, September 25, and October 23, 2002, meets the requirements of 40 CFR part 148, subpart C.

DATES: The EPA, Region 5, Chicago office, requests public comments on today's proposed decision. Comments



The Department of the Interior Mission

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 sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; 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 ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The **MMS Royalty Management Program** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.