# Preliminary Revised Program Outer Continental Shelf Oil and Gas Leasing Program 2007-2012

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Appendix A

## Abbreviations

| | |
|---|---|
| AEDC | Anchorage Economic Development Council |
| AEO | Annual Energy Outlook |
| AEWC | Alaska Eskimo Whaling Commission |
| Alaska Maritime NWR | Alaska Maritime National Wildlife Refuge |
| bbl | barrels |
| Bbbl | billion barrels |
| BBO | billion barrels of oil |
| BBOE | billion barrels of oil equivalent |
| Btu | British thermal unit |
| $CO_2$ | carbon dioxide |
| CZMA | Coastal Zone Management Act |
| DOC | Department of Commerce |
| DOD | Department of Defense |
| DOE | Department of Energy |
| DOI | Department of the Interior |
| DPP | Draft Proposed Program |
| EA | Environmental Assessment |
| EFH | Essential Fish Habitat |
| EIA | Energy Information Administration |
| EIS | Environmental Impact Statement |
| EPAct | Energy Policy Act |
| ESA | Endangered Species Act |
| ESI | Environmental Sensitivity Index |
| ESPIS | Environmental Studies Program Information System |
| FR | Federal Register |
| FEIS | Final Environmental Impact Statement |
| GDP | gross domestic product |
| GOM | Gulf of Mexico |
| GOMESAct | Gulf of Mexico Energy Security Act |
| IPCC | Intergovernmental Panel on Climate Change |
| LNG | liquefied natural gas |
| Mcf | thousand cubic feet |
| MM | million |
| MMbbl | million barrels |

| | |
|---|---|
| MMPA | Marine Mammal Protection Act |
| MMS | Minerals Management Service |
| NAAQS | National Ambient Air Quality Standards |
| NASA | National Aeronautics and Space Administration |
| NEPA | National Environmental Policy Act |
| NEV | Net economic value |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NOI | Notice of Intent |
| NPDES | National Pollutant Discharge Elimination System |
| NTL | Notice to Lessees |
| NWR | National Wildlife Refuge |
| OCS | Outer Continental Shelf |
| OCSLA | Outer Continental Shelf Lands Act |
| PFP | Proposed Final Program |
| PP | Proposed Program |
| PRP | Preliminary Revised Program |
| Tcf | trillion cubic feet |
| USCG | U.S. Coast Guard |
| USDOC | U.S. Department of Commerce |
| USFWS | U.S. Fish & Wildlife Service |

**SECRETARY OF THE INTERIOR'S STATEMENT AND SUMMARY OF THE PRELIMINARY REVISED OCS OIL AND GAS LEASING PROGRAM FOR 2007-2012**

As the Nation moves toward reducing our dependence on foreign oil, we will need domestic production of oil and natural gas to meet our energy needs. Federal lands, including in the Outer Continental Shelf (OCS), will play a critical role in contributing to the domestic oil and natural gas supply.

As Secretary of the Interior, I am responsible for managing our domestic oil and gas resources on federal lands, including the preparation of a 5-year program for managing oil and gas lease sales on the OCS. In so doing, there are a variety of policies, principles, and factors that I must consider, consistent with my statutory authorities under the Outer Continental Shelf Lands Act (OCSLA). Section 18(a)(2) of the OCSLA sets out eight specific factors that I must consider in making my decision. Section 18(a)(3) then requires that I balance the potential for oil and gas discoveries against the potential for environmental or other harms from the continued development of our domestic energy resources on the OCS.

The previous Administration's 2007-2012 program for managing oil and gas lease sales was challenged in court, and sent back to Interior for revision.[1] Specifically, the Court directed me to conduct a revised environmental sensitivity analysis, and further, to rebalance the timing and location of the leasing program "so as to obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone," as required by OCSLA section 18(a)(3).

This Preliminary Revised OCS Oil and Gas Leasing Program for 2007-2012 (PRP) constitutes my reconsideration of the factors set forth in section 18(a)(2) of OCSLA, and fulfills my statutory obligation under section 18(a)(3), in accordance with the Court's remand order.

[1] On April 17, 2009, the U.S. Court of Appeals for the District of Columbia Circuit (Court) vacated and remanded the Department of the Interior's (DOI) OCSLA 2007-2012 leasing program. On July 28, 2009, the Court stayed its mandate (pending completion of DOI's review) and clarified that the relief granted pertained only to the Beaufort, Chukchi and Bering (North Aleutian Basin) Seas.

In exercising my judgment in managing these resources, I am guided by the fundamental principle that all oil and gas exploration on federal lands must be conducted at the right place, at the right time, and in an environmentally sound way. In addition, I must ensure that our decisions, policies, and management objectives are based on the best available science. This is particularly true when considering increased exploration or production from new or frontier domestic areas that have not been subject to significant development.

SUMMARY OF DECISION FOR PRP

This revised 2007-2012 program reflects the crucial role that OCS oil and gas production plays in helping to reduce the Nation's dependence on foreign energy sources. Therefore, under the revised 2007-2012 program, 16 sales will be included, in 6 areas of the OCS.[2]

The Gulf of Mexico is the primary region that provides energy resources to meet the Nation's oil and natural gas needs. This revised 2007-2012 program includes all the scheduled Gulf of Mexico sales, namely, the eight that already have taken place, plus the four sales scheduled in the future.

I recognize that the Gulf of Mexico alone cannot be expected to meet the Nation's increasing energy demands. We must promote exploration in frontier areas. Therefore, in this revised 2007-2012 program, I am retaining the Alaska Chukchi Sea Lease Sale 193, which was held in 2008. Exploratory activities proposed on leases issued in Chukchi Lease Sale 193, as well as those proposed on leases in the Beaufort Sea, will be allowed to proceed and will provide valuable data that will help inform my decision-making about future activities in the Arctic. In addition to these frontier areas, I am also including Cook Inlet Sale 219 on the Alaska OCS.

Also included in this revised program is Lease Sale 220 in the area offshore Virginia. The MMS estimates that the area comprising Lease Sale 220 could contain 130 million barrels of oil and 1.14 trillion cubic feet of natural gas. Therefore, this sale in offshore Virginia will provide the opportunity for

[2] The 2007-2012 program expires on June 30, 2012. In accordance with my statutory obligations under OCSLA, I am in the process of developing a new 5-year program that will govern OCS activities during the period 2012-2017.

exploration on frontier areas of the Atlantic coast, potentially adding to the Nation's domestic energy supply.

Consistent with my approach to the development of frontier areas based on the best available science and data and my commitment to appropriately balance discovery of oil and gas with potential environmental damage, I intend to remove the following lease sales from the 2007-2012 program: Beaufort Sea Sales 209 and 217 and Chukchi Sea Sales 212 and 221. In addition, because I have concluded that the potential risks (particularly to commercial fisheries) outweigh the potential benefits, I am removing Lease Sale 214 in the North Aleutian Basin from the 2007-2012 program.

EXPLANATION FOR DECISION

In support of this PRP, I relied on the expanded environmental sensitivity analysis (described below), the Proposed Final Outer Continental Shelf Oil and Gas Leasing Program for 2007-2012 (PFP) and the supporting administrative record, including the analysis of all of the other OCSLA section 18 factors, the 2007 Final Environmental Impact Statement (FEIS), and all comments, reports, and studies incorporated therein. My decision is based on my independent review of the record.

The PRP, as set forth in this document, includes the vast majority of the sales from the program developed by my predecessor. The PRP sales include the following sales that have already occurred: Western Gulf of Mexico Sales 204, 207, and 210; Central Gulf of Mexico Sales 205, 206, 208, and 213; Eastern Gulf of Mexico Sale 224 that was mandated by the Gulf of Mexico Energy Security Act of 2006 and is not subject to section 18 analysis and balancing; and Chukchi Sea Sale 193. Also included are the following sales that are planned for the future: Western Gulf of Mexico Sales 215 and 218; Central Gulf of Mexico Sales 216 and 222; Mid-Atlantic Sale 220 offshore Virginia; and Cook Inlet Sales 211 and 219.[3] However, consistent with my approach to develop frontier areas based on the best available science and my commitment to appropriately balance discovery of oil and gas with potential environmental damage, I intend to remove the following lease sales from the 2007-2012 program: Sale 214 in the

[3] While it remains on the schedule, Cook Inlet Sale 211 will not be held due to lack of industry interest in response to the 2008 Request for Nominations and Comments.

North Aleutian Basin; Beaufort Sea Sales 209 and 217[4]; and Chukchi Sea Sales 212 and 221[5]. My reasons for these decisions are set forth below.

Gulf of Mexico

The Central and Western Gulf of Mexico Planning Areas provide a large share of domestic oil and gas production and are a major source of employment for nearby states. Although we still need to be vigilant about protecting environmental resources and local communities, these areas are already supported by a vast system of infrastructure. Gulf of Mexico oil and gas activities provide an important spur to technological innovation and industry has proven that it can conduct its activities safely. In addition, OCS activity in the Gulf draws significant support from adjacent state and local governments, as well as from local citizens. Therefore, the annual areawide lease sales on the schedule for 2007-2012 in the Central and Western Gulf of Mexico will go forward.[6]

Virginia Lease Sale

To help the Nation slow and reverse the trend toward increased imports of foreign oil which send precious dollars and jobs overseas, we must consider leasing in OCS frontier areas, especially those with strong support from nearby states and local communities. Mid-Atlantic Sale 220 is proposed for an area at least 50 miles from the Virginia coast and the State of Virginia has strongly urged me to include it on the schedule. Furthermore, the lack of recent data on the potential resource base in the Mid-Atlantic area can only be remedied by opening at least a portion of the planning area to potential leasing and exploration. Sale 220 could prompt such exploration and be an important vehicle for creating jobs and developing infrastructure to support new OCS activities in an area that welcomes that opportunity. For these reasons, I believe that retaining the Mid-Atlantic sale in the revised program is appropriate.

[4] This option was analyzed as part of Alternative 10 in the FEIS.
[5] This option is within the range of alternatives analyzed in the FEIS and would have effects similar to those analyzed for this area in Alternative 1.
[6] Eastern Sale 224 held in 2008 remains on the lease sale schedule as a historical record of leasing activity during the 2007-2012 time period. The sale was mandated by the Gulf of Mexico Energy Security Act of 2006 and was not subject to OCSLA section 18 analysis or balancing.

Chukchi Lease Sale 193

Sale 193 was a carryover from the 2002-2007 program because there was insufficient time to complete the presale process during that program period. The sale was held in 2008, the first in the area since 1991. This was the largest sale offshore Alaska, with 487 leases issued and bonus payments of almost $2.7 billion. My stated goal for the Arctic planning areas, including in the Chukchi and Beaufort Seas, is to proceed with the best available data, some of which can be obtained through exploration of the already leased acreage. The results of exploration, information from current and planned scientific studies concerning oil-spill clean up capability in icy waters, and increased awareness of the effects of climate change in the Arctic will help me determine the extent to which additional lease sales in these areas are both needed and appropriate in the 2012-2017 program.

North Aleutian Basin

I have decided to remove from the 2007-2012 program Sale 214 in the North Aleutian Basin, currently scheduled to take place in 2011.[7] Because this area, which contains Bristol Bay, holds valuable natural resources, it was subject to a Congressional moratorium for many years. In addition to this Congressional moratorium, President George H.W. Bush and President William Jefferson Clinton both excluded this area from OCS development. In a reversal of this longstanding protection, Congress lifted the moratorium in 2003. Subsequently, President George W. Bush reversed the protection that had been provided by previous Administrations, and my predecessor then opened the area to development in the 2007-2012 program. I have concluded that this area was historically protected for good reasons and it is my intention to reinstate those important protections. Moreover, there is no established oil and gas infrastructure in the North Aleutian Basin that would be necessary to bring oil and gas resources to market.[8]

My decision is based on my review of the record, including the following factors:

- *The value of the fishery resources contained in the North Aleutian Basin, especially Bristol Bay, compared to other Alaska planning areas.* This region supports the greatest diversity of fish species of all Alaska regions.

[7] My decision for the North Aleutian Planning Area is analyzed as Alternative 2 in the FEIS.
[8] FEIS IV.B.3.n

Commercial fisheries for salmon, ground fish, and shellfish are the major economic base in the North Aleutian Basin area. The potential impacts from routine operations and from development of the significant infrastructure necessary to produce oil or gas resources and deliver them to market present unacceptable risks to commercial fisheries and other social and natural resources.[9]

- *The proximity of the North Aleutian Basin to several national monuments and preserves including: the Alaska Maritime NWR, the Alaska Peninsula NWR, the Izenbek Lagoon NWR, the Aniakchak Crater National Monument and Preserve, the Becharof NWR, the Katmai National Park and Preserve, and the Togiak NWR.* The North Aleutian Basin is surrounded by more national monuments and wildlife reserves than the other Alaska areas under consideration.[10]

Therefore, I am removing the North Aleutian Basin from leasing in the 2007-2012 program as I have concluded that the potential risks (particularly to commercial fisheries) outweigh the potential benefits.

Removal of Remaining Lease Sales in the Beaufort and Chukchi Seas

The Beaufort and Chukchi Seas in the Arctic Ocean hold the potential for the discovery of oil and gas. However, leasing decisions must take into account the potential risks associated with development of these frontier areas.

In its remand order, the Court required that I decide the timing and location of lease sales as required under section 18(a)(3) "to obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone." After consideration of the record, including the expanded environmental sensitivity analysis and the OCSLA section 18(a)(2)(D) factor of "Other uses of the OCS," I have determined that, on balance, additional lease sales in the Arctic under the 2007-2012 program are not justified at this time. Based on the current information in the record, I do not believe that the estimated potential

[9] *See, e.g.*, FEIS at III.B.9; III.B.19; and IV.B.3.f(2); and OCSLA Section 18(a)(2)(D) analysis, below, "Other uses of the OCS".

[10] *See, e.g.*, FEIS at III.B.12 and OCSLA Section 18(a)(2)(D) analysis, below, "Other uses of the OCS."

oil and gas discoveries from additional leasing in these areas outweigh the potential environmental damage (including to subsistence resources) and potential adverse impacts to the coastal zone.

During my management of the OCSLA lease sale program, sales in frontier areas will be timed with the goal of using results from exploration activities to inform planning for subsequent sales. With respect to the Chukchi, exploration of existing leases will inform Interior in analyzing the full impacts of potential development and will provide industry with important information regarding the magnitude of recoverable resources to justify the needed infrastructure to bring the resources to market.

In both the Beaufort and Chukchi Sea Planning Areas, industry holds many existing leases that have yet to be explored. Therefore, before additional leases are offered, it is important to gather additional scientific information and data from exploration on existing leases. I am removing from the 2007-2012 program all remaining lease sales in the Beaufort and Chukchi Seas (Beaufort Sea Sales 209 and 217; Chukchi Sea Sales 212 and 221); however, I may consider new lease sales in these areas for the 2012-2017 program.

In reaching my decision to remove from the 2007-2012 program further Arctic lease sales, I took into consideration the difficulty of removing oil spilled in icy waters[11] and our current limited ability to predict the effects of climate change in the Arctic Region.[12] When the relative effects of climate change were considered in the revised environmental sensitivity analysis (Table 21), both the Beaufort and Chukchi Seas were found to be highly sensitive. Moreover, there are studies underway by MMS, the U.S. Coast Guard, U.S. Geological Survey, and other researchers that could add to our ability to more quickly detect and remove spilled oil and to better predict the effects of climate change. This type of information will help target areas for future lease sales and allow us to better mitigate environmental impacts.

My decision to remove from the 2007-2012 program further leasing in these areas (other than Chukchi Sea Lease Sale 193) should not be construed to

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[11] *See, e.g.*, FEIS SUMMARY, "Principal Issues and Concerns" ; FEIS IV.B.d., and *see generally*, FEIS, Environmental Consequences of Proposed Action (Accidents), effects on: Water Quality, Marine Mammals, Marine and Coastal Birds, Fish Resources and Essential Fish Habitat, Coastal Habitats, Seafloor Habitats, Areas of Special Concern, Sociocultural Systems and Subsistence, and Fisheries.

[12] *See, e.g.*, FEIS IV.A.a.(2) and Revised Environmental Sensitivity Analysis, below.

suggest that the exploration of existing leases cannot be safely conducted. Rather, I intend to proceed deliberately to analyze the results of exploration and monitoring activities, and consider other relevant data, which will provide me with the opportunity to make more informed decisions regarding Arctic sales in the 2012-2017 program.

The factors outlined above call for a well-informed approach to Arctic leasing, so that I can fulfill my statutory mandate to properly balance the potential for environmental damage and the potential adverse impact on the coastal zone against the potential for oil and gas discoveries. Striking this balance is based on a consideration of the principles and factors enumerated in OCSLA section 18(a) and on my independent judgment, giving due consideration to the cost-benefit analysis, the equitable sharing analysis, the environmental sensitivity analysis, and other statutory considerations that are not readily quantifiable and for which no ready formula exists.

## ENVIRONMENTAL SENSITIVITY ANALYSIS

At my direction, the Minerals Management Service (MMS) has re-analyzed all 26 OCS planning areas to better determine the relative environmental sensitivity of several ecological components to multiple impacts of offshore oil and gas development. The original environmental sensitivity analysis relied on only two studies conducted by Continental Shelf Associates in 1990 and 1991, and one dataset, the National Oceanic and Atmospheric Administration's Environmental Sensitivity Index. The expanded analysis continues to rely on those sources to analyze the sensitivity of shoreline/coastal habitats, but goes further to analyze sensitivity of offshore/marine resources to oil and gas activities. The expanded analysis also relies on nearly 50 reports and studies, many of which were not considered when the original 2007-2012 relative environmental sensitivity analysis was prepared.

The expanded environmental sensitivity analysis is divided into the three components of the marine environment that may be affected by oil and gas activities: marine habitats, marine productivity, and marine fauna (i.e., birds, fish, marine mammals, and sea turtles). The expanded analysis considers the relative sensitivity of the marine environment of all planning areas to oil spills and other potential factors, such as sound, physical disturbance, climate change, and ocean acidification.

## CONCLUSION

The decision contained in this document reflects the fundamental principle that all oil and gas exploration on federal lands must be conducted at the right place, at the right time, and in an environmentally sound way. In exercising the discretion afforded to me under the OCSLA statute, I must ensure that our decisions, policies, and management objectives are based on the best available science. This is particularly true when considering increased exploration or production from new or frontier domestic areas that have not been subject to significant development. For these areas, it is critically important to strike the appropriate balance in order to protect the integrity of our natural resources while safely exploring potential new sources of domestic energy to help reduce our dependence on imported energy, and ensuring a fair return to the American tax payer for the use of their resources.

Consistent with the process described to the Court, I am directing MMS to notify the Court and transmit this leasing schedule and analysis to "the Governors of affected States, the President, and Congress for review and comment." At the same time MMS will announce in the *Federal Register* a 30-day period for public comment.

Ken Salazar — March 31, 2010

Ken Salazar
Secretary of the Interior

Date

*Much of the 2007-2012 program has not been revised through this PRP decision. Therefore, much of the text of this document is repetitive of the April 2007 Proposed Final Program (PFP) document, as approved on June 29, 2007. New text is shown in a larger font to distinguish it from the text retained from the 2007 PFP document. Note that some text from the PFP has been rewritten or not included as appropriate to reflect this revised decision. Please refer to the PFP for historical information. All references in this document to "comments" refer to those comments submitted in response to the August 2006 Proposed Program. Any specific references in the PRP to the FEIS or other parts of the record are intended to be illustrative rather than exhaustive. There are several references in this document to Executive and Congressional restrictions on OCS leasing activities. The Presidential withdrawal was lifted on July 14, 2008, and the annual Congressional moratoria discontinued as of October 1, 2008.*

# I. EXECUTIVE SUMMARY OF DECISION—PRELIMINARY REVISED PROGRAM

## Introduction

Section 18 of the Act requires the Secretary of the Interior to prepare and maintain a schedule of proposed OCS oil and gas lease sales determined to "best meet national energy needs for the five-year period following its approval or reapproval." Preparation and approval of a 5-year program must be based on a consideration of principles and factors specified by section 18. Those criteria and the manner in which they have been considered in the preparation of the PFP for 2007-2012 are summarized in part II.

As a result of the litigation described in the Secretary's Statement and Summary, the Court remanded the program to the Secretary to redo the environmental sensitivity analysis under section 18(a)(2) and engage in the requisite balancing under section 18(a)(3). This PRP document contains the new analysis and rebalancing, and retains the information and analyses from the April 2007 Proposed Final Program (PFP) that were either upheld by the Court, not challenged, or not revised by this PRP. This PRP reflects the decision on remand that the Secretary will finalize following consideration of public comments..

The April 2007 PFP was the final of three draft versions of the 2007-2012 program that was approved for implementation on July 1, 2007. The PFP document took into account the comments received on the August 2006 Proposed Program (PP). The PP was preceded by the Draft Proposed Program (DPP) issued in February 2006, which took into consideration comments received on the Request for Comments and Information issued on August 24, 2005. The 5-year process is described in part II.

The PRP includes 16 sales in 6 areas (2 areas off Alaska, 1 area off the Atlantic coast, and 3 areas in the Gulf of Mexico (GOM)). Maps A and B show the areas proposed for leasing (Preliminary Revised Program areas). Table A lists the

location and timing of the proposed lease sales in areas that are offered for leasing consideration, including Sale 224 in the Eastern GOM Planning Area, a sale mandated by the GOM Energy Security Act (GOMESAct) of 2006 (P.L. 109-432, December 20, 2006) and exempted from section 18 analysis.

### *TABLE A: Preliminary Revised Program for 2007-2012—Lease Sale Schedule*

| Sale No. | Area | Year* |
|---|---|---|
| 204 | Western Gulf of Mexico | 2007 |
| 205 | Central Gulf of Mexico | 2007 |
| 193 | Chukchi Sea | 2008 |
| 206 | Central Gulf of Mexico | 2008 |
| 224 | Eastern Gulf of Mexico** | 2008 |
| 207 | Western Gulf of Mexico | 2008 |
| 208 | Central Gulf of Mexico | 2009 |
| 210 | Western Gulf of Mexico | 2009 |
| 211 | Cook Inlet | 2009 |
| 213 | Central Gulf of Mexico | 2010 |
| 215 | Western Gulf of Mexico | 2010 |
| 216 | Central Gulf of Mexico | 2011 |
| 218 | Western Gulf of Mexico | 2011 |
| 219 | Cook Inlet | 2011 |
| 220 | Mid-Atlantic | 2011 |
| 222 | Central Gulf of Mexico | 2012 |

* All of the sales scheduled for 2007-2009 were conducted prior to the preparation of this PRP, with the exception of Cook Inlet Sale 211, which was cancelled due to lack of industry interest. Sale 193 in the Chukchi Sea is the only sale conducted in an area subject to the Court's remand.
** Sale 224 is not an OCSLA Section 18 sale, but mandated by GOMESAct of 2006.

**Alaska Region**

In the Alaska Region, the PRP retains one lease sale in the Chukchi Sea Planning Area (Lease Sale 193, which took place in 2008) and includes two special interest sales in the Cook Inlet Planning Area. Sales in these areas are consistent with the then-Governor of Alaska's recommendations and the State's administration of its offshore oil and gas program.

The Chukchi Sea Lease Sale 193 is a carryover from the 2002-2007 program because it was not completed during that program. Chukchi Lease Sale 193 was held in 2008 and 487 leases were issued. Shell Gulf of Mexico, Inc. obtained numerous leases in this sale and submitted a proposed exploration plan. On December 7, 2009, MMS approved Shell's exploration plan, which was subsequently challenged in the U. S. Court of Appeals for the Ninth Circuit.

The Cook Inlet Planning Area is included in the 2007-2012 PRP as a special interest sale area, but it will be cancelled if industry interest as reflected in comments on a call for information is insufficient.[13]

The April 2007 PFP scheduled sales in the Beaufort Sea and in the North Aleutian Basin Planning Areas that are not included in this PRP. The timing of sales in frontier areas such as the Beaufort and Chukchi Seas had been planned to allow at least two years between sales for postlease exploration to better understand the resource potential and to monitor impacts and mitigation effectiveness. Beaufort Sea Sale 202 was held in April 2007 as part of the 5-year program for 2002-2007. However, due to litigation, there has yet to be postlease exploration in either the Beaufort or the Chukchi that would provide information and data to industry and DOI to inform additional leasing consideration in these areas at this time.

The Secretary has removed from the 2007-2012 program Sale 214 in the North Aleutian Basin, currently scheduled to take place in 2011.[14] His decision is based on the record, including the following factors:

- *The value of the fishery resources contained in the North Aleutian Basin, especially Bristol Bay, compared to other Alaska planning areas.* This region supports the greatest diversity of fish species for all Alaska regions. Commercial fisheries for salmon, ground fish, and shellfish are the major economic base in the North Aleutian Basin area. The potential impacts from routine operations and from development of the significant

[13] The Cook Inlet Planning Area is included on the schedule as a special interest sale area. In a special interest sale, before MMS proceeds it will issue a request for nominations and comments and will move forward only after consideration of the comments received in response to annual calls for information. If industry interest reflected in comments on a call for information does not support consideration of a sale, the sale will be postponed. A request for nominations and comments will be issued again the following year, and so on through the 5-year schedule, until a sale is held or the schedule expires. The PFP scheduled up to two special interest sales in this area. As there was no interest expressed in the 2008 Call for Interest, Sale 211, the first of the possible sales, was cancelled.

[14] This decision is analyzed as Alternative 2 in the FEIS.

infrastructure necessary to produce gas resources and get them to market present unacceptable risks to commercial fisheries and other social and natural resources.[15]

- *The proximity of the North Aleutian Basin to several national monuments and preserves including: the Alaska Maritime NWR, the Alaska Peninsula NWR, the Izenbek Lagoon NWR, the Aniakchak Crater National Monument and Preserve, the Becharof NWR, the Katmai National Park and Preserve, and the Togiak NWR.* The North Aleutian Basin is surrounded by more national monuments and wildlife reserves than the other Alaska areas under consideration. [16]

Therefore, the PRP proposes no leasing in the North Aleutian Basin, as the potential risks (particularly to commercial fisheries), including development of the infrastructure necessary to bring oil and gas to market, outweigh the potential benefits.

The PRP proposes that no lease sales in the Beaufort Sea take place during 2007-2012, and that no additional sales take place in the Chukchi Sea beyond Sale 193 held in 2008. In remanding the program, the Court required that the Secretary decide the timing and location of lease sales as required under section 18(a)(3) "to obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone." After consideration of the expanded relative environmental sensitivity analysis under Section 18(a)(2)(G), reconsideration of the other Section 18(a) factors, rebalancing under Section 18(a)(3) and review of the record, the Secretary has determined that, on balance, lease sales in the Arctic beyond Sale 193 are not justified at this time. The Secretary weighed potential environmental damage and adverse impact to the coastal zone, including to subsistence resources, over estimates of potential oil recoveries. The Secretary has made a policy determination that sales in frontier areas should be spaced so that the results of initial exploration activities can be used for planning subsequent sales. Additionally, before DOI

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[15] *See, e.g.*, FEIS at III.B.9; III.B.19; and IV.B.3.f(2); and OCSLA Section 18(a)(2)(D) analysis, below, "Other uses of the OCS".

[16] *See, e.g.*, FEIS at III.B.12 and OCSLA Section 18(a)(2)(D) analysis, below, "Other uses of the OCS".

plans further sales in the Chukchi Sea, exploration of existing leases must proceed so that industry can be able to assess the economic viability of the resources to justify the needed infrastructure in the area.

The Secretary reached this decision based on uncertainties about the adequacy of current technology to remove oil spilled in icy waters[17] and our current limited ability to predict the effects of climate change on the Arctic Region.[18] These uncertainties indicate that a better informed approach to additional Arctic leasing is needed in order to properly balance the potential for environmental damage and the potential adverse impact on the coastal zone against the potential for oil and gas discoveries.

Moreover, in both the Beaufort Sea and Chukchi Sea Planning Areas, there are many existing leases that have yet to be explored, or where exploration plans have been approved, but the results have yet to be evaluated. Revision of the 2007-2012 program to remove further leasing in these areas (other than Chukchi Sea Sale 193) should not be construed to suggest that the exploration of existing leases cannot be conducted safely. Rather, the Secretary intends to allow sufficient time to analyze results of exploration and monitoring activities and consider other relevant data before considering additional Arctic lease sales.

There are studies underway by the MMS, U.S. Coast Guard (USCG) U.S. Geological Survey, and other researchers that could add to our ability to predict the effects of climate change and more quickly detect and remove spilled oil. (See References, part IV.C.2) All of this information should help to target areas for future lease sales that in turn, could serve to enhance government revenue and better mitigate environmental impacts. Therefore, postponing further Arctic lease sales in this 2007-2012 program will provide the opportunity to make more informed decisions in the next 5-year program.

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[17] The potential effects of oil spills, both large and small, are discussed throughout the record. *See, e.g.*, FEIS SUMMARY, "Principal Issues and Concerns" ; FEIS IV.B.d. Also, *see generally*, FEIS, Environmental Consequences of Proposed Action (Accidents), effects on: Water Quality, Marine Mammals, Marine and Coastal Birds, Fish Resources and Essential Fish Habitat, Coastal Habitats, Seafloor Habitats, Areas of Special Concern, Sociocultural Systems and Subsistence, and Fisheries.

[18] *See, e.g.*, FEIS IV.A.a.(2) and Revised Environmental Sensitivity Analysis, below. When the relative effects of climate change were considered in the revised environmental sensitivity analysis (Table 21), both the Beaufort and Chukchi Seas were found to be highly sensitive to the effects of climate change, which are rapidly being manifested.

Maps 3-4, in part III of the PRP, depict the specific Alaska OCS areas proposed for lease sales.

**Gulf of Mexico Region**

In the Central and Western GOM Planning Areas, which remain the two areas of highest resource potential and interest, the PRP follows the PFP with annual areawide lease sales, as has been the customary practice, and included an expanded Central Gulf sale in 2007. In order to meet the requirement to do additional environmental review and analysis as part of the settlement of litigation with the State of Louisiana over Western Gulf Sale 200 (August 2006), the MMS cancelled Sale 201 scheduled for March 2007 and proposed the expansion of proposed Sale 205 to offer the entire planning area that is available at the time of sale. As a result of the reconfiguration of some planning areas to follow new administrative lines, some of the areas formerly included in the Eastern and Western Gulf Planning Area are now part of the Central Gulf Planning Area. The MMS will implement the planning area boundary realignments as described initially in the DPP. However, in order to be able to address mapping and programming requirements of the MMS's Technical Information Management System and to offer the areas that have blocks divided by administrative lines, substantive programming changes are required. A methodology offering whole blocks will be used for sales in this program until programming changes can be made. The blocks to be offered will be depicted on leasing maps that will accompany the Proposed and Final Notices of Sales.

On December 20, 2006, the President signed into law the GOM Energy Security Act (GOMESAct) of 2006. The GOMESAct mandated lease offerings in two areas of the Gulf notwithstanding the omission from any OCS leasing program under section 18 of OCSLA; lifted the Congressional moratorium in two areas of the GOM; and established a moratorium through 2022 in the vast majority of the Eastern GOM Planning Area and a small portion of the Central GOM Planning Area. The majority of the acreage covered by GOMESAct was already included in the PP. A small portion of the area is in the reconfigured Eastern GOM Planning Area. In order to accurately reflect lease sale activity during the 2007-2012 timeframe, this area is included in the table of sales as Sale 224. The sale was held in 2008, following completion of additional environmental review and analysis. However, GOMESAct mandated that the area be offered without the need to undergo section 18 analysis and inclusion in the 5-year program preparation process. Therefore, this area is not subject to any of the section 18 analysis in this document.

As a result of the lifting of the Congressional moratorium in GOMESAct and the modification of the 1998 Presidential withdrawal on January 9, 2007, the 181 South Area is no longer under restriction. Following completion of additional environmental review and analysis, this area was included in the 2009 Central Gulf sale.

The State of Louisiana commented on using alternative leasing schemes in several letters to MMS in 2006. The State sent MMS comments addressing concerns regarding alternative leasing schemes in response to the draft environmental impact statement (EIS) for GOM sales proposed for the 2007-2012 OCS Program; the Central GOM Sale 198 Environmental Assessment (EA); the Call for Information and Nominations for Central and Western GOM sales proposed for the 2007-2012 OCS Program; and the Central GOM Sale 201 EA.

The MMS has considered the State of Louisiana's comments on alternative leasing schemes. It has made a decision to conduct a detailed analysis of alternative approaches to leasing that may serve to further the many goals of the Act. It is anticipated that the design and conduct of this analysis could take several years to complete. If it is determined that some alternative approach to leasing is preferable, and depending on how long it takes to conduct the analysis, the 5-year program for 2007-2012 could be adjusted accordingly or the alternative approach can be incorporated into the subsequent 5-year program for 2012-2017.

While considering ways to address the State's concerns, the MMS must be cognizant of the effects any policy changes might have on the achievement of other statutory and implicit goals of the Federal OCS program. Among these are expeditious and orderly development and maintaining a diverse and competitive industry. Areawide leasing allows smaller independent companies to rapidly produce low-resource, low-risk fields, while larger companies push the edge of the technology envelope at a slower pace in deep water. It also encourages strong and innovative seismic exploration and geophysical contracting and processing industries. In addition, a sudden change in policy that restricts access to oil and gas resources, or that alters the timetables the offshore industry has come to depend on, may lead to undesirable socioeconomic disruptions in local coastal economies. The MMS expects detailed analysis of alternatives to areawide leasing to address such possible consequences. Therefore, pending completion of that analysis, the MMS will continue the areawide approach in the GOM for the near future.

In the Central GOM Planning Area, the PRP includes the commitment to a no-surface occupancy stipulation in a 15-mile area offshore Baldwin County, Alabama. This stipulation has been consistently included at the lease sale stage for all sales in this area since 1999.

Maps 5 and 6, in part III, depict the specific GOM OCS areas proposed for lease sales. Map B includes GOMESAct sale area in the Eastern Gulf.

**Atlantic OCS**

There are four planning areas in the Atlantic OCS—North Atlantic, Mid-Atlantic, South Atlantic, and Straits of Florida. As in the PFP, the PRP includes a special interest sale in the Mid-Atlantic scheduled for late 2011. This area had been subject to Presidential withdrawal under section 12 of OCSLA as well as a Congressional moratorium, but those were lifted during 2008.

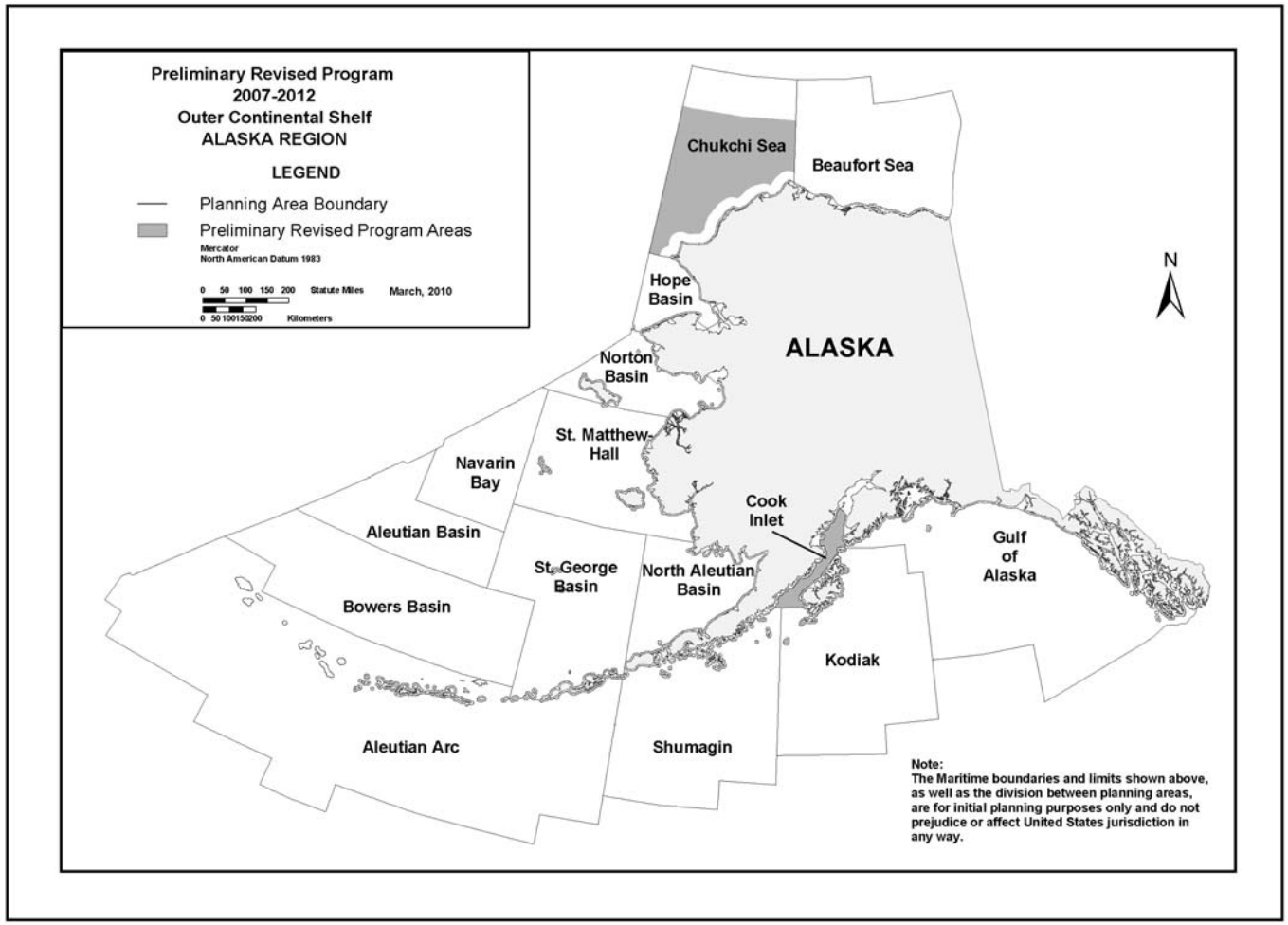
The April 2007 PFP determined that if the Presidential withdrawal was lifted and the Congressional moratorium was discontinued, a "call for information" would be issued as the first step in leasing this area. Accordingly, after the Presidential withdrawal was lifted and the Congressional moratorium discontinued in 2008, a call for information was issued in November 2008. No other pre-lease steps have occurred.

The area proposed for consideration is in the Mid-Atlantic Planning Area off the coastline of Virginia. In response to comments by the State, as in the PFP, the PRP area includes a 50-mile buffer from leasing as called for in Virginia's legislated energy policy. In addition, no leasing is proposed in a wedge-shaped no-obstruction zone, intended to protect navigation activities in and

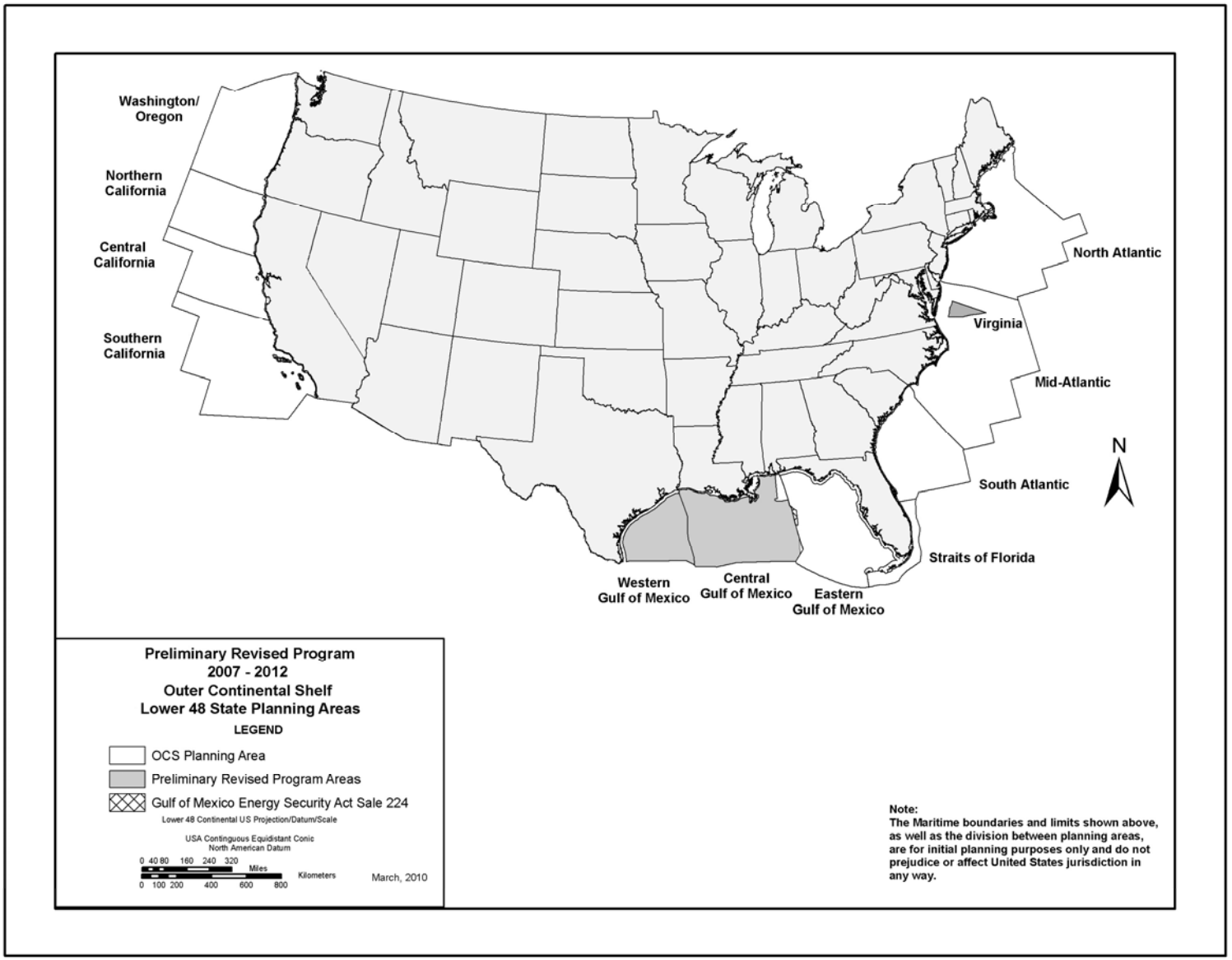
out of the Chesapeake Bay. Furthermore, as for all lease sales, pursuant to section 19 of the Act, no sale will be proposed until all affected states have the opportunity to comment. Map 7, in part III, depicts the specific Atlantic OCS area proposed for leasing consideration.

**Assurance of Fair Market Value**

Section 18 of OCSLA requires receipt of fair market value for OCS oil and gas leases and the rights they convey. To meet this statutory requirement, the PRP provides for setting minimum bid levels by individual lease sale based on market conditions, and for continuing to use a two-phase postsale bid evaluation process that has been in effect since 1983.




*Map A: Shows the Alaska Program Areas*




***Map B: Shows the Lower 48 State Program Areas***

*Much of the 2007-2012 program has not been revised through this PRP decision. Therefore, much of the text of this document is repetitive of the April 2007 Proposed Final Program (PFP) document, as approved on June 29, 2007. New text is shown in a larger font to distinguish it from the text retained from the 2007 PFP document. Note that some text from the PFP has been rewritten or not included as appropriate to reflect this revised decision. Please refer to the PFP for historical information. All references in this document to "comments" refer to those comments submitted in response to the August 2006 Proposed Program. Any specific references in the PRP to the FEIS or other parts of the record are intended to be illustrative rather than exhaustive. There are several references in this document to Executive and Congressional restrictions on OCS leasing activities. The Presidential withdrawal was lifted on July 14, 2008, and the annual Congressional moratoria discontinued as of October 1, 2008.*

# II. FRAMEWORK FOR FORMULATING THE PRELIMINARY REVISED PROGRAM FOR 2007-2012

## A. Procedural History

This PRP has been prepared to respond to the Court remand discussed above. The steps outlined below (other than the PRP itself) were completed prior to the Court's decision.

### Request for Comments and Information

On August 24, 2005, MMS published in the *Federal Register* a request for comments and information regarding the preparation of a new 5-year program for 2007-2012 and announced the start of scoping for the associated EIS that would be prepared. The MMS also sent letters to the governors of affected states and the heads of interested Federal agencies requesting their input by October 11, 2005. Comments received were summarized in appendix A of the draft proposed program.

### Draft Proposed Program

After considering all the information and analyses relating to section 18 factors and principles (see parts III and IV) and comments, the Secretary selected a draft proposed program as the initial proposal for the 5-year program for 2007-2012. The MMS announced the Draft Proposed Program and notice of intent to prepare an EIS in the *Federal Register* on February 10, 2006, and distributed it to governors of affected states and interested and affected parties for a 60-day comment period. Comments received were summarized in appendix A of the proposed program.

### Proposed Program

Preparation of a proposed program was based on further section 18 analysis and consideration of the comments received by MMS concerning the draft proposed program. The Proposed Program was the second draft of the Secretary's proposal. The MMS published the announcement of the Proposed Program in the *Federal Register* on August 24, 2006, and submitted it along with the draft 5-year EIS for 2007-2012 (July 2006) to the Congress, the Attorney General, the governors of affected states, and other interested and affected parties for a 90-day comment period. Comments received were summarized in appendix A of the Proposed Final Program.

### Proposed Final Program

Preparation of a Proposed Final Program was based on additional section 18 analyses and consideration of the comments received by MMS concerning the Proposed Program. The Proposed Final Program was the third and final draft of the Secretary's proposal. The MMS announced the Proposed Final Program in the *Federal Register* and submitted it to the President and the Congress along with summaries of any comments received and an explanation of the responses on any recommendations received from affected state and local governments and the Attorney General. The MMS issued the final EIS along with the Proposed Final Program.

### Final Program

The previous Secretary approved a Final Program on June 29, 2007. Challenges were timely brought by environmental organizations and Alaska Native governments. The U. S. Court of Appeals for the District of Columbia Circuit issued its decision April 17, 2009, rejecting most of the arguments raised by challengers, but vacating and remanding the program due to deficiencies in the relative environmental sensitivity analysis. On July 28, 2009, the Court stayed its mandate (pending completion of the reconsideration of the Sections 18(a)(2)(G) and 18(a)(3) analysis) and clarified that the relief granted pertained only to the Beaufort, Chukchi and Bering (North Aleutian Basin) Seas.

### Preliminary Revised Program

For this PRP, DOI represented to the Court that upon the Secretary's approval of the PRP, MMS will notify the Court, and transmit the revised leasing schedule and analysis to "the Governors of affected States, the President, and Congress for review and comment." At the same time MMS will announce in the *Federal Register* a 30-day period for public comment.

## B. Substantive Requirements

Section 18 of the Act sets forth specific principles and factors to guide 5-year program formulation. Analysis of information relating to those principles and factors produces results that MMS uses to develop reasonable options for a schedule of proposed lease sales. The Secretary may select from these options indicating, as precisely as possible, the size, timing, and location of leasing activity determined to best meet national energy needs. A brief overview of those section 18 requirements is presented below.

### Energy Needs

Section 18(a) states that the purpose of the 5-year OCS oil and gas leasing program is to help meet the Nation's future energy needs. Part IV.A presents an analysis of anticipated energy needs. The analysis includes discussions of the U.S. Department of Energy's projections of

national energy needs in the *Annual Energy Outlook 2006*, the potential contribution of OCS oil and gas production in meeting those needs, alternatives to OCS production, and considerations relating to regional energy needs.

**Environmental Considerations**

Section 18(a)(1) states, in addition to examining oil and gas resources, the Secretary is required to consider the values of other OCS resources and the potential impacts that OCS oil and gas activities could have on those resources and on the marine, coastal, and human environments. Part IV.B presents the environmental issues and concerns that have been raised by commenters and presents information relating to safe and sound operations, as well as pertinent findings of the final EIS for the 5-year program for 2007-2012 and other relevant NEPA documents and environmental information.

**Factors for Determining Timing and Location of Leasing**

Section 18(a)(2) lists eight factors that are to be considered in deciding the timing and location of oil and gas activities among the different areas of the OCS. While some of these factors lend themselves to quantification to facilitate comparison among planning areas, others do not and need to be considered qualitatively. Each of the eight factors provided in 18(a)(2)(A) through (H) is listed below along with references to the parts of the Proposed Final Program analysis and the final EIS that address them.

***(A) Geographic, Geological, and Ecological Characteristics***

The main source of information on geographic, geological, and ecological characteristics of the OCS planning areas considered in preparing the Proposed Final Program is the EIS for the 5-year program for 2007-2012.

Other sources include recent National Environmental Policy Act (NEPA) documents prepared for leasing and operations activities; the MMS 2006 resource assessment and associated reports; the MMS cumulative effects report (97-0027); the 1994 National Research Council report concerning information for Alaska OCS decisions; scientific study results, which are reported in the environmental studies program information system (ESPIS) database; and information submitted or cited by commenters.

***(B) Equitable Sharing of Developmental Benefits and Environmental Risks***

Part IV.C briefly analyzes the equitable sharing factor. It discusses the analyses and findings of previous 5-year programs and briefly cites new developments and their potential influence on the nature and distribution of benefits and risks associated with the size, timing, and location options available for consideration.

The analysis also describes the effect on equitable sharing from the then-existing long-term withdrawal of and/or moratoria on leasing certain areas. The moratoria (other than GOMESAct) and withdrawal described in part IV.C have since been modified or discontinued.

***(C) Location with Respect to Regional and National Energy Markets and Needs***

Part IV.A analyzes regional and national energy needs. Chapter III of the EIS describes the socioeconomic environment for each OCS region, including the existing oil and gas infrastructure and its relationship to new leasing. The recent lease sale EISs and other NEPA documents cited at the end of part II also provide useful information relating to regional distribution and processing of OCS oil and gas.

***(D) Location with Respect to Other Uses of the Sea and Seabed***

Part IV.C discusses competing uses of the OCS. This summary is based on information provided in the EIS for the 5-year program for 2007-2012.

Other sources include the 1997 MMS cumulative effects report, the recent lease sale EISs and other NEPA documents cited above, ESPIS results, and information submitted or cited by commenters.

***(E) Interest of Potential Oil and Gas Producers***

Part IV.C describes industry interest as indicated in response to the August 2006 Proposed Program that was issued by MMS. The discussions of size, timing, and location options in part III also include summaries of industry interest, and appendix A summarizes all comments received from the oil and gas companies and associations.

***(F) Laws, Goals, and Policies of Affected States***

The discussions of size, timing, and location options in part III.D include summaries of the relevant laws, goals, and policies—and federally approved coastal zone management programs and policies—that state governments identified in responding to MMS requests for comments. Appendix A summarizes all comments received from state governors and government agencies.

***(G) Environmental Sensitivity and Marine Productivity***

Part IV.C reanalyzes environmental sensitivity and marine productivity as required by the Court's decision of April 17, 2009. This expanded analysis includes information from the National Oceanic and Atmospheric Administration's Environmental Sensitivity Index for shoreline/coastal habitats, plus additional information regarding the sensitivity of offshore/marine resources. This expanded analysis divides into three components the different areas of the OCS that may be affected by oil and gas activities: marine habitats, marine productivity, and marine fauna (i.e., birds, fish, marine mammals, and sea turtles). The expanded analysis also considers sensitivity to oil spills and other impacting factors, such as sound and physical disturbance, and increased sensitivity due to climate change and ocean acidification.

### *(H) Environmental and Predictive Information*

Part IV.B presents an analysis of environmental concerns that references relevant information and findings from the EIS for the 5-year program for 2007-2012, recent lease sale EISs and other NEPA documents, and other MMS reports and studies.

**Balancing Potential Environmental Damage, Discovery of Oil and Gas, and Adverse Impact on the Coastal Zone**

Section 18(a)(3) requires the Secretary to render decisions on the timing and location of OCS leasing that strike a balance between environmental and developmental principles based on a consideration of the factors comprising section 18(a)(2) listed above. Part IV.C of the Draft Proposed Program addressed the balancing requirement by presenting a comparative analysis of all 26 planning areas. The PP and the PFP documents compared the seven areas considered for leasing, which are referred to as "program areas." As a result of the Court's remand, the PRP is based on consideration of the same record supporting the PFP with the substitution of the expanded environmental sensitivity analysis as required by the Court.

An important element of the comparative analysis is an estimation of net benefits for each planning area that is derived by first calculating the value of oil and gas resources minus the cost to industry and the environmental and social costs of developing those resources. The MMS calls this net social value. Consumer surplus benefits are added to net social value to produce an estimate of net benefits for each program alternative. The comparative analysis also ranks the planning areas according to quantified information relating to environmental sensitivity and marine productivity and according to the interest of potential oil and gas producers. The other section 18(a)(2) factors do not lend themselves as readily to quantification and are treated qualitatively. The comparative analysis also examines additional qualitative information pertaining to industry interest, the findings and purposes of the Act, the comments and recommendations of interested and affected parties, and other information relevant to striking a proper balance under section 18(a)(3).

The Act does not specify what the balance should be or how the factors should be weighed to achieve that balance, leaving to the Secretary the discretion to reach a reasonable determination under existing circumstances.

## C. Judicial Guidance

The PRP is a revision of the seventh 5-Year Oil and Gas Leasing Program prepared by the DOI. The first three programs prepared and approved under section 18 were challenged in court—in 1980, 1982, and 1987.[19] The U.S. Court of Appeals for the District of Columbia Circuit decided all of those lawsuits. The new 5-year program was prepared in accordance with standards set forth in those decisions, which are cited as follows.

[19] No lawsuits were filed challenging the 5-year programs approved for 1992-1997, 1997-2002, and 2002-2007.

*California I* [California *v*. Watt, 668 F.2d 1290 (D.C. Cir. 1981)];

*California II* [California *v*. Watt, 712 F.2d 584 (D.C. Cir. 1983)]; and

*NRDC* [Natural Resources Defense Council, *et al*. *v.* Hodel, 865 F.2d 288 (D.C. Cir. 1988)].

The 2007-2012 program, effective on July 1, 2007, was challenged and the resulting decision is cited as follows.

*CBD* [Center for Biological Diversity, *et al*. *v*. Department of the Interior, 563 F.3d 466 (D.C. Cir. 2009)].

This PRP is being prepared in accordance with that decision and consistent with all of the above-referenced prior decisions.

### D. Analytic Approach

The Secretary's PRP for 2007-2012 considers the size, timing, and location of leasing and the provisions for assuring fair market value, in light of the analyses supporting the April 2007 PFP document, as supplemented by the expanded relative environmental sensitivity analysis. The Secretary considered OCSLA's Section 18 factors for the seven program areas. Pursuant to NEPA, the same seven areas were analyzed in the FEIS prepared to assess the effects of the 2007-2012 PFP. The Secretary's re-balancing decision focuses on the Alaska program areas that were the subject of the Court's order, as clarified on July 28, 2009.

The following guiding principles are consistent with the OCSLA requirements in section 18 (43 U.S.C. § 1344), and were applied by the Secretary in selecting options for the size, timing, and location of areas proposed for leasing in the PRP:

- Give priority leasing consideration to areas where the combination of previous experience; local, state, and national laws and policies; and expressions of industry interest indicate that potential leasing and development activities could be expected to proceed in an orderly manner.

- For areas with known estimated hydrocarbon resources, consider leasing if, from a national and regional perspective, anticipated benefits from development substantially outweigh estimated environmental risks.

- Consider offering areas not recently offered in which further exploration is needed to determine the full extent of natural gas and oil resources.

- Use best available data when committing additional acreage to leasing, especially where there is insufficient confidence in the ability to avoid or mitigate harm to valuable resources and human uses, and enhanced information will allow for better decisionmaking in the next 5-year program.

- Seek to accommodate the recommendations of governors of coastal states and of state and local agencies.

- Consider measures such as buffer zones and deferral areas to mitigate potential impacts in environmentally sensitive areas.

- Time sales in frontier areas to make use of information from exploration on existing leases in order to: 1) better define areas of greatest interest to industry; 2) better assess infrastructure needs; 3) evaluate monitoring data; 4) enhance financial return in future lease sales; and 5) minimize impacts to the environment and coastal areas.

The options presented in this PRP document have been formulated and selected in light of these principles and the factors and elements to be considered and balanced under Section 18(a) of the OCSLA.

Development of this 5-year program for 2007-2012 is based on analysis of information relating to the criteria of section 18 of the OCS Lands Act, which governs preparation and maintenance of the Federal offshore oil and gas leasing program. Parts III and IV of this document discuss in detail the sources of information and the methodologies applied for the program analysis. Also, much information is incorporated by reference. Documents containing this information are listed below.

- Decision Document for the Proposed Final Program for 2007-2012 (April 2007)

- Decision Document for the Proposed Program for 2007-2012 (August 2006)

- Final EIS for the 5-year program for 2007-2012 (April 2007) (FEIS)

- EIA Annual Energy Outlook 2006
  http://www.eia.doe.gov/oiaf/aeo/index.html

- Undiscovered Oil and Gas Resources, Alaska Federal Offshore As of 2006
  http://www.mms.gov/alaska/re/reports

- Assessment of Undiscovered Technically Recoverable Oil and Gas Resources on the Nation's Outer Continental Shelf, 2006 http://www.mms.gov/2005EnergyPolicyAct.htm#ImplementingInMMS

- Accounting for Socioeconomic Change from Offshore Oil and Gas: Cumulative Effects on Louisiana's Coastal Parishes, 1969-2000, MMS 2006-030, 2006

- Gulf of Mexico OCS Oil and Gas Lease Sales: 2007-2012; Western GOM Planning Area Sales 204, 207, 210, 215, and 218; Central GOM Planning Area Sales 205, 206, 208, 213, 216, and 222; Final Environmental Impact Statement, MMS 2007-018, 2007

- Chukchi Sea Planning Area, Oil and Gas Lease Sale 193 and Seismic Survey Activities in the Chukchi Sea, Draft Environmental Impact Statement, MMS 2006-060, 2006

- Arctic Outer Continental Shelf Seismic Surveys- 2006, Programmatic Environmental Assessment, OCS EIS/EA, MMS 2006-038, 2006

- Structure-Removal Operations on the Gulf of Mexico Outer Continental Shelf, Programmatic Environmental Assessment, OCS EIS/EA, MMS 2005-013, 2005

- Environmental Assessment—Proposed Oil & Gas Lease Sale 195 Beaufort Sea Planning Area, MMS 2004-028, 2004

- Geological and Geophysical Exploration for Mineral Resources on the Gulf of Mexico Outer Continental Shelf: Final Programmatic Environmental Assessment, OCS EIS/EA MMS 2004-054, 2004

- Cook Inlet Planning Area Oil and Gas Lease Sales 191 and 199, Final EIS, OCS EIS/EA, MMS 2003-055, Volumes 1-3, 2003

- Alaska Outer Continental Shelf Beaufort Sea Planning Area Oil and Gas Lease Sales 186, 195, and 202, Final EIS, OCS EIS/EA, MMS 2003-001, 2003

- Gulf of Mexico OCS Oil and Gas Lease Sales 189 and 197, Eastern GOM Planning Area, OCS EIS/EA, MMS 2002-056, 2002

*Much of the 2007-2012 program has not been revised through this PRP decision. Therefore, much of the text of this document is repetitive of the April 2007 Proposed Final Program (PFP) document, as approved on June 29, 2007. New text is shown in a larger font to distinguish it from the text retained from the 2007 PFP document. Note that some text from the PFP has been rewritten or not included as appropriate to reflect this revised decision. Please refer to the PFP for historical information. All references in this document to "comments" refer to those comments submitted in response to the August 2006 Proposed Program. Any specific references in the PRP to the FEIS or other parts of the record are intended to be illustrative rather than exhaustive. There are several references in this document to Executive and Congressional restrictions on OCS leasing activities. The Presidential withdrawal was lifted on July 14, 2008, and the annual Congressional moratoria discontinued as of October 1, 2008.*

## III. PRELIMINARY REVISED PROGRAM OPTIONS

### *A. Size, Timing, and Location Options*

**Introduction**

Part III presents the options from which the Secretary chose the size, timing, and location of leasing for 2007-2012. The MMS has formulated these options based on its consideration of information relating to the section 18 criteria and based on the results of comments and consultation with interested and affected parties. The options contained in this PRP consider the expanded relative environmental sensitivity analysis in lieu of the environmental sensitivity analysis found deficient by the Court in *CBD*.[20] Part III also reflects the rebalancing required of the Secretary by the Court's decision. These are the program options that were presented to the Secretary.

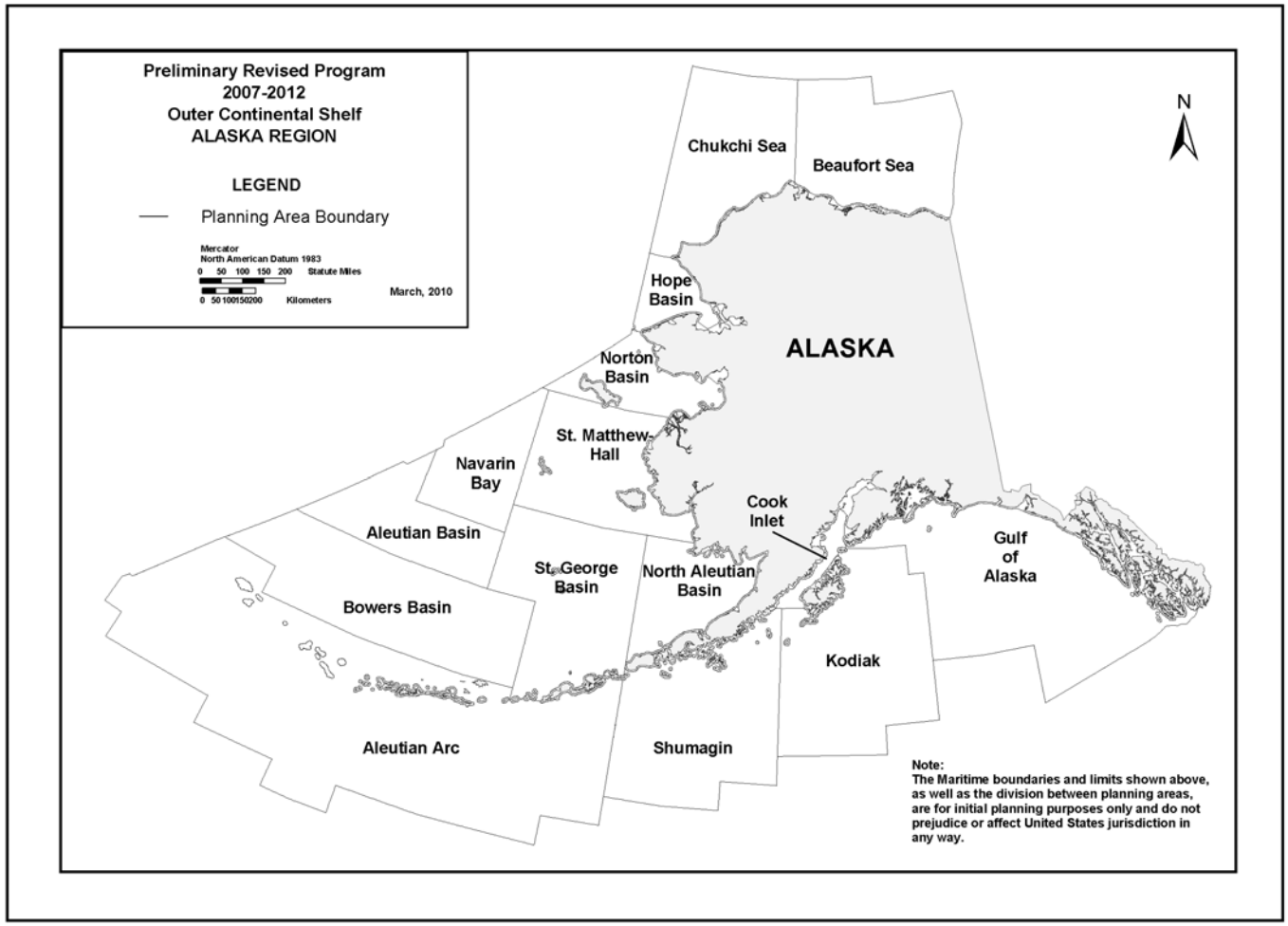
The OCS is divided into 26 planning areas. At the time of publication of the PFP, certain planning areas located off the east and west coasts had been withdrawn from disposition by leasing until after June 30, 2012. At the time of the issuance of this PRP, the only remaining restrictions on planning areas are a continuation of the June 12, 1998, Presidential withdrawal under OCSLA's section 12 of marine sanctuaries "for a time period without specific expiration" and a Congressional moratorium covering most of the Eastern Gulf of Mexico (GOM) Planning Area located off Florida and a portion of the Central GOM Planning Area within 100 miles of Florida through June 30, 2022, under section 104 of GOMESAct of 2006.

Maps 1 and 2 show all 26 planning areas and indicate those currently unavailable for leasing.

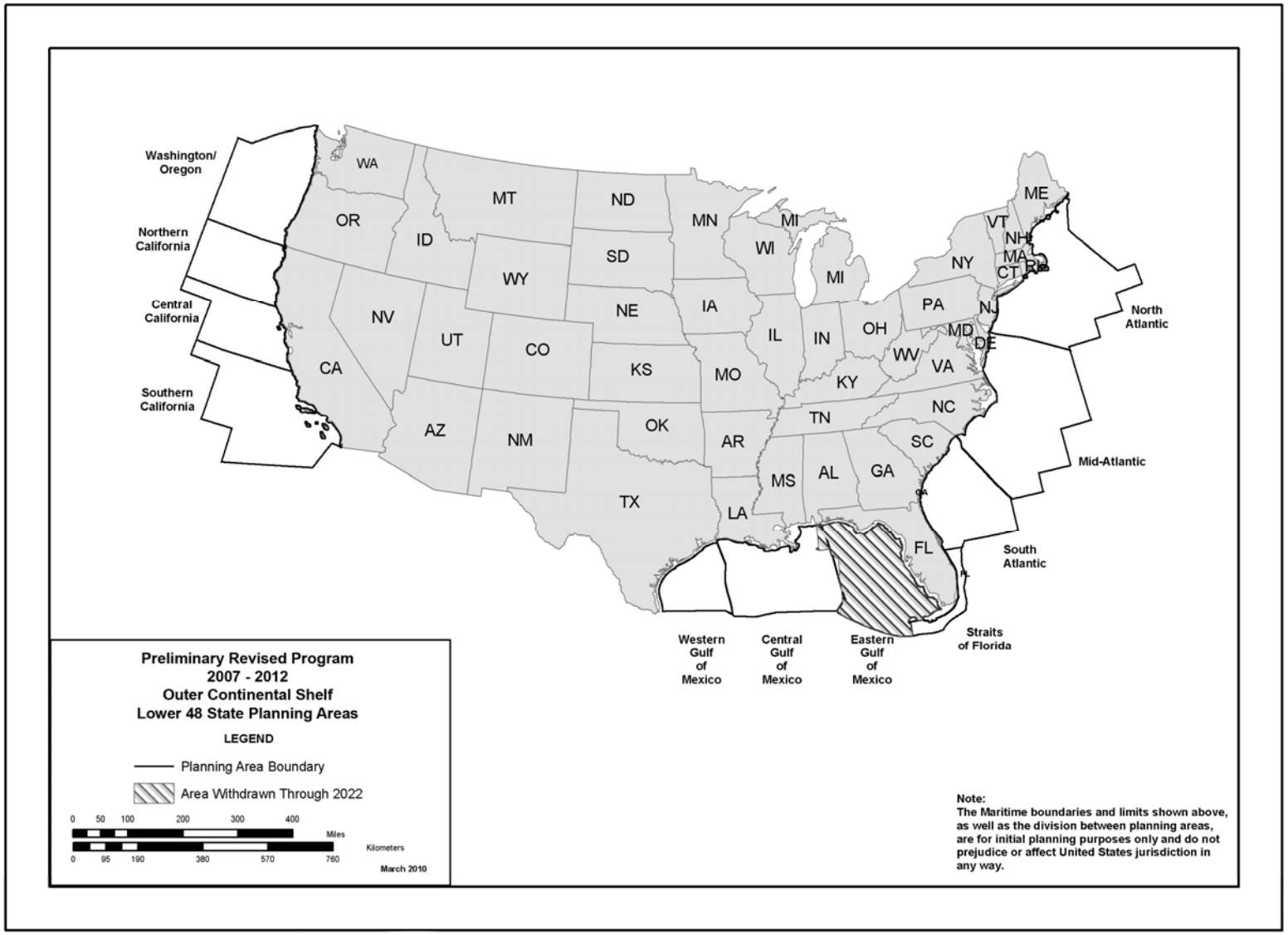
The Section 18 objectives of formulating a program to "best meet national energy needs" and assuring the receipt of fair market value for leases and the rights they convey are significant determinants of the size, timing, and location options. The analyses of net social benefits and the factors specified by section 18(a)(2) provide a solid basis for developing options. Those analyses, which are presented in part IV, examine economic, social, and environmental values; oil and gas resource potential and industry interest; distribution of benefits and risks; competing

[20] Other analyses were not subject to remand. Therefore they remain unchanged in this document and may include information that has not been updated.

uses of the OCS; regional energy needs; and the laws, goals, and policies of affected States. By considering that information for each area of the OCS that was available to be proposed for leasing at the time the PFP was under development, MMS was able to weigh different resources, values, and policies in formulating reasonable options that could be selected by the Secretary to achieve the balance required by Section 18(a)(3).




*Map 1: Shows the Alaska Planning Areas*




*Map 2: Shows the Lower 48 State Planning Areas*

**Additional Considerations**

The location and size of lease sales in a 5-year program are largely determined by the configuration of planning areas and program areas for leasing consideration. The OCS planning areas initially were established following the enactment of the Act Amendments of 1978 and have been reconfigured several times over the past 20 years, including the changes put forth in the DPP and continued in the PP and PFP, that correspond to the administrative lines announced in the *Federal Register* in January 2006. In general, the entire Central and Western GOM Planning Areas (with the exception of blocks in and around the Flower Garden Banks National Marine Sanctuary and those subject to congressional or presidential restriction) have been included in OCS lease sales. Other planning areas have been subdivided to identify smaller areas of leasing consideration within them (i.e., program areas).

For the Central and Western GOM Planning Areas and in the Atlantic off the coast of Virginia, the PRP options are the same as presented in the PFP. For Alaska areas, the PRP includes the options considered in the PFP plus options for fewer sales in the Chukchi Sea. Each lease sale in the PFP has been or will be subjected to an established prelease evaluation and decision process in which interested and affected parties may participate. That process examines the proposed lease sale, starting with the area identified as available for leasing consideration in the 5-year program, and considers reasonable alternative lease sale configurations within that area; therefore, no sale area may be larger than the original proposal. The prelease process leads to the final decision on the size, timing, and location of each OCS lease sale.

Size, timing, and location options are designed also to mitigate drainage of Federal oil and gas resources on unleased lands and associated revenue losses that could occur as a result of existing or anticipated development activity on adjacent state leases. Acquisition of new geological and geophysical data is a relevant consideration in that it is necessary for such data to become available sooner, more frequently, and more predictably for the areas scheduled for lease sales in a 5-year program. Finally, the scheduling of lease sales must allow time for orderly and deliberate preparation for each sale, including the acquisition and analysis of relevant scientific information, and the completion of the prelease evaluation and decision process.

## *Preliminary Revised Program Options for Scheduling Lease Sales*

The options considered for the PRP in Alaska include those considered in the PFP, but adds two options for fewer sales in the Chukchi Sea. The PRP, like the PFP, considers sales in four Alaska planning areas. For the Chukchi and Beaufort Seas, the PRP presents only those sale options that include the deferrals selected in the PFP (i.e., 25-mile buffer, and whaling deferrals, respectively).

Summaries of the key results of the comparative analysis and the comments of interested and affected parties precede each set of lease sale options for each planning area and are largely unchanged from the PFP with the exception that an expanded environmental sensitivity analysis has been substituted in accordance with the Court's Order.

The comparative analysis summaries are condensed from part IV.C, and the comment summaries are adapted from the appendix.

A discussion of the individual options follows each set of options. Each leasing option is discussed as to the anticipated benefits of the proposed leasing and ensuing production, as well as the potential environmental impacts that could be expected. Some of the effects are mentioned under the various leasing options that follow and are discussed more extensively in the FEIS.

Some of the potential impacts described in this part could result from an oil spill. Unlike environmental effects from routine activities, which are reasonably foreseeable; major oil spills, if they occur, could result in catastrophic environmental effects. Therefore, the environmental analysis summarized below discusses effects of a major oil spill scenario in order to identify potential effects.

As explained in part IV.C, the valuation of anticipated production differs from the total net benefits analysis. The former compares the value of all the resources available in each area while the latter compares the value of only those resources that would reasonably be expected to be discovered and produced given the size and timing of the lease sale(s) specified in each option.

## *Relationship of Preliminary Revised Program Options to the Final EIS Alternatives*

The final EIS analyzes ten alternatives that correspond to individual lease sale options as follows:

- Alternative 1—The Proposed Action—corresponds to the PFP Options 1 for the Western and Central GOM and Mid-Atlantic and Cook Inlet (special interest sales) and Option 2 for Beaufort Sea and Chukchi Sea. This mirrors the Proposed Action in the draft EIS.

- Alternative 2—Exclude Leasing in the North Aleutian Basin—would modify the proposal by excluding entirely the North Aleutian Basin (No Sale Option 2 for North Aleutian Basin).

- Alternative 3—Exclude Leasing in Cook Inlet—would modify the proposal by excluding entirely the Cook Inlet (No Sale Option 2 for Cook Inlet).

- Alternative 4—Exclude Leasing Offshore Virginia—would modify the proposal by excluding entirely the program area offshore Virginia (No Sale Option 3 for Offshore Virginia).

- Alternative 5—Exclude Leasing in 25-Mile Buffer in Some Planning Areas—would exclude from leasing consideration a 25-mile area off the coastlines of the Chukchi Sea and Virginia (Option 1 for both areas).

- Alternative 6— Exclude Leasing in No-Obstruction Zone Offshore Virginia—would exclude from leasing consideration a no-obstruction zone from the mouth of the

Chesapeake Bay off the coastline of Virginia (Options 1 (with 25-mile buffer) and 2 (with 50-mile buffer))

- Alternative 7—Offer Only that Area Offered in Sale 92 in North Aleutian Basin (Option 1).

- Alternative 8—Exclude Leasing in Two Areas in the Beaufort Sea to avoid conflicts with subsistence whaling (Option 1).

- Alternative 9—Exclude Leasing in 50-mile Buffer in the Mid-Atlantic off the coastline of Virginia (Option 2).

- Alternative 10—No Action—would schedule no sales (Option 2 for Western and Central GOM, North Aleutian Basin, and Cook Inlet; Option 3 for Mid-Atlantic off Virginia, Beaufort Sea, and Chukchi Sea).

The PRP adopts the alternatives analyzed in the FEIS as follows: Alternative 1 for the Western and Central GOM, the Mid-Atlantic and Cook Inlet; Alternative 2 for the North Aleutian Basin; and Alternative 10 for the Beaufort. The proposed decision in the PRP for the Chukchi Sea is based on the FEIS analysis of Alternative 1, although with fewer sales. The reasonably foreseeable development scenario analyzed for the Chukchi Sea was driven largely by the size of discovery that would support undertaking the cost of developing the necessary infrastructure. The impacts analyzed in the FEIS are based on a minimum economic discovery size, rather than upon the number of lease sales conducted. Thus, the analysis under Alternative 1 in the FEIS effectively addresses the reasonably foreseeable impacts from a proposed decision to conduct only one sale in the Chukchi Sea, i.e., Lease Sale 193.

## ALASKA REGION

### Proposed Final Program Decision

The PFP scheduled the following lease sales in the Alaska OCS Region:

- Beaufort Sea—sales in 2009 and 2011 in the program area with the subsistence whaling deferrals;

- Chukchi Sea—sales in 2007, 2010, and 2012 in the program area with a 25-mile buffer;

- North Aleutian Basin—a sale in 2011 in the program area, and

- Cook Inlet—special interest sales in 2009 and 2011 in the planning area. See the discussion under the Option 1 for a description of the proposed special interest sale process.

**Preliminary Revised Program Options**

***BEAUFORT SEA***

**Key Comparative Results.** The net benefits of anticipated production in the PFP area were estimated at $6.58 billion. In the expanded environmental sensitivity analysis, the area is categorized as "more sensitive" for relative environmental sensitivity (Table 8), "high" for relative effects of climate change on environmental sensitivity (Table 21), and 7th of 7 in the existing primary productivity rankings (Table 22). Several OCS planning areas, including the Beaufort Sea, had a significant increase in their overall sensitivity rankings when increased sensitivity due to climate change was considered.

**Developmental status.** Since the time of Beaufort Lease Sale 202, held in April 2007 under the 2002-2007 program, no exploration activity has been conducted. The first proposed exploration plan (approved in 2007 was withdrawn by the lessee in response to litigation. A second exploration plan approved by MMS in the fall of 2009, was challenged in the U.S. Court of Appeals for the Ninth Circuit. That litigation is pending. The last exploratory well in the Beaufort Sea was completed in 2003. There also has been development activity on leases from earlier sales and there is production from a Federal/State Unit.

**Selected Comments.** The then-Governor of Alaska (Governor Murkowski) supported the proposed leasing programs in the Beaufort and Chukchi Seas contained in the PP and encouraged MMS and industry to work with the North Slope Borough, whaling representatives, and other Native communities to minimize conflict with subsistence whaling. The next Governor (Governor Palin) expressed her support in comments on Beaufort Sea Sale 202 (April 2007). The Department of Energy (DOE) continued its support of the proposed 5-year program, including the proposals related to the OCS in Alaska. The North Slope Borough, the City of Kaktovik, and the Alaska Eskimo Whaling Commission (AEWC) opposed activities in this area, expressing concern for the native subsistence community that is dependent on whaling. If there were sales, these groups wanted whaling areas deferred in the 5-year program, instead of having to reconsider with every sale. Several national and Alaska-based public interest groups stated that MMS should not hold any more lease sales in the Beaufort Sea unless and until the industry demonstrates that it can clean up spilled oil and should exclude sensitive areas offshore of the National Petroleum Reserve Alaska. Some environmental organizations commented that MMS should fully and accurately analyze each of the project's environmental impacts, including greenhouse gas emissions and global warming. Alaska Watch wanted the area reduced because of the potential for oil

spills. The Anchorage Economic Development Council (AEDC) reiterated its support for offshore expansion and concluded that impacts on whales and other sea animals can be fully mitigated. Numerous non-energy industry entities, from the agricultural sector to local Chambers of Commerce, again endorsed the proposal and asked for opening of more acreage. Nineteen companies expressed interest in this area. Of the almost 2,500 Alaskans who commented on the PP, 93 percent were in favor of access to the Alaska OCS.

**Options**

__(1) Proposal as in the PFP with the two subsistence whaling deferral areas: two sales (in 2009 and 2011) in the program area;

__(2) Proposal as in the PFP with the inclusion of two subsistence whaling deferral areas: one sale (in 2011); and

**_X_ (3) No sale.**

**Discussion**

***Option 1 (Proposed Final Program Area with Two Subsistence Whaling Deferrals: two sales)***

**Valuation**. The net benefits of anticipated production in the PFP area are estimated at $6.58 billion.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternatives 1, the Proposed Action, and 8, which would defer blocks to avoid conflicts with whaling. A summary of the EIS findings follows.

***Air Quality*** — The concentrations of $NO_2$, $SO_2$, and $PM_{10}$ from any routine activities would be well within the National Ambient Air Quality Standards (NAAQS). Air quality impacts from accidental oil spills or in situ burning would be localized and short term.

***Archaeological Resources*** — Assuming compliance with existing Federal, state, and local archaeological regulations and policies, most impacts to archaeological resources resulting from routine activities under the proposal will be avoided. Some impact may occur to coastal historic and prehistoric archaeological resources from accidental oil spills. Although it is not possible to predict the precise numbers or types of sites that would be affected, contact with archaeological sites would probably be unavoidable, and the resulting loss of information would be irretrievable, if spills should occur. The magnitude of the impact would depend on the significance and uniqueness of the information lost.

***Areas of Special Concern*** — Development occurring on national park lands is considered unlikely during the time frame of the proposed action. Development may be possible offshore the Alaska Maritime National Wildlife Refuge (NWR) under the proposed action, but it is anticipated that reviews of individual lease sales would minimize the potential for impacts from routine operations. Impacts from oil spills that occur adjacent to national park or national wildlife refuge boundaries would depend on spill location, spill size, type of product spilled, weather conditions, environmental conditions at the time of the spill, and effectiveness of

cleanup operations. Large oil spills in areas adjacent to the Arctic NWR may negatively impact coastal habitats and fauna and also affect subsistence use.

***Climate Change***—While all OCS planning areas will be affected by species migrations, the Alaskan Arctic will likely be relatively more affected. The Intergovernmental Panel on Climate Change (IPCC) (2007) concludes that the Arctic is likely (>66 percent likelihood) to be "especially affected" by climate change because of the impacts of high rates of projected warming on natural systems. In particular, Arctic temperatures have increased about twice as much as those in lower latitudes. The IPCC predicts that the Arctic will continue to warm at a faster rate than elsewhere during the time span covered by the life of the 2007-2012 program. The presence of sea ice and landfast ice in the marine environment of the Arctic and near Arctic creates a productive marine-ice biome essential for the flourishing and survival of marine animals and the traditional subsistence life style. These environments provide hunting, resting and birthing platforms along the ice-water interface, generate local upwelling responsible for high productivity in polynyas and release large quantities of algae growing beneath the ice surface into the food chain at ice melt. The IPCC (2007) considers it likely (>66 percent likelihood) that the Arctic sea-ice biome will be especially affected by climate change because of sensitivity to warming. Among the most affected OCS planning areas are the Beaufort and Chukchi Seas. (See expanded environmental sensitivity analysis, part IV.C.2 below). The potential effects of the proposed action on Arctic resources should be considered in light of the potential effects of climate change on the same resources. For example, loss of sea ice due to global warming could cause large scale changes in marine ecosystems and could threaten populations of marine mammals such as polar bears and ringed seals that depend on the ice. Ocean ecosystems and fisheries are highly vulnerable to changes in sea temperature and sea ice conditions. Climate change would likely alter fisheries habitat as well as diversity, distribution, migration patterns, and abundance of species. Regional climate could result in migration of fish species to the Beaufort and Chukchi Seas from other regions. Uncertainty as to the rate of change at particular locations and on particular resources complicates planning to minimize adverse impacts.

***Coastal Habitats —*** Construction of infrastructure, such as onshore support bases and pipeline landfalls could result in small areas of habitat being lost. Potential impacts from oil spills could occur to coastal habitats. The magnitude of these impacts would depend on a variety of factors, including the location and size of the spill, remediation efforts, existing environmental conditions (such as plant species or substrate type), and natural localized erosion and deposition patterns. Cleanup operations might also impact coastal habitats if the removal of contaminated substrates

affected beach stability and resulted in accelerated shoreline erosion or if coastal wetlands were damaged (e.g., by trampling or removal of vegetation).

***Fish Resources and Essential Fish Habitat*** —Assuming compliance with existing Federal, state, and local fisheries regulations, policies and consultations, most impacts to fish resources will be minimized. Effects of accidental spills would depend on the location, timing, and volume of spills; distribution and ecology of affected fish species; and other environmental factors. Under most circumstances, any single large spill would affect only a small proportion of a given fish population; therefore, overall population levels would not be affected.

***Fisheries*** — Because commercial fisheries in the Arctic subregion are relatively small and localized, potential impacts due to routine operations under the proposed action are less likely unless they occur in the direct vicinity of these localized fisheries. Based on the oil-spill scenarios, most accidents assumed under the proposed action would potentially impact commercial fisheries, with larger spills resulting in greater and potentially more persistent impacts. All spills have the potential to result in reduced or no harvest that may impact local economies.

***Land Use and Existing Infrastructure*** — The greatest anticipated impact of the proposed action is to expose new areas to the potential effects from routine operations and accidents. Routine operations would impact land use in the vicinity of new facilities and their associated infrastructure. Impacts associated with platform and pipeline construction would be temporary. An oil spill could alter land use temporarily but would not likely result in long-term changes. The magnitude of the impacts would depend on the size and location of the spill.

Under the proposed action, oil and gas activities in the Arctic subregion (Beaufort Sea and Chukchi Sea Planning Areas) may result in 3-10 offshore platforms and associated gravel islands and ice roads; up to 3 new offshore pipelines (50-160 miles in length); up to 3 new pipeline landfalls; up to 3 new onshore facilities, with 200 miles of associated new pipeline. There are currently about 20 processing facilities in North Slope oil fields that average about 45 acres each in size. Applying this average size, the construction of 3 new onshore facilities could permanently disturb about 135 acres of habitat. Depending on the proximity of the new facilities to existing roads, such as those associated with North Slope infrastructure, 1or more new access roads may be needed for each new facility to bring in construction equipment and supplies and additional land would be needed for other infrastructure such as airstrips and power stations. There may be up to 3 helicopter trips daily and a similar number of vessel trips to each offshore platform. Additional helicopter or fixed-wing aircraft overflights may also occur. (See, FEIS at IV.B.3)

***Marine and Coastal Birds*** — Marine and coastal birds may be affected by the construction of onshore and offshore facilities; by boats, aircraft, and on-land vehicle traffic; and by noise and human activities during normal operations and maintenance activities. In most cases, affected birds would temporarily leave the area; while in other cases, the displacement could be long-term. Construction of onshore facilities and pipelines, offshore pipeline landfalls, and offshore

gravel islands to support drilling platforms would result in the permanent disturbance of potential habitat within the immediate footprint of the new facilities and gravel excavation areas. Depending on the species present at and in the vicinity of the construction areas, the numbers of birds affected, and the activity (whether nesting, molting, feeding or staging) that the affected birds were undergoing at the time of disturbance, the displacement could reduce reproductive, foraging, and survival successes, and might result in population-level impacts.

Accidental spills represent the greatest potential for adversely impacting marine and coastal birds. Spills in offshore locations have the greatest potential for affecting the greatest number of birds, especially if a spill occurs in an area where birds have congregated and are carrying out important activities such as nesting, molting, and staging. Spills in terrestrial habitats would affect relatively few birds unless the spill was to reach a surface water body such as a stream, pond, or lake that provides an important brood-rearing, foraging, or staging habitat. Oil-spill cleanup activities may result in either short-term or long-term displacement of birds from habitats, depending on the size of the spill and the habitats affected.

***Marine Mammals*** — Arctic species with limited access to open (ice-free) water are considered highly susceptible based on perceived risks associated with these species' inability to avoid extended contact with spilled oil in a confined marine environment. (See expanded environmental sensitivity analysis, part IV.C.2) There are three seasonal species of endangered mammals that occur in the Arctic subregion. All three occur in the Chukchi Sea; however, the bowhead whale also occurs in the Beaufort Sea. The bowhead whale has the greatest potential of the three endangered mammals to occur in areas where OCS-related activities are occurring and to be affected by normal operations or spills. (See, FEIS at IV.B.3.c) Some routine operations could affect marine mammals in the Arctic subregion. Noise generated during exploration and operation activities and by OCS-related vessels and helicopters may temporarily disturb some individuals, causing them to leave or avoid the area. Such effects would likely be short-term and not result in population-level effects. If the disturbance results in the temporary abandonment of young by adults, survival of young may be reduced. Collisions with OCS-related vessels may injure or kill some individuals. Existing permit requirements, regulatory stipulations, and MMS guidelines targeting many of the routine operations would generally limit the likelihood of marine mammals being affected by these operations. Oil spills may expose marine mammals to oil or its weathering products. Adverse impacts to individuals of a listed species from a large spill could potentially have a population-level effect. Spill cleanup operations could result in short-term disturbance of marine mammals in the vicinity of the cleanup activity, while a collision with a cleanup vessel could injure or kill the affected individual. Disturbance of adults with young during cleanup operations could reduce survival of the young animals.

***Population, Employment, and Income*** — In Alaska, the proposed action is expected to add 12,600 jobs (the largest share on the North Slope) and $192 million in personal income in an average year and the Alaska population is projected to grow by 14,000 residents. Most North Slope workers are expected to stay in enclave housing and commute from south-central Alaska or the Fairbanks area. Potential effects on local population, employment, and regional income from routine operations and oil spills are expected to be limited except for local effects from a large oil spill.

***Seafloor Habitats*** — Some impacts on benthic communities could occur due to routine operations and accidental spills under the proposed action. The magnitude of impacts from an oil spill would depend upon the location of the spill, spill size, the type of product spilled, effectiveness of cleanup operations, and other environmental conditions at the time of the spill. Impacts to the Stefansson Sound Boulder Patch community could occur as a result of routine operations and accidental spills under the proposed action. However, planning procedures and permitting requirements would avoid or minimize the potential for impacts to the Stefansson Sound Boulder Patch community.

***Sociocultural Systems and Environmental Justice*** — Noise disturbance from routine offshore operations could significantly affect marine mammal harvests and is a particular concern with bowhead whaling, but this is expected to be mitigated through consultation and conflict avoidance measures. The *Exxon Valdez* oil spill has shown that substantial impacts occur from direct effects of an oil spill upon resources and from disruptive cleanup efforts. Potential impacts on sociocultural systems from spills under the proposal would be determined by the location and timing of the spill. (See, FEIS at IV.B.3.k)

Alaska Native populations are present in many coastal areas and could be near any new onshore infrastructure resulting from the proposal, raising potential environmental and health concerns. The importance of marine mammals (such as the bowhead whale) to subsistence raises particular concerns. The bowhead whale could be present where OCS-related activities are occurring and would be affected by normal operations or spills. (See, FEIS at IV.B.3.c) Should an oil spill occur, its potential environmental and health impacts on Alaska Native populations could be disproportionately high or adverse depending on the geographical location of the spill and its effects on subsistence resources and harvests. Because of these concerns, the MMS continues to emphasize consultation and interactions with Native organizations to evaluate potential actions and mitigations.

***Terrestrial Mammals*** — The construction and normal operations of new onshore facilities associated with the proposed action could result in a variety of short-term and long-term impacts to terrestrial mammals. Short-term impacts may be incurred by a variety of species during facility and infrastructure construction. These impacts would largely be behavioral in nature, with affected animals avoiding or vacating the construction areas. Similarly, vehicle and aircraft traffic associated with the proposed action could temporarily disturb mammals near roadways or under flight paths. The presence of a new onshore pipeline may result in the displacement from preferred habitats to less suitable habitats for overwintering muskoxen, calving female caribou, and female caribou and their calves. While population-level effects may not be likely for caribou, local population-level effects may occur for muskoxen, if they are in the immediate area, because of the small population size in Alaska. In the event of an accidental spill, terrestrial mammals may be exposed via ingestion of contaminated food, inhalation of airborne oil droplets, and direct ingestion of oil during grooming. A variety of lethal and sublethal effects may be likely. However, because most spills would be relatively small (<50 barrels (bbl)), relatively few individuals would likely be exposed. While some individuals may incur lethal effects, population-level impacts would not be expected for most species. Cleanup activities could temporarily disturb terrestrial mammals in the vicinity of the cleanup operation, causing those animals to vacate the area.

***Water Quality*** — Construction and installation of exploratory and development wells, platforms, pipelines, docks and causeways, and/or artificial islands could impact water quality by disturbing sediments and increasing turbidity in the area of construction. Minor water quality contamination could also occur from fluids entrained in ice roads when they breakup in the spring. Overall coastal and marine water quality impacts due to routine operations and operational discharges under the proposed action would be unavoidable. Exploration discharges would persist for a few hours within the mixing zone around each rig. However, the National Pollutant Discharge Elimination System (NPDES) permit limitation on discharge rates would minimize water quality impacts. Production facilities would re-inject all muds, cuttings, and production waters, thereby eliminating degradation of water quality by these effluents. Impacts of accidental releases to water quality would depend on the size of the spill, type of material or product spilled, and environmental factors at the time of the spill. A large spill in isolated coastal waters, in shallow water under thick or rapidly freezing ice, or in the open sea when or where access to the spill site is limited could cause sustained degradation of water quality because the decomposition and weathering processes for oil are slowed in cold water.

### *Option 2 (Proposed Final Program Area With Subsistence Whaling Deferrals: one sale)*

**Valuation**. The net benefits of production are estimated at $ 6.58 billion.

**Environmental Impacts**. This option is analyzed in the FEIS under Alternatives 1, the Proposed Action, and Alternative 8, which would defer blocks to avoid conflicts with whaling. The summary of the FEIS findings are the same of those in Option 1 as the number of sales does not change nature of the postlease activities that are addressed in the FEIS findings.

#### *Option 3 (No Sale)*

**Valuation.** The net benefits of production would be zero since no activity would occur.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternative 10, the No Sale alternative. A summary of the EIS findings follows.

The choice of this option would result in a lack of activities associated with other options proposing sales in the planning area. Environmental impacts from presale seismic activity, exploration drilling, placement of platforms and pipelines, and accidental oil spills would not occur, from any leasing in this program, but could result from existing leases and any leasing that might occur under future 5-year programs. Activity and impacts from seismic, exploration, and development activity on leases purchased during past sales could continue. Potential effects on the Pacific Coast as a result of spills of oil produced from new Beaufort Sea leases and shipped by tanker to West Coast ports would be eliminated, but potential effects might occur from spills associated with tankered imports in the same areas.

**Other Information.** The timing and number of sales in this area is intended to allow sufficient time between sales for postlease exploration and monitoring

activities and analysis of the results of such activities. Such activities and results have yet to be derived from leases issued in Sale 202 held in April 2007. Not including any sales in this area in this 5-year program would allow more time for these results to be available. Such information should help to target areas for future lease sales, which could serve to enhance government revenue and better mitigate environmental impacts.

### *CHUKCHI SEA*

**Key Comparative Results**. The net benefits of anticipated production in the Chukchi Sea PFP area were estimated at $6.37 billion. In the expanded environmental sensitivity analysis, the area is categorized as "less sensitive" for relative environmental sensitivity (Table 8), "high" for relative effects of climate change on environmental sensitivity (Table 21), and 6th of 7 in the existing primary productivity rankings (Table 22). Several OCS planning areas, including the Chukchi Sea, had a significant increase in their overall sensitivity rankings when increased sensitivity due to climate change was considered.

**Selected Comments:** The then-Governor of Alaska (Governor Murkowski) supported the proposed leasing programs in the Chukchi Sea contained in the PP, including the 25-mile buffer, and encouraged MMS and industry to work with the North Slope Borough, whaling representatives, and other Native communities to minimize conflict with subsistence whaling. The DOE continued its support of the proposed 5-year program, including the proposals related to the OCS in Alaska. The North Slope Borough opposed activities in this area. Several national and Alaska-based public interest groups stated that MMS has arbitrarily expanded access to the Chukchi Sea planning area and underestimated the sensitivity of the Chukchi Sea shoreline. Some environmental organizations commented that MMS should fully and accurately analyze each of the project's environmental impacts, including greenhouse gas emissions and global warming. WWF/Audubon opposed MMS planning in the Chukchi Sea due to concerns about the migratory patterns of whales, oil spill concerns, and important habitat considerations for polar bears and other animals. The AEWC continued its opposition to offshore oil and gas leasing because it threatens the habitat and migratory patterns of the bowhead whale. The AEWC stated that the Secretary must exclude the Chukchi Sea from the program for the sole reason that too little is known about that sea and its capacity to rebound from environmental pressures of leasing activity. The AEDC reiterated its support for offshore expansion and concluded that impacts on whales and other sea animals can be fully mitigated. Numerous non-energy industry entities, from the agricultural sector to local Chambers of Commerce, endorsed the proposals and asked for opening of more acreage. Seventeen companies expressed interest in this area. Of the almost 2,500 Alaskans who commented on the PP, 93 percent were in favor of access to the Alaska OCS.

## Options

__(1) Proposal as in the PFP, including a 25-mile buffer from leasing consideration off the coastline: three sales (in 2008, 2010, and 2012) in the program area depicted in Map 3;

__(2) Proposal as in the PFP, including a 25-mile buffer from leasing consideration off the coastline: two sales (in 2008 and 2012) in the program area depicted in Map 3;

_X_(3) Proposal as in the PFP, including a 25-mile buffer from leasing consideration off the coastline: one sale (Sale 193 held in 2008) in the program area depicted in Map 3; and

___(4) No sale.

**Discussion**

***Option 1 (Proposed Final Program Area Including a 25-Mile Buffer: three sales)***

**Valuation**. The net benefits of anticipated production in the PFP area were estimated at $ 6.37 billion.

**Environmental Impacts**. This area is analyzed in the final EIS under Alternatives 1, the Proposed Action, and 5, which defers blocks within 25 miles of the coast from leasing consideration. A summary of the EIS findings follows.

This option would eliminate most potential environmental impacts to resources within the 25-mile buffer zone in the Chukchi Sea from routine operations, such as water and gaseous discharges, bottom disturbances, and seismic activities. The potential for impacts to coastal water quality, coastal air quality, marine mammals, marine and coastal birds, benthic communities, subsistence, and fish resources would be reduced. However, the potential for impacts from vessel traffic, aircraft, offshore and onshore pipeline construction, and onshore support facilities would still exist. There would be no gravel island or ice roads constructed in the Chukchi Sea under this option, thus eliminating potential impacts arising from these facilities. The potential for offshore impacts to polar bears would be reduced by virtue of reducing the likelihood of their interactions with OCS structures and activities, including seismic. Potential impacts to polar bears onshore would be unchanged from alternative 1 which does not include the 25-mile buffer. The 25-mile buffer provides additional protection from potential impacts to the bowhead whales during their spring migration because there would be no OCS infrastructure or activity in the migration area, which is limited to within 25 miles of the coast.

The potential for adverse coastal and nearshore impacts from oil spills that occur at offshore facilities would be reduced compared with not having the 25-mile buffer. Oil spills could still occur during transportation in or near the coast. This option would also reduce potential effects of a large oil spill on portions of the Chukchi Sea Unit of the Alaska Maritime NWR. The

establishment of a 25-mile buffer would reduce potential impacts on Native subsistence because subsistence hunting activities occur within the deferral area. Environmental justice effects, i.e., possible adverse health or environmental impacts from changes in subsistence resources and harvest patterns, would be reduced. A reduction in the likelihood of a nearshore oil spill at an OCS facility slightly reduces the chances of potential oil-spill impacts on Native subsistence resources and harvests.

The impacts to terrestrial animals, coastal habitats, land use and existing infrastructure, population, employment, regional income, tourism, and recreation would be essentially the same as those for including acreage within the 25-mile buffer since the need for onshore support facilities and pipelines would not change.

***Air Quality*** — The concentrations of $NO_2$, $SO_2$, and $PM_{10}$ from any routine activities would be well within the NAAQS. Air quality impacts from accidental oil spills or in situ burning would be localized and short term.

***Archaeological Resources*** — Assuming compliance with existing Federal, state, and local archaeological regulations and policies, most impacts to archaeological resources resulting from routine activities under the proposal will be avoided. Some impact may occur to coastal historic and prehistoric archaeological resources from accidental oil spills. Although it is not possible to predict the precise numbers or types of sites that would be affected, contact with archaeological sites would probably be unavoidable, and the resulting loss of information would be irretrievable, if spills should occur. The magnitude of the impact would depend on the significance and uniqueness of the information lost.

***Areas of Special Concern*** — Development occurring on national park lands is considered unlikely during the timeframe of the proposed action. Impacts from oil spills that occur adjacent to national park or national wildlife refuge boundaries would depend on spill location, spill size, type of product spilled, weather conditions, environmental conditions at the time of the spill, and effectiveness of cleanup operations. Large oil spills in areas adjacent to the Chukchi Sea Unit of the Alaska Maritime NWR may negatively impact coastal habitats and fauna and also affect subsistence use.

***Climate Change***—While all OCS planning areas will be affected by species migrations, the Alaskan Arctic will likely be relatively more affected. The IPCC (2007) concludes that the Arctic is likely (>66 percent likelihood) to be "especially affected" by climate change because of the impacts of high rates of projected warming on natural systems. In particular, Arctic temperatures have increased about twice as much as those in lower latitudes. The IPCC predicts that the Arctic will continue to warm at a faster rate than elsewhere during the time span covered by the life of the 2007-2012 program. The presence of sea ice and landfast ice in the marine environment of the Arctic and near Arctic creates a productive marine-ice biome essential for the flourishing and survival of marine animals and the traditional subsistence life style. These environments provide hunting, resting and birthing platforms along the ice-water interface,

generate local upwelling responsible for high productivity in polynyas, and release large quantities of algae growing beneath the ice surface into the food chain at ice melt. The IPCC (2007) considers it likely (>66 percent likelihood) that the Arctic sea-ice biome will be especially affected by climate change because of sensitivity to warming. Among the most affected OCS planning areas are the Beaufort and Chukchi Seas. (See expanded environmental sensitivity analysis, part IV.C.2 below) The potential effects of the proposed action on Arctic resources should be considered in light of the uncertainty of potential effects of climate change on the same resources. For example, loss of sea ice due to global warming could cause large scale changes in marine ecosystems and could threaten populations of marine mammals such as polar bears and ringed seals that depend on the ice conditions. Ocean ecosystems and fisheries are highly vulnerable to changes in sea temperature and sea ice conditions. Climate change would likely alter fisheries habitat, as well as diversity, distribution, migration patterns, and abundance of species. Regional climate could result in migration of fish species to the Beaufort and Chukchi Seas from other regions. Uncertainty as to the rate of change at particular locations and on particular resources complicates planning to minimize adverse impacts.

***Coastal Habitats —*** Construction of infrastructure such as onshore support bases and pipeline landfalls could result in small areas being lost. Potential impacts from oil spills could occur to coastal habitats. The magnitude of these impacts would depend on a variety of factors, including the location and size of the spill, remediation efforts, existing environmental conditions (such as plant species or substrate type), and natural localized erosion and deposition patterns. Cleanup operations might also impact coastal habitats if the removal of contaminated substrates affected beach stability and resulted in accelerated shoreline erosion or if coastal wetlands were damaged (e.g., by trampling or removal of vegetation).

***Fish Resources and Essential Fish Habitat*** — Assuming compliance with existing Federal, state, and local fisheries regulations, policies, and consultations; most impacts to fish resources will be minimized. Effects of accidental spills would depend on the location, timing, and volume of spills, distribution and ecology of affected fish species, and other environmental factors. Under most circumstances, any single large spill would affect only a small proportion of a given fish population; therefore, overall population levels would not be affected.

***Fisheries*** — Because commercial fisheries in the Arctic subregion are relatively small and localized, potential impacts due to routine operations under the proposed action are less likely unless they occur in the direct vicinity of these localized fisheries. Based on the oil-spill scenarios, most accidents assumed under the proposed action would potentially impact commercial fisheries, with larger spills resulting in greater and potentially more persistent impacts. All spills have the potential to result in reduced or no harvest that may impact local economies.

***Land Use and Existing Infrastructure*** — The greatest anticipated impact of the proposed action is to expose new areas to the potential effects from routine operations and accidents. Routine operations would impact land use in the vicinity of new facilities and their associated infrastructure. Impacts associated with platform and pipeline construction would be temporary. An oil spill could alter land use temporarily but would not likely result in long-term changes. The magnitude of the impacts would depend on the size and location of the spill. (See, FEIS at IV.B.3.n)

***Marine and Coastal Birds*** — Marine and coastal birds may be affected by the construction of onshore and offshore facilities; by boats, aircraft, and on-land vehicle traffic; and by noise and human activities during normal operations and maintenance activities. In most cases, affected birds would temporarily leave the area; while in other cases, the displacement could be long-term. Construction of onshore facilities and pipelines, offshore pipeline landfalls, and offshore gravel islands to support drilling platforms would result in the permanent disturbance of potential habitat within the immediate footprint of the new facilities and gravel excavation areas. Depending on the species present at and in the vicinity of the construction areas, the numbers of birds affected, and the activity (whether nesting, molting, feeding or staging) that the affected birds were undergoing at the time of disturbance, the displacement could reduce reproductive, foraging, and survival successes, and might result in population-level impacts.

Accidental spills represent the greatest potential for adversely impacting marine and coastal birds. Spills in offshore locations have the greatest potential for affecting the greatest number of birds, especially if a spill occurs in an area where birds have congregated and are carrying out important activities such as nesting, molting, and staging. Spills in terrestrial habitats would affect relatively few birds unless the spill was to reach a surface water body such as a stream, pond, or lake that provides an important brood-rearing, foraging, or staging habitat. Oil-spill cleanup activities may result in either short-term or long-term displacement of birds from habitats, depending on the size of the spill and the habitats affected.

***Marine Mammals*** — Arctic species with limited access to open (ice-free) water are considered highly susceptible based on perceived risks associated with these species' inability to avoid extended contact with spilled oil in a confined marine environment. (See expanded environmental sensitivity analysis, part IV.C.2 below) Some routine operations could affect marine mammals in the Arctic subregion. Noise generated during exploration and operation activities and by OCS-related vessels and helicopters may temporarily disturb some individuals, causing them to leave or avoid the area. Such effects would likely be short-term and not result in population-level effects. If the disturbance results in the temporary abandonment of young by adults, survival of young may be reduced. Collisions with OCS-related vessels may injure or kill some individuals. Existing permit requirements, regulatory stipulations, and MMS guidelines targeting many of the routine operations would generally limit the likelihood of marine mammals being affected by these operations. Oil spills may expose marine mammals to oil or its weathering products. Adverse impacts to individuals of a listed species from a large spill could potentially have a population-level effect. Spill cleanup operations could result in short-term disturbance of marine mammals in the vicinity of the cleanup activity, while a collision with a cleanup vessel could injure or kill the affected individual. Disturbance of adults with young during cleanup operations could reduce survival of the young animals.

***Population, Employment, and Income*** — In Alaska, the proposed action is expected to add 12,600 jobs (the largest share on the North Slope) and $192 million in personal income in an average year and the Alaska population is projected to grow by 14,000 residents. Most North Slope workers are expected to stay in enclave housing and commute from south-central Alaska or the Fairbanks area. Potential effects on local population, employment, and regional income from routine operations and oil spills are expected to be limited except for local effects from a large oil spill.

***Seafloor Habitats*** — Some impacts on benthic communities could occur due to routine operations and accidents under the proposed action. The magnitude of impacts from an oil spill would depend upon the location of the spill, spill size, type of product spilled, effectiveness of cleanup operations, and other environmental conditions at the time of the spill.

***Sociocultural Systems and Environmental Justice*** — Noise disturbance from routine offshore operations could significantly affect marine mammal harvests and is a particular concern with bowhead whaling, but this is expected to be mitigated through consultation and conflict avoidance measures. The *Exxon Valdez* oil spill has shown that substantial impacts occur from direct effects of an oil spill upon resources and from disruptive cleanup efforts. Potential impacts on sociocultural systems from spills under the proposal would be determined by the location and timing of the spill.

Alaska Native populations are present in many coastal areas and could be near any new onshore infrastructure resulting from the proposal, raising potential environmental and health concerns. The importance of marine mammals (such as the bowhead whale) to subsistence raises particular concerns. Should an oil spill occur, its potential environmental and health impacts on Alaska Native populations could be disproportionately high or adverse depending on the geographical location of the spill and its effects on subsistence resources and harvests. Because of these concerns, the MMS continues to emphasize consultation and interactions with Native organizations to evaluate potential actions and mitigations.

***Terrestrial Mammals*** — The construction and normal operations of new onshore facilities associated with the proposed action could result in a variety of short-term and long-term impacts to terrestrial mammals. Short-term impacts may be incurred by a variety of species during facility and infrastructure construction. These impacts would largely be behavioral in nature, with affected animals avoiding or vacating the construction areas. Similarly, vehicle and aircraft traffic associated with the proposed action could temporarily disturb mammals near roadways or under flight paths. The presence of a new onshore pipeline may result in the displacement from preferred habitats to less suitable habitats for overwintering muskoxen, calving female caribou, and female caribou and their calves. While population-level effects may not be likely for caribou, local population-level effects may occur for muskoxen because of the small population size in Alaska. In the event of an accidental spill, terrestrial mammals may be exposed via ingestion of contaminated food, inhalation of airborne oil droplets, and direct ingestion of oil during grooming. A variety of lethal and sublethal effects may be likely. However, because most spills would be relatively small (<50 bbl), relatively few individuals would likely be exposed. While some individuals may incur lethal effects, population-level impacts would not be expected for most species. Cleanup activities could temporarily disturb terrestrial mammals in the vicinity of the cleanup operation, causing those animals to vacate the area.

***Water Quality*** — Construction and installation of exploratory and development wells, platforms, pipelines, docks and causeways, and/or artificial islands could impact water quality by disturbing sediments and increasing turbidity in the area of construction. Minor water quality contamination could also occur from fluids entrained in ice roads when they breakup in the spring. Overall coastal and marine water quality impacts due to routine operations and operational discharges under the proposed action would be unavoidable. Exploration discharges would persist for a few hours within the mixing zone around each rig. However, the NPDES permit limitation on discharge rates would minimize water quality impacts. Production facilities would reinject all muds, cuttings, and production waters, thereby eliminating degradation of water quality by these effluents. Impacts of accidental releases to water quality would depend on the size of the spill, type of material or product spilled, and environmental factors at the time of the spill. A large spill in isolated coastal waters, in shallow water under thick or rapidly freezing ice, or in the open sea when or where access to the spill site is limited could cause sustained degradation of water quality because the decomposition and weathering processes for oil are slowed in cold water.

### *Option 2 (Proposed Final Program Area Including a 25-Mile Buffer: two sales)*

**Valuation**. The net benefits of anticipated production in this area are estimated at $ 6.37 billion.

**Environmental Impacts.** This option is analyzed in the FEIS as Alternatives 1, the Proposed Action, and 5, which defers blocks within 25 miles of the coast from leasing consideration. The summary of the FEIS findings are the same as those in Option 1 as the number of sales does not change nature of the postlease activities that are addressed in the FEIS findings.

**Other Information.** The timing and number of sales in this frontier area is intended to allow sufficient time between sales to analyze the results of postlease exploration activities. The time needed for such activities and analysis is greater in a frontier area like this.

### *Option 3 (Proposed Final Program Area Including a 25-Mile Buffer: one sale)*

**Valuation**. The net benefits of anticipated production in the PFP area are estimated at $6.37 billion.

**Environmental Impacts.** This area is analyzed in the FEIS under Alternatives 1, the Proposed Action, and 5, which defers blocks within 25 miles of the coast from leasing consideration. A summary of the FEIS findings are the same as

those in Option 1 as the number of sales does not change nature of the postlease activities that are addressed in the FEIS findings.

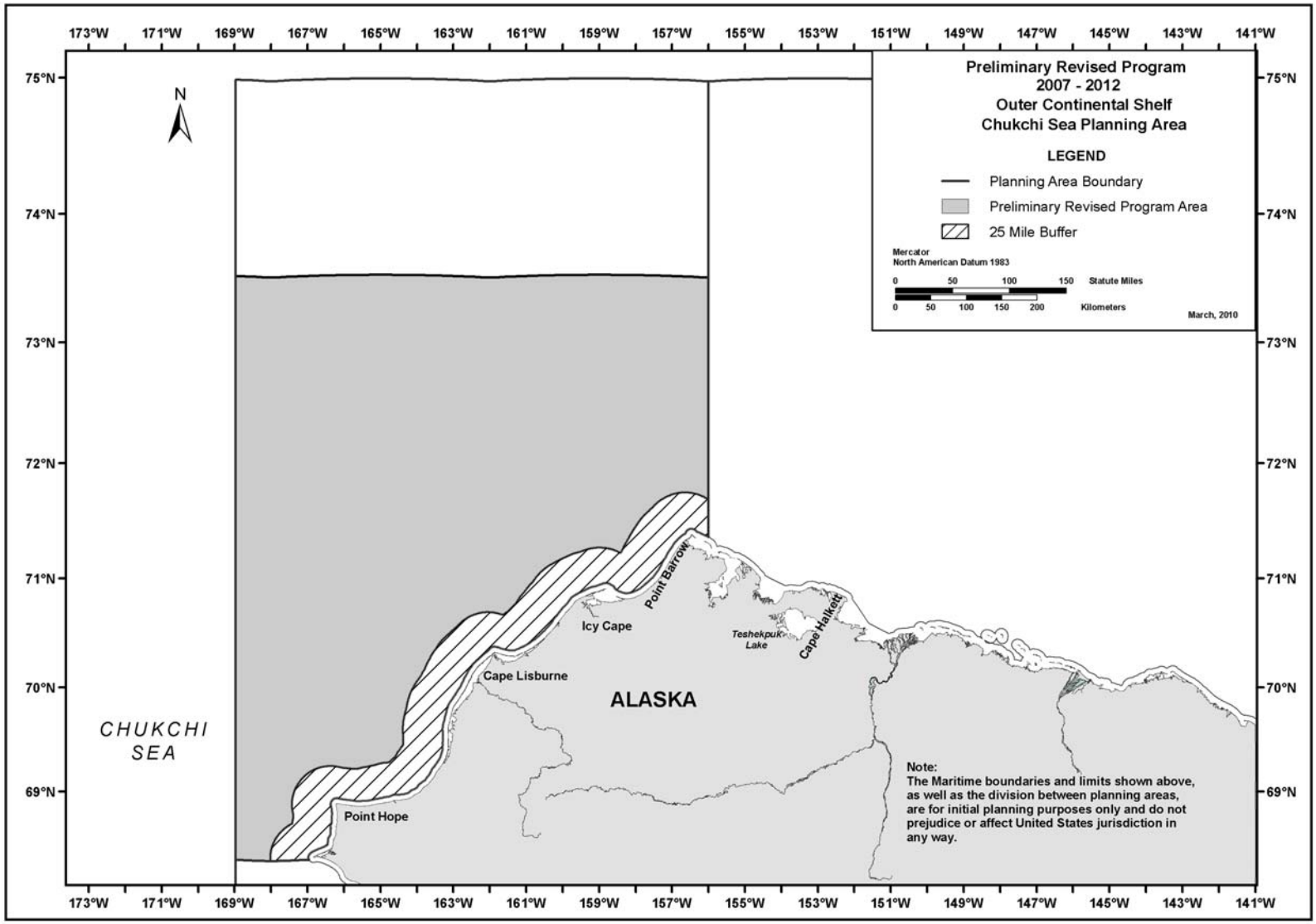
**Other Information.** Sales in frontier areas should be spaced to maximize to the extent practicable, the use of results of exploration activities when conducting further planning. With respect to the Chukchi sea, exploration of existing leases should proceed in order to (1) secure important environmental monitoring information; (2) allow industry to assess the economic viability of oil and gas resources and infrastructure needs; (3) support orderly leasing, and (4) maximize revenues from future sales in the area. Such information should help to target areas for future lease sales, which could serve to enhance government revenue and better mitigate environmental impacts. Therefore, retaining one Chukchi sale in the PRP (Sale 193 which occurred in 2008) will allow more time for exploration results to inform subsequent 5-year program planning.

***Option 4 (No Sale)***

**Valuation**. The net benefits of production would be zero since no activity would occur.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternative 10, the No Sale alternative. A summary of the EIS findings follows.

If no sales are scheduled in the Chukchi Sea program area, activities associated with other options proposing a sale in this area would not take place. Environmental impacts from presale seismic activity, exploration drilling, and placement of platforms and transportation of hydrocarbons would not occur. However, environmental impacts would occur elsewhere from importing energy to replace potential OCS production foregone if this option was selected. There are no existing OCS leases in the Chukchi Sea, so no other OCS activity except for the transit of tankers, service vessels, and possibly drilling rigs associated with leases in other planning areas would take place in the area.




*Map 3: Shows the Chukchi Sea Program Area*

### *NORTH ALEUTIAN BASIN*

**Key Comparative Results**. The net benefits of anticipated production in the PFP area were estimated at $7.7 billion. In the revised environmental sensitivity analysis, the area is categorized as "less sensitive" for relative environmental sensitivity (Table 8), "low" for relative effects of climate change on environmental sensitivity (Table 21), and 3rd of 7 in the existing primary productivity rankings (Table 22).

**Selected Comments**. The then-Governor of Alaska (Governor Murkowski) renewed his request that the President "lift the withdrawal of the North Aleutian Basin planning area from the leasing program and allow the scheduling of lease sales in the Sale 92 area in the 2007 – 2012 program." He also reiterated the need to minimize conflicts with fisheries and that MMS must continue with "significant stakeholder consultation." The next Governor (Governor Palin) issued a press release in support of the President's modification of the 1998 withdrawal to allow the Secretary to consider leasing in the area. Seventeen local or tribal government organizations, generally in the area near the proposed sale area, submitted resolutions in support of environmentally-sound oil and gas activities in this area. Eleven were opposed, primarily located in the northern end of the planning area, away from the proposed sale area. The DOE continued its support of the proposed 5-year program, including the proposals related to the OCS in Alaska. The Alaska Marine Conservation Council reiterated its concern about the potential ecological, cultural, and economic impacts of offshore oil and gas development in the Bristol Bay and eastern Bering Sea. Several national and Alaska-based public interest groups were very concerned about impacts on animal species, especially marine mammals.

The Bering Sea Fisherman's Association and several other organizations that represent the fishing industry opposed MMS proposals in the Alaska regions and were particularly concerned about Bristol Bay fisheries. The AEDC reiterated its support for offshore expansion and concluded that impacts on whales and other sea animals can be fully mitigated. Numerous non-energy industry entities, from the agricultural sector to local Chambers of Commerce in Alaska and other states, endorsed the proposals and asked for opening of more acreage. Seventeen companies expressed interest in this area.

**Options**

__(1) Proposal as in the PFP: one sale (in 2011), in the program area , which is limited to the area offered in Lease Sale 92 held in 1985; and

**X (2) No sale.**

**Discussion**

***Option 1 (Proposed Final Program Option with 1 Sale in Sale 92 Area)***

**Valuation**. The net benefits of anticipated production in the PFP area are estimated at $7.7 billion.

**Environmental Impacts**. This area is analyzed in the final EIS under Alternative 7. A summary of the EIS findings follows.

***Air Quality —*** Concentrations of $NO_2$, $SO_2$, and $PM_{10}$ from any routine activities associated with the proposed activities in the North Aleutian Basin Planning Area would be within the applicable maximum allowable increases. The concentrations of $NO_2$, $SO_2$, $PM_{10}$, and CO would remain ell within the NAAQS. Any air quality impacts from oil spills would be localized and of short duration. Expected emissions do not appear to be hazardous to human health. The impacts from in situ burning are also temporary.

***Archaeological Resources*** — Assuming compliance with existing Federal, state, and local archaeological regulations and policies, most impacts to archaeological resources in the Alaska Region resulting from routine activities under the proposal will be avoided. Some impact may occur to coastal historic and prehistoric archaeological resources from accidental oil spills. Although it is not possible to predict the precise numbers or types of sites that would be affected, contact with archaeological sites would probably be unavoidable, and the resulting loss of information would be irretrievable, if spills should occur. The magnitude of the impact would depend on the significance and uniqueness of the information lost.

***Climate Change*—The potential effects of the proposed action on resources such as endangered species and fisheries should be considered in light of the uncertainty of potential effects of climate change on the same resources. Ocean ecosystems and fisheries are highly vulnerable to changes in sea temperature. Climate change would likely alter the habitat and diversity, distribution, and abundance of fishes.**

***Coastal Habitats*** — Routine operations could have impacts on coastal areas primarily as a result of pipeline construction, shore base construction, and vessel traffic. The magnitude of these impacts would depend on the location of new construction, the level of shipping activity in a specific area, and existing environmental conditions, such as ongoing shoreline degradation. Although the area is considered gas-prone, potential impacts from spills could occur to both surface and subsurface sands. The magnitude of these impacts would depend on a variety of factors, including the location and size of the spill, remediation efforts, beach conditions such as grain size, and natural localized erosional and depositional patterns. Cleanup operations themselves might also impact beaches. Routine operations could have direct impacts on wetlands as a result of construction activities and indirect impacts as a result of poorer water and air quality and altered hydrology. The magnitude of these impacts would depend on the location and extent of new construction, construction practices, and existing environmental conditions. These also would have to be evaluated during site-specific analyses conducted for particular lease sales. Oil spills could also directly impact wetlands. The magnitude of these impacts would depend on a variety of factors, including the location and size of the spill, weather conditions, remediation efforts, and existing environmental conditions such as plant species or substrate type. Cleanup operations themselves could also impact wetlands.

***Fish Resources and Essential Fish Habitat (EFH)*** — Displacement of demersal fishes by discharges would be limited to the short time periods that discharges are being released. Offshore construction also could temporarily disturb and/or displace fishes near the construction activity. Any disturbance or displacement is expected to be short-term, hours to a few days, and

limited to only the time of the construction activity and shortly thereafter. Although seismic surveys may kill or injure eggs and fry of some fishes, this injury is limited to within 1 or 2 meters of the airgun-discharge ports. Oiled intertidal areas could lead to considerable mortality of eggs and juvenile stages of some pelagic species in the affected areas, and studies indicate that impacted eggs and juvenile stages could lead to reduced adult survival. Although this area is considered gas-prone, several small spills or a single large oil spill could cause localized declines in the abundance of some fishes or shellfishes inhabiting the area, but it is unlikely that there would be long-term effects on overall populations in the area. Accidental oil spills could impact essential fish habitats and the species that depend upon them. Although it is not possible to predict the precise degree of potential effects, contact with some EFH resources by an oil spill would probably be unavoidable. The nature of the impact would be largely dependent on the size and location of the spill, the time of year, environmental factors, and uniqueness of the affected EFH.

***Fisheries*** — This region supports the greatest diversity of fish species for all Alaska regions. Commercial fisheries for salmon, ground fish, and shellfish are the major economic base in the North Aleutian Basin area. (See, FEIS at III.B.9; III.B.19; and IV.B.3) This area contains a substantial commercial fishery. Bristol Bay also supports large recreational fisheries for salmon and halibut and provides opportunities for recreational clam-gathering along some shoreline areas. (See, FEIS at IV.B.3) Although there could be some localized, temporary effects on fishery resources, overall populations of biological resources that serve as the basis for important commercial, subsistence and recreational fisheries in the area are not expected to be affected by activities associated with routine operations. The area is considered gas-prone, but if a spill occurred, the magnitude of effects would depend on the location, timing, and volume of the spill, in addition to other environmental factors. Small spills that could occur under this option are unlikely to affect a large number of fish or have a substantial effect on fishing before dilution and weathering reduced concentrations of oil in the water. Consequently, it is anticipated that small spills would not have long-term effects on fishing in Bristol Bay. A large spill within the planning area would likely affect only a small proportion of a given fish population, and it is unlikely that overall fish populations in the area would be measurably affected. It is possible, however, if a large spill were to occur at a location and time of year when many individuals of a specific species were concentrated, population effects might occur. Spills could have localized effects on fishing activities as a consequence of contamination of fish tissues, damage to fishing gear, degradation of aesthetic values that attract anglers, or temporary closure of fishing areas.

***Land Use and Existing Infrastructure*** — There is no existing oil and gas infrastructure in the North Aleutian Basin. Routine operations would impact land use in the vicinity of new processing and transport facilities and their associated infrastructures. Impacts associated with platform and pipeline construction would be temporary. Impacts could result from an influx of workers to the region, as housing and expanded community infrastructure could be needed. Although the area is considered gas-prone, an oil spill could alter land use temporarily but would not likely result in long-term changes. The magnitude of the impacts would depend on the size and location of the spill. See, FEIS IV.B.3.n

***Marine and Coastal Birds*** — During exploration, seismic surveys could impact seabirds.

Noise from airguns and disturbance from survey vessel traffic could displace foraging seabirds. Offshore exploration activities would not be expected to affect coastal, nearshore birds. Marine and coastal birds may be affected by the construction of onshore and offshore facilities, by boat and aircraft traffic servicing offshore platforms, and by noise and human activities during normal operations and maintenance activities. Potential impacts for many species would be short-term and not expected to result in population-level effects. However, depending on the time of year, construction activities near coastal habitats could disrupt nesting, foraging, and overwintering activities of some species, potentially impacting local populations. Although this area is considered gas-prone, in the event of an accidental oil spill, exposed marine and coastal birds may experience a variety of lethal or sublethal effects, and the magnitude and ecological importance of any such effects would depend upon the size and location of the spill, the species and life stage of the exposed birds, and the size of the local bird population. The threatened Steller's eider migrates along the coast of Bristol Bay in large numbers, and some individuals overwinter within the bay. Thus, a moderate-to-large spill could potentially affect a relatively large number of birds in the area and result in population-level impacts for this species.

***Marine Mammals*** — Marine mammals in the North Aleutian Basin Planning Area could be affected by noise, contaminants, human activity, and ship and helicopter traffic associated with routine OCS operations. Noise generated during exploration, construction, and some normal operations may temporarily disturb some individuals, causing them to leave or avoid the area. Such effects would likely be short-term and would not be expected to result in population-level effects. While collisions with OCS-related vessels may injure or kill some individuals, collisions would be relatively unlikely because of the low level of traffic that could occur under the analyzed action. Although the area is considered gas-prone, there could be accidental oil spills that may result in the direct and indirect exposures of marine mammals and their habitats to the oil and subsequent weathering products. Animals could be exposed by the inhalation or ingestion of oil or contaminated foods, which may result in a variety of lethal and sublethal effects. The fouling of fur of some species, such as sea otter and fur seal, could affect thermoregulation and reduce survival. The magnitude of effects from accidental spills would depend on the location, timing, and volume of the spills; the habitats affected by the spills, such as coastal habitats; and the species exposed. The greatest risk to marine mammals would be associated with large spills reaching rookeries and haulouts. Spill cleanup operations could result in short-term disturbance of marine mammals in the vicinity of the cleanup activity, while a collision with a cleanup vessel could injure or kill the affected individual.

***Population, Employment, and Income*** — Potential effects on population, employment, and regional income from routine operations and oil spills are expected to be limited except for local effects from a large oil spill. This is unlikely as the area is considered gas-prone.

***Seafloor Habitats*** — Routine activities during exploration, development, and production probably would not measurably affect local populations of lower trophic-level organisms. Should a large oil spill occur, the spill and associated cleanup activities would be unlikely to greatly affect populations of lower trophic-level organisms in pelagic waters. However, a large spill could contact some shoreline areas, and lower trophic-level organisms in sensitive intertidal and shallow subtidal habitats could experience lethal and sublethal effects.

***Sociocultural Systems and Environmental Justice*** — Impacts may come from interference with subsistence, an important dietary resource and fundamental expression of Native social organization and culture, and from interference with commercial fishing, an economic mainstay

of rural South Alaska and Bering Sea subregions. Routine operations will not affect fishing, and the effects of new onshore infrastructure are expected to have only minor, local effects on terrestrial harvests (by affecting access). The *Exxon Valdez* oil spill has shown that substantial impacts occur from direct effects of an oil spill upon resources and from disruptive cleanup efforts. Potential impacts on sociocultural systems from spills under the proposal would be determined by the location and timing of the spill.

Although the area is considered gas-prone, in the case of an oil spill, it is also possible that the potential environmental and health impacts on Alaska Native populations could be disproportionately high or adverse depending on the geographical location of the spill and the effects this may have on subsistence resources and harvests.

***Terrestrial Mammals*** — The construction and normal operations of new onshore pipelines and facilities could result in a variety of short-term and long-term impacts to terrestrial mammals. Construction activities and vehicle and aircraft traffic associated with such activities could temporarily disturb terrestrial mammals at construction sites and along pipelines, roadways, and flight paths. The disturbance of animals by these activities would be short-term in nature and not expected to result in population-level effects. Facility construction could result in the long-term loss of a relatively small amount of habitat and in the death of a few individuals, primarily small mammals such as mice and voles, which are unable to flee the construction areas. The amount of permanent habitat loss would be very small compared to habitat available throughout the planning area. Neither the loss of this small amount of habitat nor the loss of a few individuals within the construction areas are expected to adversely affect populations of the affected species. In the event of an accidental spill, terrestrial mammals may be exposed via ingestion of contaminated food, inhalation of airborne oil droplets, and direct ingestion of oil during grooming, which may result in a variety of lethal and sublethal effects. However, because of the small number and volume of potential spills, relatively few individuals would likely be exposed. Cleanup activities could temporarily disturb terrestrial mammals in the vicinity of the cleanup operation, causing those animals to move from preferred to less optimal habitats, which in turn could affect their overall condition.

***Water Quality*** — Construction and installation of exploratory and development wells, platforms, pipelines, docks, and causeways could impact water quality by disturbing sediments and increasing turbidity in the area of construction. Overall coastal and marine water quality impacts due to routine operations and operational discharges under the proposed action would be unavoidable. Exploration discharges would persist for a few hours within the mixing zone around each rig. However, the NPDES permit limitation on discharge rates would minimize water quality impacts. Production facilities would re-inject all muds, cuttings, and production waters, thereby eliminating degradation of water quality by these effluents. Impacts of accidental releases to water quality would depend on the size of the spill, type of material or product spilled, and environmental factors at the time of the spill. A large spill in isolated coastal waters, in shallow water under thick or rapidly freezing ice, or in the open sea when or where access to the spill site is limited could cause sustained degradation of water quality because the decomposition and weathering processes for oil are slowed in cold water.

***Option 2 (No Sale)***

**Valuation**. The net benefits of production would be zero since no activity would occur.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternative 2, which excludes this planning area only, and Alternative 10, the No Sale alternative for all areas.

The choice of this option would result in a lack of activities associated with other options proposing sales in the planning area. Environmental impacts from presale seismic activity, exploration drilling, placement of platforms and pipelines, and accidental oil spills would not occur from any leasing in this program. However, environmental impacts would occur elsewhere from importing energy to replace any OCS production foregone if this option was selected.

**Other Information.** The land of the North Aleutian Basin is comprised of rugged terrain that is largely undeveloped. Most of the land is owned by the ederal government, the State of Alaska and Native corporations. Much of the State and federal land along the northern coast is managed for wilderness and wildlife habitat. The North Aleutian Basin is surrounded by more areas that have been set aside to be protected as national monuments and wildlife reserves than the other Alaska areas under consideration. This area is distant from energy markets and there is a lack of infrastructure to deliver any oil or gas resources to market. (See, FEIS at IV.B.3.n and IV.L.3.)

### *COOK INLET*

**Key Comparative Results**. The net benefits for the PFP area were estimated at $1.38 billion. In the new analysis, the area is categorized as "less sensitive" for relative environmental sensitivity (Table 8), "low" for relative effects of climate change on environmental sensitivity (Table 21), and 5th of 7 in the existing primary productivity rankings (Table 22).

**Selected Comments**. The then-Governor of Alaska (Governor Murkowski) supported inclusion of this area with special interest sales. The Kenai Peninsula and Kodiak Island Boroughs and the City of Kenai supported inclusion of this area. The DOE continued its support of the proposed 5-year program, including the proposals related to the OCS in Alaska. The AEDC reiterated its support for offshore expansion and concluded that impacts on whales and other sea animals can be fully mitigated. Several national and Alaska-based public interest groups stated that Cook Inlet supports vital fishing and that industry lacks interest in purchasing leases in this area. Thus, the MMS should not offer it for lease. Numerous non-energy industry entities, from the agricultural sector to local Chambers of Commerce in Alaska and other states, endorsed the proposals and asked for opening of more acreage. Twelve companies expressed interest in this area. Of the almost 2,500 Alaskans who commented on the PP, 93 percent were in favor of access to the Alaska OCS.

**Options**

**_X_** (1) Proposal as in the PFP: two special interest sales[21] (in 2009 and 2011) in the program area depicted in Map 4; and

**__** (2) No sale.

**Discussion**

***Option 1 (2 Special Interest Sales)***

**Valuation**. The net benefits of anticipated production for this PFP area are estimated at $1.38 billion.

**Environmental Impacts**. This area is analyzed in the final EIS under Alternative 1, which analyzed sales in the entire planning area. A summary of the EIS findings follows.

***Air Quality*** — Routine operations associated with the proposed action would result in levels of $NO_2$, $SO_2$, $PM_{10}$, and CO that are well within national air quality standards. Air quality impacts from accidental oil spills or in situ burning would be localized and short term.

***Archaeological Resources*** — Assuming compliance with existing Federal, state, and local archaeological regulations and policies, most impacts to archaeological resources in the Alaska region resulting from routine activities under the proposal will be avoided. Some impact may occur to coastal historic and prehistoric archaeological resources from accidental oil spills. Although it is not possible to predict the precise numbers or types of sites that would be affected, contact with archaeological sites would probably be unavoidable, and the resulting loss of information would be irretrievable, if spills should occur. The magnitude of the impact would depend on the significance and uniqueness of the information lost.

***Areas of Special Concern*** — Development of onshore facilities within national park lands is considered unlikely. However, offshore construction of pipelines and platforms could have temporary effects on wildlife due to noise and activity levels and on scenic values for park visitors. Development may be allowed in the Gulf of Alaska Unit of the Alaska Maritime NWR. No OCS-related development would occur in the Alaska Peninsula Unit of the Alaska Maritime NWR. Effects from oil spills that occur adjacent to national park or national wildlife refuge boundaries would depend on spill location, spill size, weather conditions at the time of the spill, and the effectiveness of cleanup operations. Large oil spills in areas adjacent to the Gulf of Alaska or Alaska Peninsula Units of the Alaska Maritime NWR could negatively impact coastal habitats and fauna and could also affect subsistence use, commercial or recreational fisheries, and tourism.

[21] The Cook Inlet Planning Area is included on the schedule as a special interest sale area. In a special interest sale, before MMS proceeds it will issue a request for nominations and comments and will move forward only after consideration of the comments received in response to annual calls for information. If industry interest reflected in comments on a call for information does not support consideration of a sale, the sale will be postponed. A request for nominations and comments will be issued again the following year, and so on through the 5-year schedule, until a sale is held or the schedule expires. The PFP scheduled up to two special interest sales in this area. As there was no interest expressed in the 2008 Call for Interest, Sale 211, the first of the possible sales, was cancelled.

***Fish Resources and Essential Fish Habitat*** — Fish could be disturbed and displaced from the immediate vicinity of drilling discharges for short time periods. Offshore construction also could temporarily disturb and/or displace fishes proximate to the construction activity. Although seismic surveys may kill or injure eggs and fry of some fishes, this injury is limited to within 1 or 2 m of the airgun-discharge ports. Thus, seismic surveys probably would have no appreciable adverse effects on fish subpopulations. Oiled intertidal areas could lead to considerable mortality of eggs and juvenile stages of some pelagic species in the affected areas. Studies indicate that impacted eggs and juvenile stages could lead to reduced adult survival. Eggs and fry of some bentho-pelagic and demersal fishes could experience lethal and sublethal effects from oil contact. Accidental oil spills could impact EFH and the species that depend upon them. The nature of the impact would be largely dependent on the size of spill, location, environmental factors, and uniqueness of the affected EFH. Large spills that reach coastal streams and intertidal areas used for spawning by anadromous salmon could have more persistent impacts and require remediation.

***Fisheries*** — Overall populations of biological resources that serve as the basis for commercial fisheries are not expected to be altered by routine exploration, development, or production activities. The level of effects from accidental spills would depend on the location, timing, and volume of spills, spill response activities, and other environmental factors. A single large spill could affect a small proportion of a given fish population within Cook Inlet, although substantial temporary effects on populations could occur if important habitat areas were contaminated. There could be effects on commercial fishing as a consequence of reduced catch, loss of gear, or loss of fishing opportunities during cleanup and recovery periods. The populations of biological resources that serve as the basis for recreational fisheries in the Cook Inlet are not expected to experience population-level impacts as a result of activities associated with routine operations. The magnitude of effects from accidental spills would depend on the location, timing, and volume of spills, in addition to other environmental factors. Spills could have localized effects on recreational fishing as a consequence of contamination of fish tissues, damage to fishing gear, degradation of aesthetic values that attract fishers, or temporary closure of fishing areas.

***Land Use and Existing Infrastructure*** — Routine operations from the proposed action would have a low impact on the land use and infrastructure of the affected areas. Accidental spills from the anticipated low level of activity also are expected to have minimal impact on land use and infrastructure.

***Marine and Coastal Birds*** — Marine and coastal birds may be affected by the construction of onshore and offshore facilities, by boat and aircraft traffic servicing offshore platforms, and by noise and human activities during normal operations and maintenance activities. For most routine operations, the primary effect would be the disturbance of birds in the vicinity of the operation, causing them to temporarily leave the area. Depending on the time of year, construction activities near coastal habitats could disrupt nesting, foraging, and overwintering activities of some species, potentially impacting local populations. Compliance with Endangered Species Act (ESA) regulations would ensure that operations would be conducted in a manner that avoids or greatly minimizes the potential impacts. Accidental oil spills pose the greatest threat to marine and coastal birds, affecting both birds and their habitats. Exposed birds may experience a variety of lethal or sublethal effects, and the magnitude and ecological importance of any effects would depend upon the size and location of the spill, the species and life stage of the exposed birds, and the size of the local bird population.

***Marine Mammals*** — Noise, contaminants, human activity, and ship and helicopter traffic associated with routine OCS operations in the Cook Inlet Planning Area could affect marine mammals. Noise generated during exploration, construction, and operations may temporarily disturb some individuals, causing them to leave or avoid the area. Such effects would likely be short-term and would not be expected to result in population-level effects. While collisions with OCS-related vessels may injure or kill some individuals, collisions would be relatively unlikely because of the low level of traffic expected from the proposed action. Compliance with the ESA would further limit the likelihood of routine operations impacting listed marine mammals. Accidental oil spills may result in the direct and indirect exposure of marine mammals and their habitats to the oil and subsequent weathering products. Animals could be exposed by the inhalation or ingestion of oil or contaminated foods, which may result in a variety of lethal and sublethal effects. Fouling of fur of some species such as sea otters could affect thermoregulation and reduce survival. The magnitude of effects from accidental spills would depend on the location, timing, and volume of the spills; the habitats affected by the spills, e.g., coastal habitats; and the species exposed. The greatest risk to marine mammals would be associated with large spills in coastal habitats. Spill cleanup operations could result in short-term disturbance of marine mammals in the vicinity of the cleanup activity, while a collision with a cleanup vessel could injure or kill the affected individual. Disturbance of adults with young during cleanup could reduce survival of the young animals.

***Population, Employment, and Income*** — Potential effects on population, employment, and regional income from routine operations and oil spills are expected to be limited except for local effects from a large oil spill.

***Seafloor Habitats —*** Routine operations during exploration, development, and production activities under the proposed action probably would not measurably affect local populations of lower trophic-level organisms. In the event of a large oil spill, populations of lower trophic-level organisms in pelagic waters would not be greatly affected by the spill and associated cleanup activities. However, a large spill could contact some shoreline areas in Cook Inlet, and lower trophic-level organisms in sensitive intertidal and shallow subtidal habitats could experience lethal and sublethal effects.

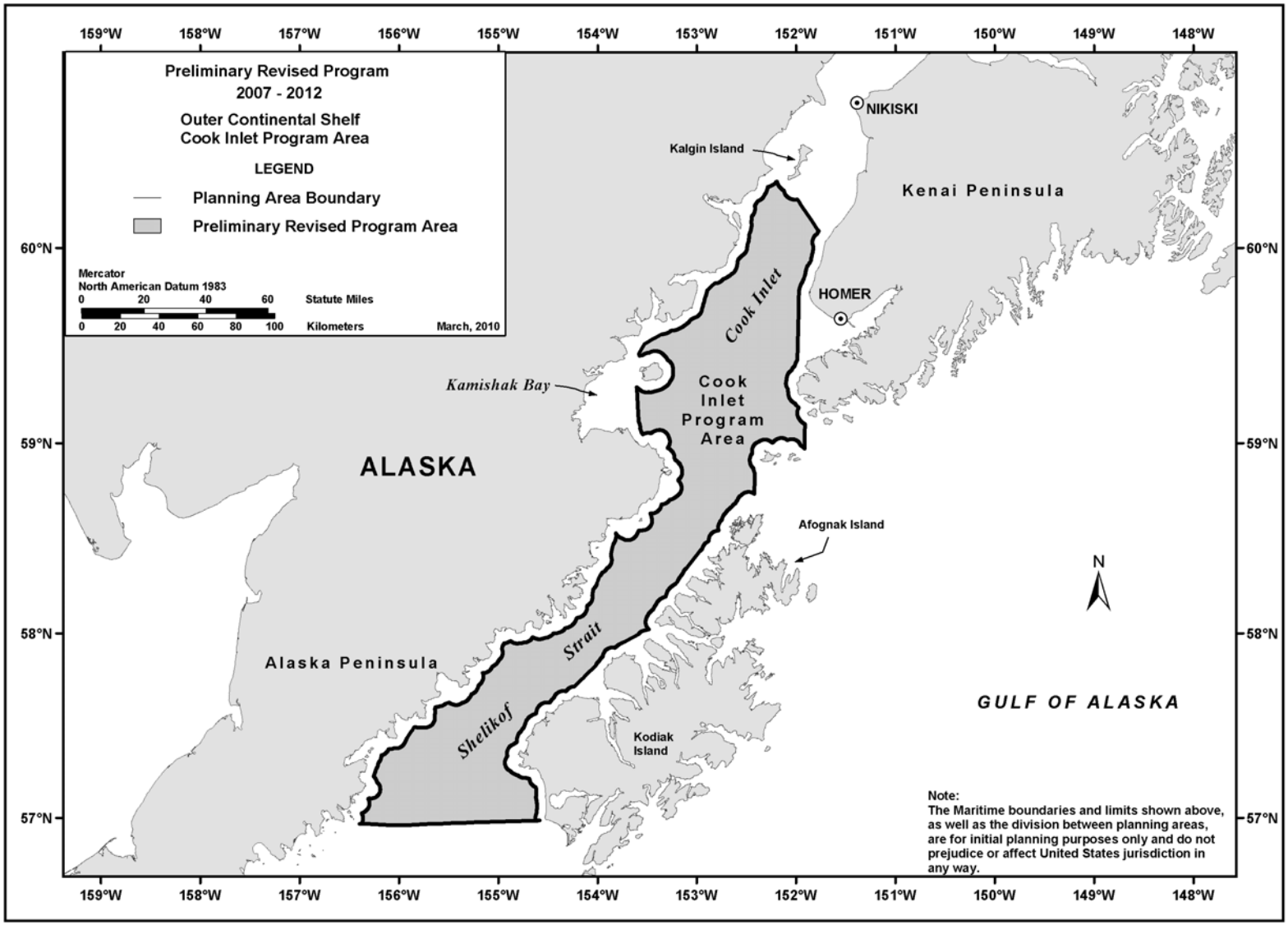
***Sociocultural Systems and Environmental Justice*** — Potential direct and indirect impacts on sociocultural systems due to noise, visual effects, traffic disturbances, and routine operation of pipelines are expected to be limited. Potential impacts on sociocultural systems from accidental spills under the proposed action could range greatly, depending on the location and timing of a spill. A significant portion of the Alaska Native population is present in many coastal areas of Alaska. It is possible that new onshore and offshore infrastructure could be located near these populations and produce adverse health or environmental impacts if there are impacts on subsistence resources and harvest patterns. In the case of an oil spill, it is also possible that the potential environmental and health impacts on Alaska Native populations could be disproportionately high or adverse depending on the geographical location of the spill and the effects this could have on subsistence resources and harvests.

***Terrestrial Mammals*** — The construction and normal operations of new onshore pipelines and facilities could result in a variety of short-term and long-term impacts to terrestrial mammals. Short-term impacts would be largely behavioral in nature, with affected animals avoiding or vacating the construction areas. Similarly, vehicle and aircraft traffic could temporarily disturb

mammals along pipelines or roadways or along flight paths. The disturbance of animals by these activities would be short-term in nature and not expected to result in population-level effects. Construction of new pipelines and facilities would also result in the long-term loss of some wildlife habitats, as well as the death of a few individuals, primarily small mammals, unable to flee the construction areas. The amount of permanent habitat loss would be relatively small compared to habitat available throughout the planning area, and not expected to result in population-level impacts. Similarly, the loss of a few individuals within the construction areas would not be expected to adversely affect populations of the affected species. In the event of an accidental spill, terrestrial mammals may be exposed via ingestion of contaminated food, inhalation of airborne oil droplets, and direct ingestion of oil during grooming, which may result in a variety of lethal and sublethal effects. However, because most spills would be relatively small (<50 bbl), relatively few individuals would likely be exposed. While some individuals, especially oil-sensitive species, such as the river otter, may incur lethal effects, population-level impacts would not be expected for most species. Cleanup activities could temporarily disturb terrestrial mammals in the vicinity of the cleanup operation, causing those animals to move from preferred to less optimal habitats, which, in turn, could affect their overall condition. Such displacement would be limited to only those relatively few animals in the vicinity of the cleanup activity and, thus, would not be expected to result in population-level effects.

***Tourism and Recreation*** — Routine operations would have limited effects on recreation and tourism, with potential adverse impacts to sightseeing, boating, fishing, and hiking activities. Temporary impacts would occur if a spill reached a recreational-use area. The magnitude of these impacts would depend on factors such as the size and location of the spill, and it would likely be greatest if the spill occurred during the peak recreational season.

***Water Quality*** — Construction and installation of exploratory and development wells, platforms, pipelines, docks, and causeways could impact water quality by disturbing sediments and increasing turbidity in the area of construction. Overall coastal and marine water quality impacts due to routine operations and operational discharges under the proposed action would be unavoidable. Exploration discharges would persist for a few hours within the mixing zone around each rig. However, the NPDES permit limitation on discharge rates would minimize water quality impacts. Impacts of accidental releases to water quality would depend on the size of the spill, type of material or product spilled, and environmental factors at the time of the spill.




*Map 4: Shows The Cook Inlet Program Area*

*Option 2 (No Sale)*

**Valuation**. The net benefits of production would be zero since no activity would occur.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternative 3, which excludes this planning area only, and Alternative 10, the No-Sale alternative for all areas. A summary of the EIS findings follows.

The choice of this option would eliminate activities associated with other options proposing a sale or sales in the planning area. Impacts from presale seismic activity, exploration drilling, the placement of platforms and pipelines, and accidental oil spills would not take place. However, environmental impacts would occur elsewhere from importing energy to replace potential OCS production foregone if this option was selected. Activities and impacts from development on previously acquired OCS leases in the Cook Inlet could take place. Choice of this option would result in somewhat reduced impacts locally compared to Option 1. Impacts to birds, such as the Steller's eider, endangered short-tailed albatross, and Kittlitz murrelets, would be less likely with less activity.

## GULF OF MEXICO REGION

### Proposed Final Program Decision

The PFP scheduled five areawide lease sales in the reconfigured Western GOM Planning Area and six sales in the reconfigured Central GOM Planning Area.

## Preliminary Revised Final Program Options

As the Court's remand was limited to the three Alaska areas, the options and discussion for the Gulf of Mexico areas remain as in the PFP, with the exception of the results of the expanded environmental sensitivity analysis.

### *WESTERN GULF OF MEXICO*

**Key Comparative Results**. The net benefits of anticipated production in this PFP area are estimated at $44.44 billion. In the expanded environmental analysis, the area is categorized as "more sensitive" for relative environmental sensitivity (Table 8), "moderate" for relative effects of climate change on environmental sensitivity (Table 21), and 4th of 7 in the existing primary productivity rankings (Table 22).

**Selected Comments**. The Governor of Texas strongly supported expanded leasing of the OCS, but was concerned about the shift in the planning area boundary between the Western and Central Gulf. One State representative expressed support for the PP as did a Commissioner for the Texas General Land Office.

Louisiana supported the development of domestic natural resources and "looks forward to continuing to play a critical part in helping meet our nations' energy needs". However, the State

expressed its concern with the impacts of OCS development on coastal resources and infrastructure, particularly following the devastating hurricanes in 2005. Two State legislators and three local entities expressed concern over the impacts to onshore infrastructure, in particular.

The State of Louisiana commented on using alternative leasing schemes in several letters to the MMS in 2006. The State sent MMS comments addressing concerns regarding alternative leasing schemes in response to the draft EIS for GOM sales proposed for the 2007-2012 OCS Program; the Central GOM Sale 198 EA; the Call for Information and Nominations for Central and Western GOM sales proposed for the 2007-2012 OCS Program; and the Central GOM Sale 201 EA.

The MMS has considered the State of Louisiana's comments on alternative leasing schemes. The MMS has made a decision to conduct a detailed analysis of alternative approaches to leasing that may serve to further the many goals of the Act. It is anticipated that the design and conduct of this analysis could take several years to complete. If it is determined that some alternative approach to leasing is preferable, and depending on how long it takes to conduct the analysis, the 5-year program for 2007-2012 could be adjusted accordingly or it can be incorporated into the subsequent 5-year program for 2012-2017.

While considering ways to address the State's concerns, the MMS must be cognizant of the effects any policy changes might have on the achievement of other statutory and implicit goals of the Federal OCS program. Among these are expeditious and orderly development and maintaining a diverse and competitive industry. Areawide leasing allows smaller independent companies to rapidly produce low-resource, low-risk fields, while larger companies push the edge of the technology envelope at a slower pace in deep water. It also encourages strong and innovative seismic exploration and geophysical contracting and processing industries. In addition, a sudden change in policy that restricts access to oil and gas resources or that alters the timetables the offshore industry has come to depend on, may lead to undesirable socioeconomic disruptions in local coastal economies. The MMS forthcoming, detailed analysis of alternatives to areawide leasing is expected to address such possible consequences. Therefore, pending completion of that analysis, the MMS determined it is appropriate to continue the areawide approach in the GOM for the near future.

The DOE continued its support of the proposed 5-year program, particularly the proposal to continue the annual offering of all the acreage in the Central and Western GOM Areas. Numerous non-energy industry entities, from the agricultural sector to local Chambers of Commerce, endorsed the PP and asked for opening of more acreage. Nineteen companies expressed interest in this area. Of the over 23,000 comments received from the public in Louisiana and Texas, over 96 percent were in favor of some level of OCS access.

**Options**

**X** (1) Proposal as in the PFP: five areawide sales (in 2007, 2008, 2009, 2010, and 2011) in the area depicted in Map 5; and

__ (2) No sale.

**Discussion**

***Option 1 (5 Sales)***

**Valuation**. The net benefits of anticipated production in this PFP area are estimated at $44.44 billion.

**Environmental Impacts**. The option for leasing in the Western GOM is analyzed under Alternative 1 in the final EIS. A summary of the EIS findings follows.

***Air Quality*** — Routine operations associated with the proposed action would result in levels of $NO_2$, $SO_2$, $PM_{10}$, and CO that are well within national air quality standards. The contributions to $O_3$ levels, when the standards are exceeded, would be less than 1 percent of the total concentrations. Air quality impacts from accidental oil spills or in situ burning would be localized and short term.

***Archaeological Resources*** — Assuming compliance with existing Federal, state, and local archaeological regulations and policies, most impacts to archaeological resources resulting from routine activities under the proposal will be avoided. Based on the scenario for the proposal, some impact could occur to coastal historic and prehistoric archaeological resources from accidental oil spills. Although it is not possible to predict the precise numbers or types of sites that would be affected, contact with archaeological sites would probably be unavoidable, and the resulting loss of information would be irretrievable.

***Areas of Special Concern*** — Overall, impacts on national parks, national wildlife refuges, national estuarine research reserves, and national estuary program sites due to routine operations are expected to be limited under the proposed action because these areas are restricted from development. Impacts from oil spills are unlikely because it is anticipated that 75 percent of the hydrocarbons developed, as a result of the 2007-2012 leasing program in the GOM, area will occur in deep water (> 330 m) usually located far from the shoreline. Should oil spills reach any of these sites, the impacts would depend on the location and size of the spill, the type of product spilled, weather conditions, effectiveness of cleanup operations, and other environmental conditions at the time of the spill.

***Coastal Habitats*** — Routine operations could have direct impacts on wetlands as a result of construction activities, and indirect impacts as a result of poorer water and air quality and altered hydrology. The magnitude of these impacts would depend upon the location and extent of new construction, construction practices, and existing environmental conditions. Oil spills could have direct impacts on wetlands. The magnitude of these impacts would depend on a variety of factors, including the location and size of the spill, weather conditions, remediation efforts, and existing environmental conditions, such as plant species or substrate type.

***Fish Resources and Essential Fish Habitat*** — Routine operations associated with the proposed action will not affect the overall fish population numbers or viability in the GOM. Effects of individual spills would depend on the location, timing, and volume of the spill, in addition to other environmental factors. Considering the small proportion of EFH area that could be affected, potential impacts on EFH due to routine operations under the proposed action would be limited. While most accidental spills assumed under the proposed action would be small and

would have relatively small impacts on EFH, large spills that reach coastal wetlands could have more persistent impacts and could require remediation.

***Fisheries*** — Biological resources that serve as the basis for recreational fisheries in the GOM are expected to be affected by activities associated with routine operations. The magnitude of effects from accidental spills would depend on the location, timing, and volume of spills, in addition to other environmental factors. Any single large spill would likely affect only a small proportion of a given fish population within the GOM, and it is unlikely that fish resources would be permanently affected. However, spills could have localized effects on recreational fishing as a consequence of contamination of fish tissues, degradation of esthetic values that attract fishers, or temporary closure of fishing areas.

***Hurricanes —*** In 2005, Hurricanes Katrina and Rita, both geographically large storms, passed over much of the offshore oil and gas infrastructure in the GOM. The MMS estimates that, of the approximately 4,000 structures in the Gulf, 3,050 (76 percent), in addition to 22,000 of the 33,000 miles of Gulf pipelines, were in the direct path of either Hurricane Katrina or Rita. The latest damage report released by MMS states that 113 platforms were destroyed by Hurricanes Katrina and Rita. Based on additional industry assessments, investigations, and reports, the number of pipelines reported damaged is 457. Of those, 101 were larger diameter pipelines (10 inches or greater). As of May 1, 2006, there have been 32 pipelines returned to service. Because of the large amount of infrastructure in the path of hurricane-force winds and waves, the amount of damage was substantial. In comparison with Hurricane Ivan in 2004, Hurricanes Katrina and Rita accounted for considerably more damage because of the paths taken by these two devastating storms.

Chapter 3 of the Multisale EIS (MMS 2007-018) describes impacts from these hurricanes to the physical and biological environments, socioeconomic activities, and OCS-related infrastructure. Effects of these hurricanes were considered in the assessment of impacts, presented in Chapter 4 of the Multisale EIS. While the recent hurricanes impacted all coastal environmental and socioeconomic resources, the most notable was 217 square miles of Louisiana's coastal lands that were transformed to water after Hurricanes Katrina and Rita in 2005. Hurricanes Ivan, Katrina, and Rita were especially detrimental to oil and gas operations on the OCS, and their effects included structural damage to fixed production facilities, semi-submersibles, jack-ups, and pipelines. However, damage to structures and pipelines was minimal considering that three-quarters of the structures and two-thirds of the pipelines were in the direct path of either Hurricane Katrina or Hurricane Rita, both Category 5 hurricanes less than one month apart. Although this demonstrates the effectiveness of existing regulations, MMS is working to further minimize potential damage to offshore infrastructure in future hurricane seasons.

When a hurricane threatens offshore activities, Notice to Lessees (NTL) 2004-G14, *Hurricane and Tropical Storm Evacuation and Production Curtailment Statistics*, requires operators to notify MMS of employee evacuations, production curtailment, and resumption. This information is shared with the U.S. Coast Guard (USCG) that would respond to any rescue calls or oil spills. In advance of Hurricane Ivan on September 16, 2004, operators reported to MMS that 575 platforms (75 percent of the manned platforms in the GOM) and 69 operating rigs (59 percent of operating rigs in the GOM) had been evacuated prior to the arrival of the hurricane. The storm track of Hurricane Ivan passed through many MMS leases before making landfall at Gulf Shores, Alabama. There have been NTLs issued in response to Hurricanes Ivan, Katrina,

and Rita to ensure that structures and pipelines remained safe and retained integrity and that pollution was minimized following the hurricane.

***Land Use and Existing Infrastructure*** — Impacts to land use and infrastructure from routine operations under the proposed action would occur in all the Central and Western GOM. Oil spills that reach the coast or are in close proximity to the shoreline could also impact land use and existing infrastructure. The nature and magnitude of these impacts would depend upon the level of new construction, the degree to which the area is already developed, and, in the case of accidental spills, the size and location of the spill.

***Marine and Coastal Birds*** — Routine operations could impact some birds. For most routine operations, the primary effect would be disturbance of birds in the immediate vicinity of the operation. Because birds tend to habituate to human activities and noise, potential impacts for many species associated with such disturbance would be short-term and would not be expected to result in population-level effects. Some collision mortality may be expected for birds colliding with offshore platforms and, to a lesser extent, OCS-related helicopters. Collisions at offshore platforms may affect several thousand birds each year as they migrate across the Gulf in spring and fall. While routine operations could affect listed bird species in the same manner as nonlisted species, primarily behavioral disturbance, compliance with ESA regulations would ensure that operations would be conducted in a manner that avoids or greatly minimizes impacts.

Accidental oil spills pose the greatest threat to marine, coastal, and migratory birds, and could affect both birds and their habitats. The magnitude and ecological importance of any effects would depend upon the size of the spill, the species and life stages that are exposed, and the size of the local bird population.

***Marine Mammals*** — Some routine operations could affect marine mammals in the northern GOM. Among the listed species reported in the Gulf, only the endangered sperm whale and West Indian manatee are present in sufficient numbers to potentially be affected by normal operations or spills. Effects to these species would be the same as those that could be incurred by any of the marine mammals that are present in the GOM planning areas. Noise generated during exploration and production activities, during platform removal, and by OCS-related vessels and helicopters may temporarily disturb some individuals. Collisions with OCS-related vessels may injure or kill some individuals. Many of the effects associated with noise and the presence of OCS-related vessels or structures would likely be short-term and not result in population-level effects. Existing permit requirements, regulatory stipulations, and MMS guidelines targeting many of the routine operations would greatly limit the impact of any potential effects on marine mammals.

An oil-spill could expose marine mammals to oil or its weathering products. The magnitude of effects from accidental spills would depend on the location, timing, and volume of the spills; the environmental settings of the spills (e.g., restricted coastal waterway, deepwater pelagic location); and the species and its ecology exposed to the spills. Spill cleanup operations could result in short-term disturbance of marine mammals in the vicinity of the cleanup activity, while a collision with a cleanup vessel could injure or kill the affected individual.

***Population, Employment and Income*** — Based on proposed action scenario assumptions, the employment and regional income impact of routine operations would likely be greatest in Texas and Louisiana. Even for the areas most affected, however, added employment demands would

not likely tax the local labor market. In many cases, the added employment would maintain jobs that otherwise would be lost as a result of declining activity levels. In areas with a large proportion of impact-sensitive industry, such as tourism, the potential incremental impacts of oil spills would likely result in a one-time seasonal decline in business activity.

***Seafloor Habitats —*** Impacts on soft-bottom benthic communities could occur due to routine operations and accidental spills under the proposed action. The magnitude of impacts from an oil spill would depend upon the location of the spill, spill size, type of product spilled, effectiveness of cleanup operations, and other environmental conditions at the time of the spill.

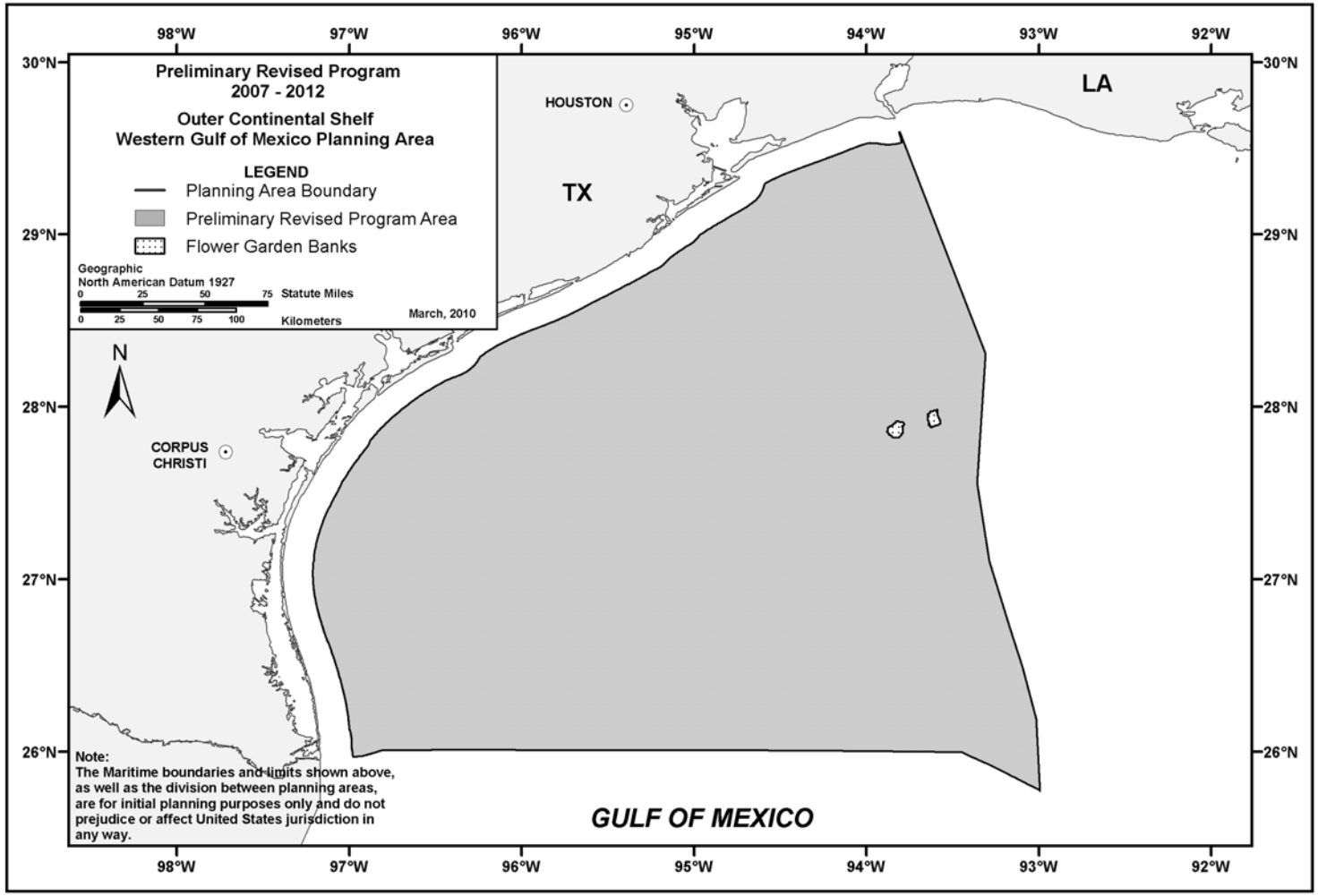
***Sea Turtles —*** Some routine operations could affect individual sea turtles, but population-level impacts are not expected. Existing permit requirements, regulatory stipulations, and MMS guidelines and required mitigation measures targeting many of the routine operations could limit the seriousness of any potential effects on sea turtles. An oil-spill could result in the exposure of one or more sea turtle life stages to oil or its weathered products. The magnitude of effects from accidental spills would depend on the location, timing, and volume of the spills; the environmental settings of the spills; and the species and life stages of sea turtle exposed to the spills.

***Sociocultural Systems and Environmental Justice*** — The greatest impacts to sociocultural systems are expected to result from the ongoing expansion of deepwater activities, which will create jobs that require longer, unbroken periods of work offshore, specialized skills, and in-migration of part of the workforce. No Environmental Justice impacts from accidental oil spills are expected because of the movement of oil and gas activities further away from coastal areas and, also, the demographic pattern of more affluent groups living in coastal areas.

***Terrestrial Mammals*** — In the Western GOM, there are no endangered terrestrial mammals that would be impacted by the proposed action.

***Tourism and Recreation*** — Routine operations would have limited effects on recreation and tourism, with potential adverse aesthetic impacts to beach recreation and sightseeing and potential positive impacts to diving and recreational fishing. Temporary impacts would occur if an oil spill reached a beach or other recreational-use area. The magnitude of these impacts would depend on factors such as the size and location of the spill, and would likely be greatest if the spill occurred during the peak recreational season.

***Water Quality —*** The overall impacts associated with development and production activities on marine water quality would be localized, short to medium term, and would most likely not result in long-term degradation to local water-quality conditions. These impacts would be unavoidable and primarily generated from drilling activities, platform installation and operation, and the routine discharges from support vessels and helicopters. Compliance with the NPDES permits and USCG requirements would minimize or prevent most impacts to receiving waters caused by discharges from normal operations. Water quality would recover when discharges ceased because of dilution, settling, and mixing. Impacts of accidental releases to water quality would depend on the size of the spill, type of material or product spilled, and environmental factors at the time of the spill. However, there would be no long-term, widespread impairment of marine water quality.




*Map 5: Shows the Western Gulf of Mexico Program Area*

***Option 2 (No Sales)***

**Valuation**. The net benefits of production would be zero since no activity would occur.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternative 10, the No-Sale alternative. A summary of the EIS findings follows.

The no sale option would result in five lease sales not occurring in the Western GOM. While this would result in no new impacts to the environment from the PFP, for ease of comparison, the cost-benefit analysis is designed to be a net analysis, and many effects of not holding sales in this area are hidden.[22] For example, impacts would still occur from the existing infrastructure and from activities necessary to replace the foregone production. The loss of domestically produced oil and gas would result in an increase in domestic production elsewhere and in increased oil imports, with much of the imported oil being shipped into the GOM, posing the risk of oil spills from supertankers. Some of the foregone natural gas production would be replaced by imports of liquefied natural gas (LNG), which would not significantly reduce risks to the environment. The estimates as to how we would replace foregone production are show in table 4 in part IV.A, and are discussed in the surrounding text. However, there would be additional effects that are not discussed elsewhere. Not holding lease sales for the next 5 years would affect the sustainability of the current industry in this area, as companies went out of business, moved to other parts of the world, and/or moved or got rid of equipment and employees. Skilled labor would be irrevocably lost to other areas or occupations. As the natural cycles of activity corresponding to higher and lower oil and gas prices have shown, it is not easy, even in a developed area like the GOM, to adjust quickly to a higher level of OCS activity. Furthermore, both the peaks and valleys are costly to the communities that provide goods and services to the industry. The downturns create fiscal and social strains on local communities. Sudden upturns create unanticipated needs for local infrastructure and cause upheaval in the workforce and higher prices in the local economy. A 5-year period of no lease sales would have unprecedented effects on the local communities and their economies, which are highly integrated into the OCS industry.

## *CENTRAL GULF OF MEXICO*

**Key Comparative Results**. The net benefits of anticipated production in this PFP area are estimated at $99.52 billion. In the expanded environmental sensitivity analysis, the area is categorized as "most sensitive" for relative environmental sensitivity (Table 8), "high" for relative effects of climate change on environmental sensitivity (Table 21), and 2nd of 7 in the existing primary productivity rankings (Table 22).

**Selected Comments**. The Alabama Department of Environmental Management, speaking for the State, reiterated the Governor's support for "a balanced, reasonable, and environmentally sound federal leasing program." The support remained contingent on all OCS activities in waters adjacent to Alabama's coast being carried out in full compliance with Alabama laws and

[22] The cost-benefit analysis is designed so that not holding sales would show no effects and each of the other alternatives/options shows the net difference. This allows the decision maker to focus more easily on the net differences among the various options and among the EIS alternatives.

in a manner consistent with Alabama's coastal program. The State of Alabama restated the Governor's opposition to leasing south and within 15 miles of the Baldwin County coastline. The concern is about the visible impacts, mitigation of which has been agreed to by the State as addressed in previous sales through a stipulation.[23] One local government in Alabama supported the program. The Governor of Texas strongly supported expanded leasing of the U.S. OCS, but was concerned about the shift in the planning area boundaries between the Western and Central Gulf and the Central and Eastern Gulf as this does not "accurately reflect the impacts of OCS development on the states bordering the GOM." The then-Governor of Florida restated his support for a permanent moratorium within 100 miles of Florida's coast, east of the military mission line ($86^{o}$ 41' W), and within the "stovepipe" of the original Sale 181 area. The State continued to oppose the use of the new administrative boundary line for consistency review pursuant to the Coastal Zone Management Act (CZMA).

The State of Louisiana supported the development of domestic natural resources and "looks forward to continuing to play a critical part in helping meet our nations' energy needs." However, the State expressed its concern with the impacts of OCS development on coastal resources and infrastructure, particularly following the devastating hurricanes in 2005. Two state legislators and three local entities expressed concern over the impacts to onshore infrastructure, in particular.

The State of Louisiana commented on using alternative leasing schemes in several letters to the MMS in 2006. The State sent MMS comments addressing concerns regarding alternative leasing schemes in response to the draft EIS for GOM sales proposed for the 2007-2012 OCS Program; the Central GOM Sale 198 EA; the Call for Information and Nominations for Central and Western GOM sales proposed for the 2007-2012 OCS Program; and the Central GOM Sale 201 EA.

The MMS has considered the State of Louisiana's comments on alternative leasing schemes. The MMS has made a decision to conduct a detailed analysis of alternative approaches to leasing that may serve to further the many goals of the Act. It is anticipated that the design and conduct of this analysis could take several years to complete. If it is determined that some alternative approach to leasing is preferable, and depending on how long it takes to conduct the analysis, the 5-year program for 2007-2012 could be adjusted accordingly or an alternative approach can be incorporated into the subsequent 5-year program for 2012-2017.

While considering ways to address the State's concerns, the MMS must be cognizant of the effects any policy changes might have on the achievement of other statutory and implicit goals of the Federal OCS program. Among these are expeditious and orderly development and maintaining a diverse and competitive industry. Areawide leasing allows smaller independent companies to rapidly produce low-resource, low-risk fields, while larger companies push the edge of the technology envelope at a slower pace in deep water. It also encourages strong and innovative seismic exploration and geophysical contracting and processing industries. In addition, a sudden change in policy that restricts access to oil and gas resources or that alters the timetables the offshore industry has come to depend on, may lead to undesirable socioeconomic disruptions in local coastal economies. The MMS expects a detailed analysis of alternatives to areawide leasing to address such possible consequences. Therefore, pending completion of that

[23]The stipulation requires consideration be given to sharing of already existing or planned facilities. If new construction is necessary, it must be the minimum necessary for the proper development of the block and be constructed and placed, using orientation, camouflage, or other design measures, to limit its visibility from shore.

analysis, the MMS determined it is appropriate to continue the areawide approach in the GOM for the near future.

The DOE continued its support of the proposed 5-year program, particularly the proposal to continue the annual offering of all the acreage in the Central and Western GOM Areas. The Sierra Club, representing 26 groups, restated its opposition to "retroactively" applying a pre-existing EIS for a prior Lease Sale 181 proposal, in that it would fail to address many important concerns, namely the well-known "Loop Currents" in the GOM. Florida-based public interest groups remained concerned over environmental impacts and requested permanent moratoria. Numerous non-energy industry entities, from the agricultural sector to local Chambers of Commerce, endorsed the PP and asked for opening of more acreage, particularly in the Lease Sale 181 area in the former Eastern GOM Planning Area. Several Louisiana-based business organizations were concerned over impacts on infrastructure and cited the need for revenue sharing. Nineteen companies expressed interest in this area. Of the almost 25,000 comments received from the public in Alabama, Mississippi, Louisiana and Texas, over 98 percent were in favor of some level of OCS access.

**Options**

**X** (1) Proposal as in PFP with a no-surface occupancy stipulation for the area within 15 miles of the coast of Baldwin County, Alabama: six areawide sales (in 2007, 2008, 2009, 2010, 2011, and 2012) in the area depicted in Map 6; and

__ (2) No sale.

**Discussion**

***Option 1 (6 Sales)***

**Valuation**. The net benefits of anticipated production from the PFP area are estimated at $99.52 billion.

**Other Information**. It is not currently anticipated that leases will be offered or available in the area beyond 200 nautical miles in the Central GOM Planning Area, commonly referred to as the "Eastern Gap," prior to the conclusion of an appropriate boundary agreement or agreements.

**Environmental Impacts**. The option for leasing in the Central GOM is analyzed under Alternative 1 in the final EIS. The analysis assumes the continued use of stipulations and mitigation measures prescribed for past sales. This no-surface occupancy stipulation in a 15-mile area offshore Baldwin County, Alabama has been consistently included at the lease sale stage and the Secretary has chosen to commit to the stipulation at the 5-year program stage.

***Air Quality*** — Routine operations associated with the proposed action would result in levels of $NO_2$, $SO_2$, $PM_{10}$, and CO that are well within national air quality standards. The contributions to $O_3$ levels, when the standards are exceeded, would be less than 1 percent of the total concentrations. Air quality impacts from accidental oil spills or in situ burning would be localized and short term.

***Archaeological Resources —*** Assuming compliance with existing Federal, state, and local archaeological regulations and policies, most impacts to archaeological resources resulting from routine activities under the proposal will be avoided. Based on the scenario for the proposal, some impact could occur to coastal historic and prehistoric archaeological resources from accidental oil spills. Although it is not possible to predict the precise numbers or types of sites that would be affected, contact with archaeological sites would probably be unavoidable, and the resulting loss of information would be irretrievable.

***Areas of Special Concern*** — Overall, impacts on national parks, national wildlife refuges, national estuarine research reserves, and national estuary program sites due to routine operations are expected to be limited under the proposed action because these areas are restricted from development. Impacts from oil spills are unlikely because it is anticipated that 75 percent of the hydrocarbons developed, as a result of the 2007-2012 leasing program in the GOM area are expected to occur in deep water (>330 m) usually located far from the shoreline. Should oil spills reach any of these sites, the impacts would depend on the location and size of the spill, the type of product spilled, weather conditions, effectiveness of cleanup operations, and other environmental conditions at the time of the spill.

***Coastal Habitats*** — Routine operations could have direct impacts on wetlands as a result of construction activities and indirect impacts as a result of poorer water and air quality and altered hydrology. The magnitude of these impacts would depend upon the location and extent of new construction, construction practices, and existing environmental conditions. Oil spills could have direct impacts on wetlands. The magnitude of these impacts would depend on a variety of factors, including the location and size of the spill, weather conditions, remediation efforts, and existing environmental conditions, such as plant species or substrate type.

***Fish Resources and Essential Fish Habitat*** — Routine operations associated with the proposed action will not affect the overall fish population numbers or viability in the GOM. Effects of individual spills would depend on the location, timing, and volume of the spill, in addition to other environmental factors. Considering the small proportion of EFH area that could be affected, potential impacts on EFH due to routine operations under the proposed action would be limited. While most accidental spills assumed under the proposed action would be small and would have relatively small impacts on EFH, large spills that reach coastal wetlands could have more persistent impacts and could require remediation. Impacts on Gulf sturgeon associated with routine operations and accidental spills under the proposed action are expected to be minimal, because there is relatively little overlap between the locations that could be affected by activities and the distribution of Gulf sturgeon.

***Fisheries —***Biological resources that serve as the basis for recreational fisheries in the GOM are expected to be affected by activities associated with routine operations. The magnitude of effects from accidental spills would depend on the location, timing, and volume of spills, in addition to other environmental factors. Any single large spill would likely affect only a small proportion of a given fish population within the GOM, and it is unlikely that fish resources would be permanently affected. However, spills could have localized effects on recreational fishing as a consequence of contamination of fish tissues, degradation of esthetic values that attract fishers, or temporary closure of fishing areas.

***Hurricanes —*** In 2005, Hurricanes Katrina and Rita, both geographically large storms, passed over much of the offshore oil and gas infrastructure in the GOM. The MMS estimates that, of

the approximately 4,000 structures in the Gulf, 3,050 (76 percent), in addition to and that 22,000 of the 33,000 miles of Gulf pipelines, were in the direct path of either Hurricane Katrina or Rita. The latest damage report released by MMS states that 113 platforms were destroyed by Hurricanes Katrina and Rita. Based on additional industry assessments, investigations, and reports, the number of pipelines reported damaged is 457. Of those, 101 were larger diameter pipelines (10 inches or greater). As of May 1, 2006, there have been 32 pipelines returned to service. Because of the large amount of infrastructure in the path of hurricane-force winds and waves, the amount of damage was substantial. In comparison with Hurricane Ivan in 2004, Hurricanes Katrina and Rita accounted for considerably more damage because of the paths taken by these two devastating storms.

Chapter 3 of the Multisale EIS (MMS 2007-018) describes impacts from these hurricanes to the physical and biological environments, socioeconomic activities, and OCS-related infrastructure. Effects of these hurricanes were considered in the assessment of impacts, presented in Chapter 4 of the Multisale EIS. While the recent hurricanes impacted all coastal environmental and socioeconomic resources, the most notable was 217 square miles of Louisiana's coastal lands that were transformed to water after Hurricanes Katrina and Rita in 2005. Hurricanes Ivan, Katrina, and Rita were especially detrimental to oil and gas operations on the OCS, and their effects included structural damage to fixed production facilities, semi-submersibles, jack-ups, and pipelines. However, damage to structures and pipelines was minimal considering that three-quarters of the structures and two-thirds of the pipelines were in the direct path of either Hurricane Katrina or Hurricane Rita, both Category 5 hurricanes less than one month apart. Although this demonstrates the effectiveness of existing regulations, the MMS is working to further minimize potential damage to offshore infrastructure in future hurricane seasons.

When a hurricane threatens offshore activities, NTL 2004-G14, *Hurricane and Tropical Storm Evacuation and Production Curtailment Statistics*, and its earlier versions requires operators to notify MMS of employee evacuations, production curtailment, and resumption. This information is shared with the USCG that would respond to any rescue calls or oil spills. In advance of Hurricane Ivan on September 16, 2004, operators reported to MMS that 575 platforms (75 percent of the manned platforms in the GOM) and 69 operating rigs (59 percent of operating rigs in the GOM) had been evacuated prior to the arrival of the hurricane. The storm track of Hurricane Ivan passed through many MMS leases before making landfall at Gulf Shores, Alabama. There have been NTLs issued in response to Hurricanes Ivan, Katrina, and Rita van to ensure that structures and pipelines remained safe and retained integrity and that pollution was minimized following the hurricane.

***Land Use and Existing Infrastructure*** — Impacts to land use and infrastructure from routine operations under the proposed action would occur in all the Central and Western GOM. Oil spills that reach the coast or are in close proximity to the shoreline could also impact land use and existing infrastructure. The nature and magnitude of these impacts would depend upon the level of new construction, the degree to which the area is already developed, and, in the case of accidental spills, the size and location of the spill.

***Marine and Coastal Birds*** — Routine operations could impact some birds. For most routine operations, the primary effect would be disturbance of birds in the immediate vicinity of the operation. Because birds tend to habituate to human activities and noise, potential impacts for many species associated with such disturbance would be short-term and would not be expected to result in population-level effects. Some collision mortality may be expected for birds

colliding with offshore platforms and, to a lesser extent, OCS-related helicopters. Collisions at offshore platforms may affect several thousand birds each year, as they migrate across the Gulf in spring and fall. While routine operations could affect listed bird species in the same manner as nonlisted species, primarily behavioral disturbance, compliance with ESA regulations would ensure that operations would be conducted in a manner that avoids or greatly minimizes impacts. Accidental oil spills pose the greatest threat to marine, coastal, and migratory birds, and could affect both birds and their habitats. The magnitude and ecological importance of any effects would depend upon the size of the spill, the species and life stages that are exposed, and the size of the local bird population.

***Marine Mammals*** — Some routine operations could affect marine mammals in the northern GOM. Among the listed species reported in the Gulf, only the endangered sperm whale and West Indian manatee are present in sufficient numbers to potentially be affected by normal operations or spills. Effects to these species would be the same as those that could be incurred by any of the marine mammals that are present in the GOM. Noise generated during exploration and production activities, during platform removal, and by OCS-related vessels and helicopters may temporarily disturb some individuals. Collisions with OCS-related vessels may injure or kill some individuals. Many of the effects associated with noise and the presence of OCS-related vessels or structures would likely be short-term and not result in population-level effects. Existing permit requirements, regulatory stipulations, and the MMS guidelines targeting many of the routine operations would greatly limit the impact of any potential effects on marine mammals.

An oil-spill could expose marine mammals to oil or its weathering products. The magnitude of effects from accidental spills would depend on the location, timing, and volume of the spills; the environmental settings of the spills (e.g., restricted coastal waterway, deepwater pelagic location); and the species and its ecology exposed to the spills. Spill cleanup operations could result in short-term disturbance of marine mammals in the vicinity of the cleanup activity, while a collision with a cleanup vessel could injure or kill the affected individual.

***Population, Employment and Income*** — It is anticipated that the employment and regional income impact of routine operations would likely be greatest in Texas and Louisiana. Even for the areas most affected, however, added employment demands would not likely tax the local labor market. In many cases, the added employment would maintain jobs that otherwise would be lost as a result of declining activity levels. In areas with a large proportion of impact-sensitive industry, such as tourism, the potential incremental impacts of oil spills would likely result in a one-time seasonal decline in business activity.

***Seafloor Habitats*** — Impacts on soft-bottom benthic communities could occur due to routine operations and accidental spills under the proposed action. The magnitude of impacts from an oil spill would depend upon the location of the spill, spill size, type of product spilled, effectiveness of cleanup operations, and other environmental conditions at the time of the spill.

***Sea Turtles*** — Some routine operations could affect individual sea turtles, but population-level impacts are not expected. Existing permit requirements, regulatory stipulations, and MMS guidelines and required mitigation measures targeting many of the routine operations could limit the seriousness of any potential effects on sea turtles. An oil-spill could result in the exposure of one or more sea turtle life stages to oil or its weathered products. The magnitude of effects from accidental spills would depend on the location, timing, and volume of the spills; the

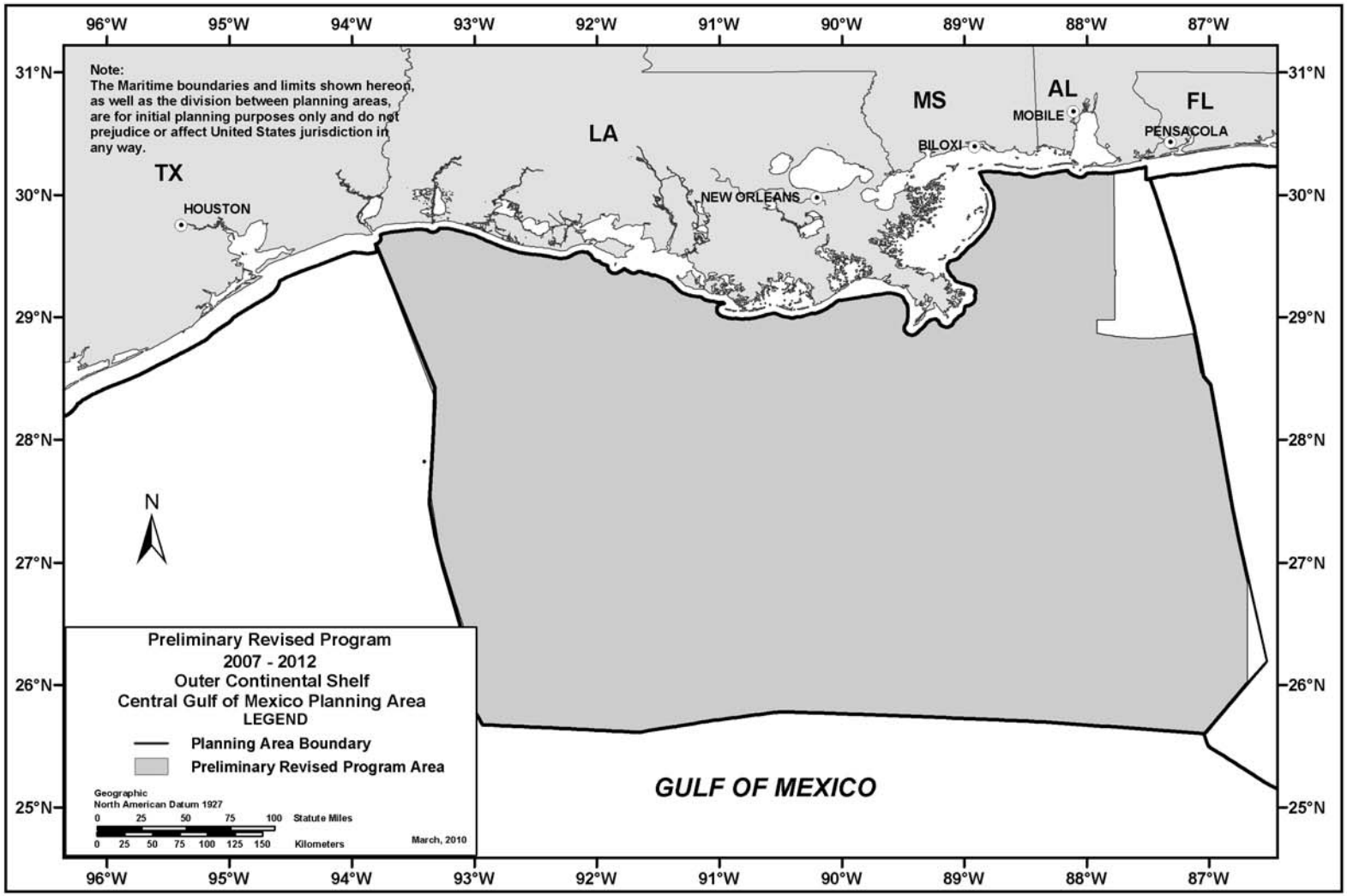
environmental settings of the spills; and the species and life stages of sea turtle exposed to the spills.

***Sociocultural Systems and Environmental Justice*** — The greatest impacts to sociocultural systems are expected to result from the ongoing expansion of deepwater activities, which will create jobs that require longer, unbroken periods of work offshore, specialized skills, and in-migration of part of the workforce. No Environmental Justice impacts from accidental oil spills are expected because of the movement of oil and gas activities further away from coastal areas and, also, the demographic pattern of more affluent groups living in coastal areas.

***Terrestrial Mammals*** — The four federally endangered Gulf Coast beach mice species and the federally endangered Florida salt marsh vole and their habitats would not be significantly affected by normal operations under the proposed action. Impacts are expected to be minimized through appropriate mitigation and the existence of these species' habitats in protected areas. Because of their locations on inner dunes, the habitats of the beach mice are unlikely to be affected by an accidental offshore oil spill. While the habitat of the Florida salt marsh vole could be affected by an oil spill, oil leasing and development will occur far from this area.

***Tourism and Recreation*** — Routine operations would have limited effects on recreation and tourism, with potential adverse aesthetic impacts to beach recreation and sightseeing and potential positive impacts to diving and recreational fishing. Temporary impacts would occur if an oil spill reached a beach or other recreational-use area. The magnitude of these impacts would depend on factors such as the size and location of the spill, and would likely be greatest if the spill occurred during the peak recreational season.

***Water Quality —*** The overall impacts associated with development and production activities on marine water quality would be localized, short to medium term, and would most likely not result in long-term degradation to local water-quality conditions. These impacts would be unavoidable and primarily generated from drilling activities, platform installation and operation, and the routine discharges from support vessels and helicopters. Compliance with the NPDES permits and USCG requirements would minimize or prevent most impacts to receiving waters caused by discharges from normal operations. Water quality would recover when discharges ceased because of dilution, settling, and mixing. Impacts of accidental releases to water quality would depend on the size of the spill, type of material or product spilled, and environmental factors at the time of the spill. However, there would be no long-term, widespread impairment of marine water quality.




*Map 6: Shows the Central Gulf of Mexico Program Area*

*Option 2 (No Sale)*

**Valuation**. The net benefits of production would be zero since no activity would occur.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternative 10, the No Sale alternative. A summary of the EIS findings follows.

The no sale option would result in six lease sales not occurring in the Central GOM. While this would result in no new impacts to the environment from the PFP, for ease of comparison, the cost-benefit analysis is designed to be a net analysis, and many effects of not holding sales in this area are hidden.[24] For example, impacts would still occur from the existing infrastructure and from activities necessary to replace the foregone production. The loss of domestically produced oil and gas would result in an increase in domestic production elsewhere and in increased oil imports, with much of the imported oil being shipped into the GOM, posing the risk of oil spills from supertankers. Some of the foregone natural gas production would be replaced by imports of LNG, which would not significantly reduce risks to the environment. The estimates as to how we would replace foregone production are show in table 4 in part IV.A, and are discussed in the surrounding text. However, there would be additional effects that are not discussed elsewhere. Not holding lease sales for the next 5 years would affect the sustainability of the current industry in this area, as companies went out of business, moved to other parts of the world, and/or moved or got rid of equipment and employees. Skilled labor would be irrevocably lost to other areas or occupations. As the natural cycles of activity corresponding to higher and lower oil and gas prices have shown, it is not easy, even in a developed area like the GOM, to adjust quickly to a higher level of OCS activity. Furthermore, both the peaks and valleys are costly to the communities that provide goods and services to the industry. The downturns create fiscal and social strains on local communities. Sudden upturns create unanticipated needs for local infrastructure and cause upheaval in the workforce and higher prices in the local economy. A 5-year period of no lease sales would have unprecedented effects on the local communities and their economies, which are highly integrated into the OCS industry.

## ATLANTIC REGION

### Proposed Final Program Decision

The PFP scheduled a special interest sale in 2011 in the Mid-Atlantic Planning Area offshore the coast of Virginia, including a 50-mile buffer and no-obstruction zone off the mouth of the Chesapeake Bay, where there would be no leasing consideration. See the discussion on special interest sales under the PFP options for this area that follows.

[24] The cost-benefit analysis is designed so that not holding sales would show no effects and each of the other alternatives/options shows the net difference. This allows the decision maker to focus more easily on the net differences among the various options and among the EIS alternatives.

## Preliminary Revised Program Options

As the Court's remand was limited to the three Alaska areas, the options and discussion for the Atlantic area remain as in the PFP, with the exception of the results of the expanded environmental sensitivity analysis.

### MID-ATLANTIC

**Key Comparative Results**. The net benefits of anticipated production in this PFP area are estimated at $340 million. In the expanded environmental sensitivity analysis, the area is categorized as "most sensitive" for relative environmental sensitivity (Table 8), "moderate" for relative effects of climate change on environmental sensitivity (Table 21), and 1st of 7 in the existing primary productivity rankings (Table 22).

**Selected Comments**. The then Governor of Virginia restated the Commonwealth's legislative policy to support OCS leasing in the Atlantic with four conditions: (1) the entire Atlantic should be offered; (2) leasing should be for natural gas only; (3) leasing should be for exploration only; and (4) there should be a 50-mile setback. The then Governor disagreed with the use of the administrative boundaries to define the area off Virginia. The then Governor sent another letter dated February 22, 2007, after the close of the comment period, requesting "Interior's consideration in keeping Virginia in the 5-year plan in a way that comports with Virginia's offshore energy policies as enacted in state law." The then Governors of New Jersey and North Carolina reiterated their strong opposition to a possible special interest lease sale off the Virginia coast in 2011. They both cited the potential for adverse impacts on their coastal resources. One local government in New Jersey opposed activity off the Mid-Atlantic coast. The State of Delaware and five members of the New Jersey congressional delegation continued their support for the Congressional moratoria and the Presidential withdrawal. A state legislator from North Carolina supported access to domestic energy resources.

The Navy, on behalf of the Department of Defense (DOD), and the National Aeronautics and Space Administration (NASA), continued to have concerns about possible operational conflicts with energy activities in this area. However, the Navy supported the 25-mile buffer and no-obstruction zone and expressed its willingness to discuss possible alternatives to minimize conflicts between energy development and military operations. The DOE continued its support of the proposed 5-year program, particularly to pursue resource characterization and estimation in areas currently under moratoria.

Several national and New Jersey-based public interest groups, including Clean Ocean Action, strongly opposed inclusion of this area. They stated that the environmental risks were high for New Jersey and New York and that the potential dangers due to exploring and drilling for oil and gas outweighed the supposed benefits. The Sierra Club, representing 28 groups, restated its position that the 5-year program should not include any areas protected by moratoria or executive withdrawal. Numerous non-energy industry entities, from the agricultural sector to local Chambers of Commerce, endorsed the PP and asked for opening of more acreage. Seventeen companies expressed interest in this area. Of the over 2,100 comments from the public in Virginia, over 79 percent were in favor of some level of OCS access. Of the over 3,300

comments from the public in Delaware, Maryland, and North Carolina, the other States adjacent to the Mid-Atlantic Planning Area, over 76 percent were in favor of some level of OCS access.

**Options**

___(1) Proposal as in the PP: one special interest sale[25] (in 2011), including a 25-mile buffer and a no-obstruction zone from the mouth of the Chesapeake Bay off the coastline of Virginia, as depicted in Map 7;

__X__(2) Proposal as in the PFP: one special interest sale (in 2011), but with a 50-mile buffer and a no-obstruction zone from the mouth of the Chesapeake Bay off the coastline of Virginia, as depicted in Map 7; and

___(3) No sale.

**Discussion**

***Option 1 (Proposed Program with 25-Mile Buffer and No-Obstruction Zone (1 Special Interest Sale))***

**Valuation**. The net benefits of anticipated production in this PFP area are estimated at $340 million.

**Environmental Impacts**. This area is analyzed in the final EIS under Alternative 1, which analyzes the DPP area off Virginia without any deferral areas; and Alternatives 5 and 6, which defer the areas within 25 miles of the coast and within a no-obstruction zone off the mouth of the Chesapeake Bay.

The EIS findings for the area in the DPP without any deferral areas are itemized below as articulated in Alternative 1 of the final EIS. The differences in impacts in the PP area, which deferred a 25-mile buffer and no-obstruction zone from leasing consideration, are set out in these opening paragraphs.

Choosing the two deferral zones in this option would reduce potential environmental impacts on resources within the 25-mile buffer zone off the Virginia coast. Overall impacts on water quality, air quality, marine mammals, marine and coastal birds, benthic communities, and fish resources would be reduced when compared to offering the entire area. However, impacts from vessel traffic, aircraft, offshore and onshore pipeline construction, and onshore support facilities would still exist. There still would be a risk of collisions between vessels and marine mammals, including the right whale. A reduction in the chance of a nearshore oil spill would reduce possible longer term adverse effects on tourism. However, a risk of a large spill from tanker transport of oil would still exist. The 25-mile buffer would eliminate the potential visual impacts from beaches and other recreation sites. The impacts to terrestrial animals, coastal habitats, land use and existing infrastructure, population, employment, and regional income, would be

[25] The area off the coast of Virginia in the Mid-Atlantic Planning Area is included on the schedule as a special interest sale in 2011. In November 2008, MMS issued a request for nominations and comments. The next step in the pre-lease process is scoping for the Draft EIS.

essentially the same as those for offering the entire area off Virginia, since the need for onshore support facilities and pipelines would not change.

Excluding the area near the mouth of the Chesapeake Bay, the so-called no-obstruction zone, additionally would reduce the potential for direct impacts to archeological resources from exploration and development activities as compared to the option to offer the entire area off Virginia.

Findings from the final EIS under Alternative 1 that analyzed offering the entire area off Virginia follow.

***Air Quality*** — Concentrations of $NO_2$, $SO_2$, and $PM_{10}$ from any routine activities associated with the proposed action in the mid-Atlantic would be within the applicable maximum allowable increases. The concentrations of $NO_2$, $SO_2$, $PM_{10}$, and CO would remain well within the NAAQS. Impacts from oil spills would be localized and short-term.

***Archaeological Resources —*** As a result of compliance with existing Federal, state, and local archaeological regulations and policies, most impacts to archaeological resources resulting from routine activities under the proposed action would be avoided. Based on the proposed scenario, some impact could occur to coastal historic and prehistoric archaeological resources from an accidental oil spill. Although it is not possible to predict the precise numbers or types of sites that would be affected, contact with archaeological sites would probably be unavoidable and the resulting loss of information would be irretrievable. The magnitude of the impact would depend on the significance and uniqueness of the information lost.

***Areas of Special Concern —*** It is unlikely that oil and gas development and production activities will significantly impact areas of special concern within the proposed lease area, although large spills have the potential to threaten protection efforts. Mitigation efforts and thorough contingency planning by multiple parties will minimize the risk to these areas.

***Coastal Habitats*** — Development and production activities could have impacts on coastal barrier beaches and dunes primarily as a result of pipeline construction and vessel traffic. The magnitude of these impacts would depend on the location of new construction, the level of shipping activity in a specific area, and existing environmental conditions, such as ongoing shoreline degradation. The magnitude of impacts from a large spill would depend on a variety of factors, including the location and size of the spill, weather conditions, remediation efforts, and beach conditions. Cleanup operations themselves might also impact wetlands, estuaries, beaches, and dunes. Adverse impacts on coastal habitats from a large spill can range from insignificant to high degrees of damage, including extensive mortality and loss of habitat.

***Fish Resources and Essential Fish Habitat*** — Impacts on fish resources may result from the discharge of operational effluents, muds, and cuttings; platform and pipeline emplacement; structure removal; lights on offshore rigs; noise associated with routine drilling operations or geophysical surveys; and discharge of formation or produced waters. Individual finfish or shellfish may experience sublethal impacts such as reduced biogenic activity, reduced metabolic functions, or disease. Deaths of a few individuals may occur. However, no measurable decline in whole populations is expected.

***Fisheries*** — Impacts on fish resources may result from the discharge of operational effluents, muds, and cuttings; platform and pipeline emplacement; structure removal; lights on offshore rigs; noise associated with routine drilling operations or geophysical surveys; and discharge of formation or produced waters. It is anticipated that individual finfish or shellfish are expected to experience sublethal impacts, such as reduced biogenic activity, reduced metabolic functions, or disease. Deaths of a few individuals are also expected. However, no measurable decline in whole populations is expected.

***Land Use and Existing Infrastructure*** — Given the current level of activity in Hampton Roads, there will be minimum impact on land use or infrastructure, as a result of exploration, development, and production activity. The existing industrial/maritime infrastructure in the Hampton Roads area can fulfill the requirements of a support base, as well as boat and helicopter traffic.

***Marine and Coastal Birds*** — Marine and coastal bird populations are not expected to be measurably affected by the routine activities assumed for the proposal. Because of the relatively low, estimated number of oil spills, there is a low risk of impact resulting in some losses of marine birds, particularly for pelagic birds and sea birds. The long-term effect could be a small reduction in population sizes for a few species. However, local impacts could, under certain circumstances, be high depending on the location and time of year in which the spill occurred.

***Marine Mammals*** —Underwater noise is expected to be the most prevalent potential impact associated with exploration, development, and production. However, all acoustic impacts are expected to be sublethal and non-debilitating. Vessel and aircraft traffic are expected to result in occasional startle reactions and avoidance responses. A limited number of probable lethal collisions between vessels and endangered whales could occur. However, no collisions would be anticipated between vessels and the smaller cetaceans occurring on the Atlantic OCS. Potential impacts related to oil spills could include skin, respiratory, and digestive problems but are expected to be sublethal and nondebilitating, and a relatively low number of spills are estimated. Other than measurable impacts to the extremely endangered right whale population if any individual is killed, such as in the event of a lethal vessel collision, no changes in population size, distribution, or behavior are expected from the proposed action.

***Population, Employment and Income*** — The necessary expertise in development and production of oil and gas does not exist in the Hampton Roads area. Workers with these skills will have to be imported from other areas where offshore drilling is already being done. However, there is a large labor pool in the Hampton Roads area, including workers skilled in construction and maritime trades. These workers could provide support services in the drilling and pipe-laying phases, as well as in the construction of needed onshore facilities such as the service base, gas processing facility, and pipe coating yard. Any increase in population as a result of development and production is not expected to have a significant impact on the housing market or on the economy. Depending on the location, a large spill could affect the recreation, tourism, commercial fishing, and cruise ship economies, and it could also have a possible negative effect on the real estate market, resulting in temporary losses of jobs and income.

***Seafloor Habitats*** — During the development and production stages, there would be some unavoidable localized, benthic population reductions due to changes in sediment characteristics from the discharge of drilling muds and cuttings and from the ingestion of spilled oil in sediment by benthic organisms. These effects would be most pronounced in areas of high biological

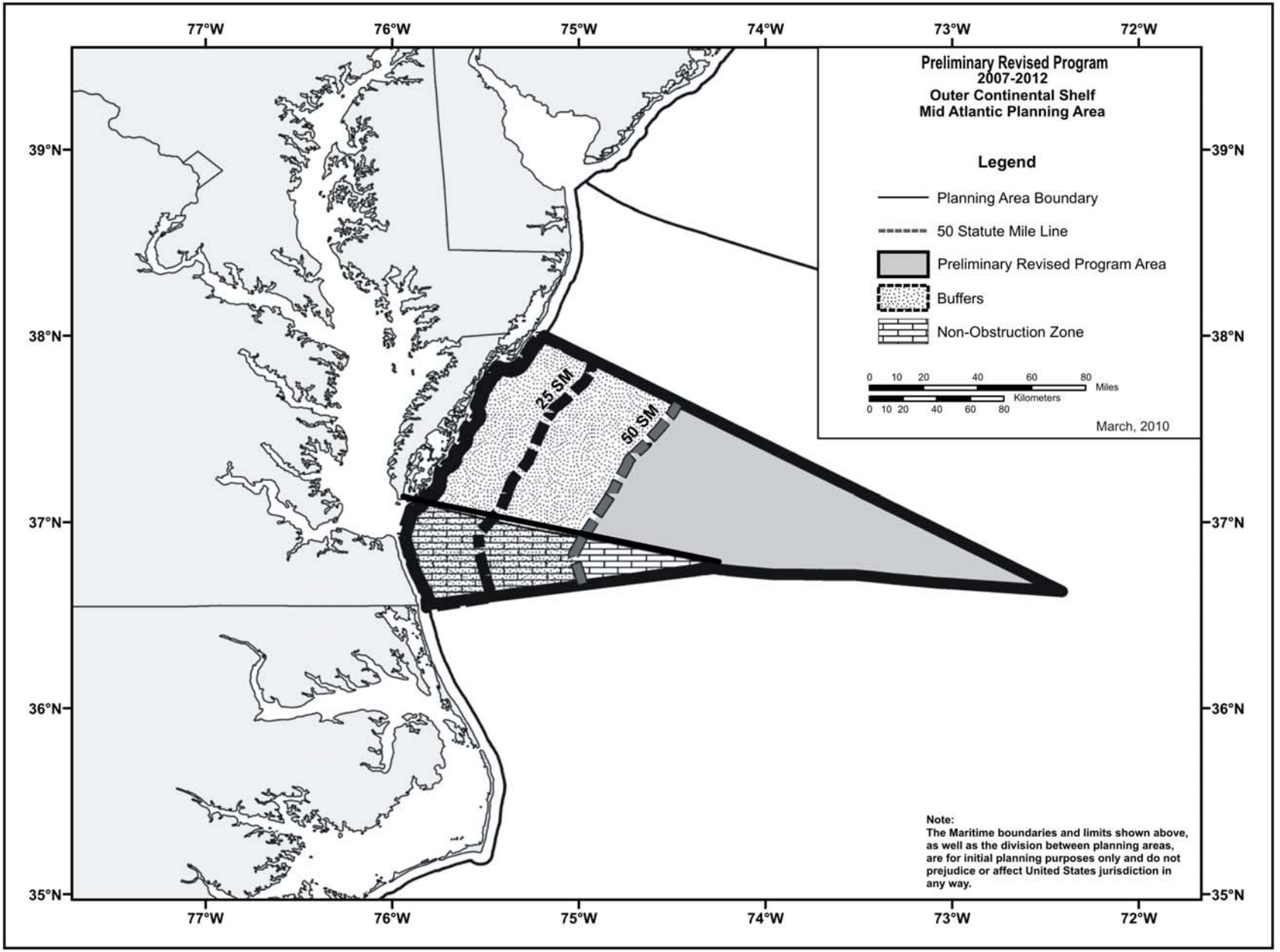
productivity and increased ecological sensitivity, such as nearshore areas; hard bottoms, including reef structures and artificial obstructions; and the heads of submarine canyons. However, the large area and the extensive timeframe during which activities would likely occur should result in small, if any, adverse impacts to the environment.

***Sea Turtles*** —Exploration, development, and production activities are not expected to measurably affect the populations of marine turtles. The generally inshore distribution of these animals, as well as their seasonal geographical distribution on the Atlantic OCS, substantially reduces the potential for impacts stemming from routine oil and gas activities offshore. Other than collisions with vessels and accidental oil spills, potential impacts are expected to be sublethal. A large oil spill could result in more measurable impacts and possibly affect sea turtle populations in the area.

***Sociocultural Systems and Environmental Justice*** — A wider range of activities would occur during development than during exploration. While most would occur in industrial-port areas and have limited sociocultural effects, some, such as pipeline landfalls, might occur outside of these areas. Because of the level of population diversity in the Hampton Roads area, opportunities for work would not be constrained by race or ethnic background and would probably not have a disparate impact on minorities or low-income families. Likewise, if a large oil spill occurred in the area, it probably would not have a disparate impact on minorities or low-income families.

***Tourism and Recreation*** — Routine activities associated with oil and gas exploration, development, and production may result in visual, natural, and branding impacts on tourism and recreation. Except in extreme circumstances, impacts are expected to be small or temporary. An oil spill could result in temporary beach closures.

***Water Quality*** — The overall impacts associated with development and production activities on marine water quality would be localized, short to medium term, and would most likely not result in long-term degradation to local water-quality conditions. These impacts would be unavoidable and primarily generated from drilling activities, platform installation and operation, and the routine discharges from support vessels and helicopters. Compliance with NPDES permit requirements would minimize or prevent most impacts to receiving waters caused by discharges from routine activities. Water quality would recover when discharges ceased because of dilution, settling, and mixing. Impacts of accidental releases to water quality would depend on the size of the spill, type of material or product spilled, and environmental factors at the time of the spill. However, there would be no long-term, widespread impairment of marine water quality.




*Map 7: Shows the Mid-Atlantic Program Area*

***Option 2 (Proposed Program with 50-Mile Buffer and No-Obstruction Zone (1 Special Interest Sale))***

**Valuation**. The net benefits of anticipated production from this PFP area would be $340 million, the same as Option 1, as the vast majority of the economic resource potential is located beyond 50 miles from shore and outside the no-obstruction zone.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternative 1, which would offer the entire area off Virginia; Alternative 6, which analyzes the impacts of the no-obstruction zone off the mouth of the Chesapeake Bay; and Alternative 9, which defers a 50-mile buffer area from leasing consideration. The impacts of the 50-mile buffer area are discussed below. See the discussion of EIS findings for Alternatives 1 and 6 under Option 1 above.

By choosing to defer the blocks within 50 miles of the coast, the risk of collisions between vessels and marine mammals, including the right whale, would still exist, although possibly be reduced because of increased helicopter usage for the longer distances offshore. The potential for adverse impacts to coastal areas from oil spills would be reduced. While the risk of an oil spill from a gas platform is slight, a large oil spill could occur. However, impacts to the coast would be unlikely due to the distance from shore.

***Option 3 (No Sale)***

**Valuation**. The net benefits of production would be zero as no activity would take place.

**Environmental Impacts**. This option is analyzed in the final EIS under Alternative 4, which excludes this planning area only, and Alternative 10, the No Sale alternative for all areas. A summary of EIS findings follows.

There would be no activity in the Mid-Atlantic area. The small amount of hydrocarbons estimated to be produced would have to be replaced by increased domestic production or increased imports; therefore, environmental impacts would occur elsewhere. Only a small level of activity and production was estimated to occur as a result of including the area off Virginia; therefore, the level of impacts that would not occur without a sale and resulting activity would be small as well. No activity would eliminate the unlikely possibility of a collision with an endangered right whale by a vessel used in support, but could increase the likelihood of spills associated with tanker imports.

***B. Fair Market Value Options***

**Introduction**

Relevant considerations for formulating and selecting options to assure receipt of fair market value for OCS leases and the rights they convey are discussed below. The full range of options available for the Secretary's consideration in deciding on a PFP for 2007-2012 is presented. A brief analysis of fair market value provisions is presented in part IV.

**Proposed Final Program Decision**

The PFP decision was to set minimum bid levels by individual lease sale based on market conditions and for continuing use of a two-phase postsale bid evaluation process that has been in effect, with modifications, since 1983 to meet this requirement.

A detailed description of the existing procedures for assuring the receipt of fair market value is presented in a *Federal Register* notice (64 *FR* 37560) that was published on July 12, 1999. Another source for information about fair market value procedures is *Summary of Procedures for Determining Bid Adequacy at Offshore Oil and Gas Lease Sales: Effective July 1999, with Sale 174* (available on the internet at *www.gomr.mms.gov.homepg/lsesale/fmv).*

## Preliminary Revised Program Options

The MMS analysis of fair market value issues is an ongoing process, **and no new options are included for consideration in this PRP.** Changes in the approach for determining the minimum bid level in combination with other policy changes might be considered in subsequent sale-specific documents. Also, as in previous 5-year programs, modifications may be made to the bid adequacy procedures to incorporate knowledge gained from their use in lease sales or in the event the basic underlying lease sale process changes.

**Options**

**X** (1) Proposal as in the PFP: Set minimum bid levels by individual lease sale based on market conditions and continue use of a two-phase postsale bid evaluation process; and

___ (2) Minimum bid levels could be specified that would apply to all sales held during the 2007-2012 program. However, this option would remove the flexibility to set minimum bid levels based on changing market conditions or to adjust those levels to conditions unique to specific program areas.

*For the OCSLA section 18 analyses, the Court remanded only section 18(g) of the environmental sensitivity analysis for revision. Therefore, much of the text of this document is repetitive of the April 2007 Proposed Final Program (PFP) document, as approved on June 29, 2007. New text is shown in a larger font to distinguish it from the text retained from the 2007 PFP document. Note that some text from the PFP has been rewritten or deleted as appropriate to reflect this revised decision. All references in this document to "comments" refer to those comments submitted in response to the August 2006 Proposed Program. Any specific references in the PRP to the FEIS or other parts of the record are intended to be illustrative rather than exhaustive. : There are several references in the OCSLA section 18 analyses on the Presidential withdrawal and Congressional moratoria that were in place at the time the analyses were conducted. The Presidential withdrawal was lifted on July 14, 2008, and the Congressional moratoria discontinued as of October 1, 2008, but the relevant text remains unchanged from the April 2007 PFP.*

## IV. PROGRAM ANALYSES

# A. Analysis of Energy Needs

### Introduction

Section 18 of the OCS Lands Act requires the Secretary to formulate an OCS leasing program to "best meet national energy needs for the five-year period following its approval or re-approval" [§ 18(a)]. In formulating the program, the Secretary must consider "the location of such [OCS oil- and gas-bearing] regions with respect to, and the relative needs of, regional and national energy markets" [§ 18(a)(2)(C)]. The long lead times that are involved in OCS oil and gas leasing and permitting of exploration, development, and production activities, along with the extended life of oil and gas projects, dictate that the analysis of energy needs look at projections for a period that extends far beyond the end of the 5-year schedule of sales in the proposed final program. The U.S. Energy Information Administration (EIA) carries its forecasts to 2030, using 2005 as a base year, so that is the period that is used in this analysis.

### Forecast of National Energy Needs

Petroleum and natural gas currently supply almost 65 percent of the Nation's energy needs. Furthermore, the EIA forecasts that the Nation is poised to become even more dependent on oil and natural gas in the next two decades. The EIA projections, shown in Table 1 below, indicate that while the *share* of energy obtained from other sources is likely to increase slightly, the actual *amount* of oil and gas needed to meet the Nation's energy needs is expected to grow 25 percent by 2030.

***TABLE 1: U.S. Energy Consumption (quadrillion Btu)***

| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| **Liquid Fuels and Other Petroleum** | 40.61 (40.5%) | 41.76 (39.2%) | 44.26 (39.4%) | 46.52 (39.4%) | 49.05 (39.4%) | 52.17 (39.8%) |
| **Natural Gas** | 22.63 (22.6%) | 24.73 (23.2%) | 26.07 (23.2%) | 27.04 (22.9%) | 27.08 (21.8%) | 26.89 (20.5%) |
| **Other** | 36.95 (36.9%) | 40.00 (37.6%) | 41.94 (37.4%) | 44.61 (37.7%) | 48.26 (38.8%) | 52.10 (39.7%) |
| **Total** | 100.19 | 106.50 | 112.28 | 118.16 | 124.39 | 131.16 |

Sources: EIA *Annual Energy Outlook 2007 with Projections to 2030*, Table 1, February 2007, DOE/EIA-0383(2007).
Note: Numbers in parentheses are percentages of total. Numbers may not sum properly due to rounding.

As the Nation continues to move towards even greater reliance on oil and natural gas to meet its energy needs, Federal lands can play a central and increasing role in contributing to the domestic oil and natural gas supply. For remaining U.S. technically recoverable oil and natural gas resources, U.S. Geologic Survey estimates for Federal onshore and state offshore lands and MMS estimates for Federal offshore lands indicate that most of the Nation's remaining resources lie on Federal lands. As discussed below, there is a clear need for a continued high level of leasing activity for oil and gas in the Gulf of Mexico, the primary OCS region currently available for energy production and development activities, to meet the nation's oil and natural gas needs and to reduce dependence on imported energy. Increased exploration and new production from frontier areas such as those off Alaska and the Atlantic coast also could reduce our dependence on imported energy.

Table 2 summarizes EIA's forecast of U.S. crude oil production from 2005 to 2030.[26] It shows projected Gulf of Mexico crude production in Federal waters increasing from 1.19 million barrels per day in 2005 to 2.22 million barrels per day by 2015 and then declining by 4-7 percent from that peak through 2030. Just as important is a predicted decline of other domestic production after 2005. As a result, the share of domestic oil production coming from Gulf of Mexico Federal waters is expected to increase by almost 15 percentage points within 10 years. From a national energy and economic security standpoint, the Gulf's production takes on even greater importance as the U.S. tries to maintain domestic oil supplies as a hedge against rising imports of both crude oil and refined products—which are projected to increase considerably over the period studied. [27]

[26] Despite the production disruptions caused by hurricanes Katrina and Rita in 2005, MMS is using 2005 as the base year because it represents the last full year of reported production data and it is the base year for the forecasts in Annual Energy Outlook 2007. Using this artificially low base year does not change the expected trends for OCS oil and gas production, but it does exaggerate the increase in overall domestic production over the 25-year forecast period.

[27] While oil prices are set on the world market, making it difficult to insulate the nation's economy from long-term price changes, maintaining secure supplies of petroleum can help avoid temporary price and supply disruptions (or threats thereof), and consuming domestic supplies limits the amount of dollars sent overseas, reducing the balance of payments deficit.

***TABLE 2: U.S. Crude Oil Production (million barrels of oil per day)***

| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| **Gulf of Mexico OCS** | 1.19 (23.0%) | 1.90 (33.5%) | 2.22 (37.5%) | 2.11 (35.7%) | 2.07 (37.1%) | 2.12 (39.3%) |
| **Other U.S. Production** | 3.99 (77.0%) | 3.77 (66.5%) | 3.69 (62.5%) | 3.79 (64.3%) | 3.51 (62.9%) | 3.27 (60.7%) |
| **Total** | 5.18 | 5.67 | 5.91 | 5.89 | 5.58 | 5.39 |

Source: EIA Annual Energy Outlook 2007, Table A11, February 2007, and Annual Energy Outlook 2007 National Energy Modeling System run AEO2007.D112106A (performed specifically for MMS).
Note: Numbers in parentheses are percentages of total.

Table 3 summarizes EIA's forecast of U.S. natural gas production from 2005 to 2030. It shows projected Gulf of Mexico gas production increasing to 4.3 trillion cubic feet in 2015, then decreasing through 2030. While production from other supply regions is expected to grow over the next two decades, Gulf production will continue to be an important and stable source of natural gas for the Nation. Offshore natural gas production is projected to spike in the mid-2010s due to the expected development of several deepwater fields, including Mad Dog, Entrada, and Thunder Horse.

***TABLE 3: U.S. Natural Gas Production (trillion cubic feet of gas per year)***

| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| **Gulf of Mexico** | 2.97 (16.3%) | 3.60 (18.6%) | 4.29 (21.9%) | 3.83 (18.4%) | 3.29 (16.0%) | 3.00 (14.6%) |
| **Other** | 15.25 (81.6%) | 15.75 (80.0%) | 15.31 (76.8%) | 16.97 (80.4%) | 17.30 (82.9%) | 17.53 (84.3%) |
| **Total** | 18.23 | 19.35 | 19.60 | 20.79 | 20.59 | 20.53 |

Source: EIA Annual Energy Outlook 2007, Table A13, February 2007, and Annual Energy Outlook 2007 National Energy Modeling System run AEO2007.D112106A (performed specifically for MMS).
Note: Numbers in parentheses are percentages of total. Numbers may not sum to Total due to rounding.

The *Annual Energy Outlook (AEO) 2007* forecasts increases in domestic energy production, energy imports, and energy consumption over the next 25 years. While there are many factors that simultaneously affect such forecasts, the primary engine behind the projected increase in this production-consumption gap are assumptions about economic growth. The average annual growth rate for the U.S. economy projected in *AEO 2007* is 2.9 percent of real (inflation-adjusted) gross domestic product (GDP). Although the *AEO 2007* forecast of the ratio of final energy expenditures to GDP represents an average annual decline of 1.8 percent, this forecast does not indicate the expectation that domestic energy consumption will decrease but rather that growth in consumption is expected to be less than economic growth over the long term. World oil demand is projected to increase as a result of strong demand in developing economies; therefore, the average price of imported crude oil is projected to increase from $49.19 in 2005 to about $51.63 (in 2005 dollars per barrel) in 2030. The price of imported oil in 2006 was, unexpectedly, much higher than the EIA projection for 2030. And if price levels remain at, or exceed, current high levels, they may depress economic growth, which could also slow the growth of energy consumption.

Petroleum demand is projected to grow from 20.75 million barrels per day in 2005 to about 27 million barrels per day in 2030—an average rate of about 1.1 percent per year—led by growth in

the transportation sector, which accounts for more than two-thirds of U.S. petroleum consumption and is more than 97 percent reliant on liquid fuels. However, domestic crude oil production is projected eventually to decline below current normal levels[28] over the next 25 years. Projected production is higher in the earlier years of the forecast when projected prices are higher, contributing to lower production later.

U.S. natural gas production is projected to increase from 18.23 trillion cubic feet (Tcf) in 2005 to about 21 Tcf in 2020 before beginning a slow decline. The estimate of 20.59 Tcf of domestic natural gas production in 2025 reflects a progressively less optimistic forecast in each recent edition of the AEO. For example in AEO 2003, the first to forecast to 2025, the estimate for 2025 was 26.75 trillion cubic feet. The AEO 2007 estimates include Alaska natural gas, assumed to begin flowing through a new pipeline to be completed by 2015.[29] Net pipeline imports of natural gas, primarily from Canada, are projected to decline from 3.0 trillion cubic feet in 2005 to about 0.9 trillion cubic feet in 2030, due to reserve depletion effects and growing domestic demand in Canada. Net imports of liquefied natural gas (LNG) are expected to increase to 4.5 trillion cubic feet by 2030.

**Meeting Energy Needs**

*Contribution of OCS Oil and Gas*

The OCS leasing and development program continues to play a very important role in meeting our Nation's energy needs. Natural gas from the OCS supplies 15-20 percent of our domestic gas production. Offshore oil also accounts for more than 25 percent of our domestic oil production and that share is expected to increase to almost 40 percent in the next decade. According to *AE0 2007*, net petroleum imports met 60 percent of demand in 2005 and are expected to continue to meet 54-61 percent of demand through 2030, assuming that OCS oil production rises, and remains, above 2 million barrels per day. Production of oil and gas from the OCS directly reduces the amount of oil that must be imported from abroad, much of it from politically unstable regions, thereby lessening the threat to the U.S. economy posed by supply disruptions and higher prices.[30]

Natural gas production is roughly equal to oil production[31] on the OCS and is a clean burning, environmentally preferred source of energy for electricity generation. In addition to supplying energy, natural gas is used as a chemical feedstock and is converted into final products like

[28] Table 9 shows growth from 5.18 to 5.39 million barrels per day over the next 25 years (an average annual rate of 0.16 percent). However, this is due primarily to the artificially low base production number resulting from disruption caused by hurricanes Katrina and Rita. Production in 2004 was 5.47 million barrels a day.
[29] Note that MMS estimates of anticipated production from Alaska OCS areas in section IV.C assume that a pipeline will *not* be built that soon. However, to assure that non-comparable estimates are not introduced into this energy needs analysis, MMS has retained EIA assumptions underlying the data in this section.
[30] Because oil prices are set on the world market, domestic production cannot prevent most large swings in price. However, as demonstrated in the aftermath of Hurricanes Katrina and Rita, domestic production does influence prices faced by U.S. consumers, especially during times of crisis.
[31] If barrels of oil and cubic feet of natural gas produced on the OCS are converted to British Thermal Units, a standard measure of heat content used to allow comparisons of energy sources that are measured in incomparable units, natural gas accounts for about 55 percent of OCS production.

fertilizer, detergents, and glues. Natural gas consumption for electricity generation has increased significantly over the last decade as new generating capacity has been supplied by gas-fired plants. This increase in demand, as well as growing residential demand, raised concerns that the volumes of natural gas available from traditional sources, involving both domestic production and imports from Canada and Mexico, will have to increase dramatically to maintain adequate supplies in the future. The MMS report entitled, *Future Natural Gas Supply From the OCS*: *An Assessment of the Role of the OCS as Supplier of the Nation's Future Energy Needs (April 2000),* concluded that in 2020, Mexico will not be more than a minor supplier and that Canada's ability to export at the rate projected by EIA will depend heavily on future gas discovery and development on its eastern seaboard. Demand has not grown as sharply as expected in the first half of 2006, but it may grow considerably in the long term, and an especially hot summer or unusually cold winter could put pressure on the traditional sources of supply.

The Gulf of Mexico OCS is commonly cited as a major source for the additional gas production needed to meet expected demand, and its role could be relatively greater if other sources do not meet expectations. At EIA's Energy Outlook, Modeling, and Data Conference held in March 2007, a prominent energy economist warned that the U.S. was running out of places where natural gas resources were both abundant and allowed to be produced. As natural gas prices (an indicator of supply relative to demand) have remained fairly consistently above $5 per thousand cubic feet and peaked at three times that level since the end of 2004, several companies have applied for permits to build new terminals to gather and re-gasify imported LNG for the U.S. market. However, at the EIA conference, speakers who addressed the topic seemed to agree that the capacity for importing (re-gasification facilities) was likely to outstrip capacity for liquefying and exporting natural gas. In part because LNG can be shipped to the global markets that command the highest prices, it remains to be seen whether LNG will become a reliable, long-term source of natural gas sufficient to replace traditional sources during periods of high global demand.

Since 1995, oil production in the Gulf of Mexico has increased by about 35 percent. However, during the same period, deepwater Gulf production of oil has increased almost 500 percent, and gas production has increased more than 550 percent. Without this increase, declining overall domestic production in recent years would have been almost twice as severe. The trend of increasing deepwater production from the Gulf is attributable to the recent contribution of very large fields with high flow rates located in over 1,000 feet of water that have been discovered and developed using new technology. This trend is expected to continue.

*Alternatives to the Contribution of OCS Oil and Gas*

If no OCS oil and gas lease sales were held during the period to be covered by the new 5-year program, there would not be a reduction in the Nation's demand for energy equal to what would have been provided by the oil and gas resources anticipated to be discovered and produced as a result of those lease sales. Given increasing world demand for oil and gas, prices would be expected to rise over time should the Nation's supply be cut by an amount equal to production anticipated to result from the new 5-year program. The lack of a new program to succeed the current one would lead to some reduction in oil and gas consumed in the United States, but most of the forgone production would be replaced by other sources.

The MMS uses its Market Simulation Model to estimate the amount and percentage of alternative sources of energy the economy would adopt in the unlikely case a particular 5-year program were not approved and implemented. The Model is based on estimates of price elasticities of demand and supply and substitution effects. In this case, elasticity of demand is the extent to which consumers purchase less of a product when the price increases by a certain amount.

**Alternative Sources of Oil and Gas.** According to the research supporting the model, as shown in Table 4, oil lost from OCS production (should there be no 5-year OCS oil and gas program for 2007-2012) would be predominantly replaced by a substitution of supply sources and a small decrease in demand: 88 percent of OCS production would be replaced by increased imports, 3 percent by increased onshore production, 4 percent by increased switching to natural gas, and 5 percent by reduced consumption. Natural gas production lost from the OCS would be replaced as follows: 28 percent by increased onshore production, 39-40 percent by increased switching to oil, 16 percent by increased imports, and 16 percent by reduced consumption.

Table 4 shows the most important results of runs comparing the proposed final program to no action. In absolute terms, expectations would be for:

- onshore production to make up 300 million of the 12.1 billion barrels of OCS production lost;
- imports to account for 10.7 billion of the forgone barrels;
- consumption to decline by the equivalent of 600 million barrels and,
- switching to gas to account for the equivalent of 500 million barrels.

MarketSim deals with the oil and gas markets in isolation. In reality, if OCS production were curtailed, less OCS gas would lead to higher prices and more oil imports, more domestic onshore oil and gas production, and less overall consumption than the model shows.

*TABLE 4: Results of the No Action Alternative*

| Sector | % of OCS Production | Quantity Involved |
|---|---|---|
| **Oil** | | |
| OCS Production (BBO) | -100% | -12.1 |
| Onshore Production (BBO) | 3% | 0.3 |
| Imports (BBO) | 88% | 10.7 |
| Lower Consumption (BBOE) | 5% | 0.6 |
| Switch to Gas (BBOE) | 4% | 0.5 |
| **Gas** | | |
| OCS Production (TCFG) | -100% | -36.4 |
| Onshore Production (TCFG) | 28% | 10.3 |
| Imports (TCFG) | 16% | 5.9 |
| Lower Consumption (TCFGE) | 16% | 5.8 |
| Switch to Oil (TCFGE/BBOE) | 39% | 14.3/2.5 |
| Induced Oil Imports (BBO) | NA | 2.2 |

BBO = billion barrels of oil, BBOE = the Btu equivalent of billion barrels of oil, TCFG = trillion cubic feet of natural gas, TCFGE = the Btu equivalent of trillion cubic feet of natural gas.
Numbers may not sum properly due to rounding.

All these amounts would substitute for the 12.1 billion barrels of oil (BBO) lost through no action. The distribution of conservation and switching to gas by sector depends on the amount of consumption in each sector and the price elasticities of demand in each sector. Transportation accounted for 67 percent and industrial consumption 24 percent of U.S. oil use in 2005. Residential and commercial consumption accounted for about 6 percent (*AEO 2007*).

Other forms of energy cannot readily substitute for most of this oil in the near term. In the U.S. transportation sector, a consumption decline would probably involve a reduction in miles traveled, the purchase of more fuel-efficient cars, or both. Most energy projections indicate relatively little alternative fuel, such as ethanol, entering the transportation sector for many years. However, ethanol consumption in the transportation sector increased 350 percent from 1996 to 2005, and automobile companies have unveiled and/or announced plans for new gasoline-electric hybrid vehicles as they have gained popularity with customers. Significant additional fuel substitution in response to the relatively small price increase implied by the model would be unlikely. In addition to the modest price increase associated with these scenarios, the costs of replacing the present transportation fuel infrastructure further hinders efforts to extend the use of alternative transportation fuels. On the other hand, if the current forces affecting supply and demand for oil and gas turn out to be indicative of the future, the loss of supply equivalent to

anticipated production from the proposed final program is likely to have a greater effect on prices than previously thought.

In the industrial sector, most uses for which there exists a ready substitute for oil have already converted to the substitute. Many industrial uses such as for products like asphalt and lube oils have few comparable substitutes. Oil use in the residential and commercial sectors is forecast to occur principally at locations without access to natural gas, so little fuel substitution can be expected.

The only applications where significant substitution is likely within a few years are industrial heat and steam and electricity generation. The degree of substitution in these sectors depends on whether oil is competing directly with gas for market share. In the recent past, natural gas and oil did not compete in the boiler market because gas was significantly cheaper on a price per thermal unit basis. Recently, when gas prices rose past the level of oil prices in these sectors, only a modest amount of fuel switching took place. Because of gas' greater efficiency, environmental superiority, and limitations to fuel switching in contemporaneous high efficiency plants, only moderate switching will likely occur unless gas prices rise significantly higher than oil prices on a thermal basis.

Table 4 also reveals that for OCS gas not produced because of no action, MMS anticipates the following results in absolute terms that would substitute for the 36.4 trillion cubic feet of OCS natural gas lost through lack of OCS production that would be anticipated as the result of a new 5-year program:

- 10.3 Tcf of additional onshore gas production;
- 5.9 Tcf of additional gas imports (mostly from Canada);
- reduced consumption equivalent to 5.8 Tcf of gas; and,
- switching to oil equivalent to 14.3 Tcf of gas.

As a result of no action, an additional 12.9 billion barrels of oil (BBO) would have to be imported by the U.S, 10.7 BBO to replace forgone oil production and 2.2 BBO to replace forgone natural gas production.

A detailed discussion of the model and alternative sources of energy is given in the draft document *Energy Alternatives and the Environment, 2007-2012 (OCS Study MMS 2007-016).* The final version should be available in June 2007. (This updates the previous analysis written for the 5-year program for 2002-2007, published under the same name, MMS 2001-096.)

Many alternative sources will contribute to the U.S. energy future. This prediction is buoyed by the fact that the President signed the Energy Policy Act of 2005 into law. That Act grants the Department of the Interior new responsibilities for renewable energy projects and other alternative uses of the U.S. OCS. Section 388 of that Act gives the Secretary, through MMS, the authority to: (1) grant leases, easements, or right-of-ways for renewable energy-related uses on Federal OCS lands, (2) act as a lead agency for coordinating the permitting process with other

Federal agencies, and (3) monitor and regulate those facilities used for renewable energy production and energy support services.

On December 30, 2005, MMS published an advanced notice of proposed rulemaking in the *Federal Register* (70 FR 77345) as the first step to promulgating rules and implementing the type of program authorized by the Energy Policy Act. However, alternative energy technologies deployed in the OCS are not expected to make a significant contribution over the next 10 to 15 years.

The Federal or state governments might use taxes, subsidies, or specific measures, like requiring non-gasoline powered vehicles, to encourage or mandate a different mix of energy alternatives than the market would choose. Such government actions would most likely be directed at vehicle or electric generating plant fuels and fuel consumption. Any of these measures favoring a particular energy alternative probably would have important environmental consequences, some of which might be negative.

**Regional Energy Considerations**

For 2004, the following table shows proportional petroleum and natural gas production and consumption by Census Division in the United States. It also shows total energy consumption as a percentage of total U.S. energy consumption for each Census Division.

*TABLE 5: Proportional Petroleum and Natural Gas Production and Consumption by Census Division* in 2005*

| Census Division** | Production (MBBLS; MMCF) | | Consumption (MBBLS; MMCF) | | Total Energy Consumption (BTU basis) |
|---|---|---|---|---|---|
| | Crude Oil % of U.S. total | Natural Gas % of U.S. total | Petroleum*** % of U.S. total | Natural Gas % of U.S. total | % of U.S. total |
| **New England** | 0.00 | 0.00 | 5.72 | 3.43 | 5 |
| **Middle Atlantic** | 0.22 | 1.18 | 9.35 | 11.03 | 10 |
| **East North Central** | 1.22 | 1.84 | 12.37 | 16.41 | 14 |
| **West North Central** | 3.89 | 2.28 | 8.89 | 6.06 | 8 |
| **South Atlantic** | 0.22 | 1.63 | 20.35 | 10.29 | 16 |
| **East South Central** | 1.50 | 2.35 | 7.98 | 5.03 | 7 |
| **West South Central** | 28.13 | 44.39 | 10.87 | 25.68 | 17 |
| **Federal GOM** | 24.75 | 16.62 | 0 | 0.35 | 0 |
| **Mountain** | 9.79 | 25.47 | 7.08 | 7.43 | 7 |
| **Pacific** | 28.87 | 4.25 | 17.40 | 14.28 | 16 |
| **Federal CA** | 1.40 | 0 | 0 | 0 | 0 |

*Federal Offshore Production (GOM and CA) is included separately below the corresponding divisions.
** The nine census divisions are as follows:
New England – Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont
Middle Atlantic – New Jersey, New York, and Pennsylvania
East North Central – Illinois, Indiana, Michigan, Ohio, and Wisconsin
West North Central – Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota
South Atlantic – Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia
East South Central – Alabama, Kentucky, Mississippi, and Tennessee
West South Central – Arkansas, Louisiana, Oklahoma, and Texas
Mountain – Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming
Pacific – Alaska, California, Hawaii, Oregon, and Washington
*** This includes all petroleum-related products except natural gas.
Table 5 Sources:

- "Crude Oil Production" – http://tonto.eia.doe.gov/dnav/pet/pet_crd_crpdn_adc_mbbl_a.htm, October 2, 2006
- "Petroleum Overview, Selected Years, 1949-2005" – http://www.eia.doe.gov/emeu/saer/pdf/pages/sec5_5.pdf
- "Energy Consumption Estimates for Major Energy Sources in Physical units, 2003" - http://www.eia.doe.gov/emeu/states/sep_sum/html/pdf/sum_use_tot.pdf
- EIA Monthly Energy Review (MER) – Thermal Conversion Factors, Tables A3 and A4, http://www.eia.doe.gov/emeu/mer/append_a.html
- Natural Gas Annual 2004, Table 3 and Table 15 - http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/natural_gas_annual/nga.html, November 16, 2006

Table 5 compares regions of the country regarding oil and gas production and consumption. One general theme is that the western part of the U.S. produces more hydrocarbons than it consumes while the opposite is true for the eastern U.S. However, much of the oil production in the Pacific comes from Alaska, skewing the results there. The West South Central Census Division (Arkansas, Louisiana, Oklahoma, and Texas) produces more oil and gas than any other Census Division in the country. It also consumes as much energy as each of the other top two consuming districts.

### Summary

The Nation's current energy situation is similar to the situations faced during the preparation of previous 5-year programs. Domestic petroleum production is continuing to decline and imports are continuing to increase. The *AEO 2007* and forecasts by the National Petroleum Council and others project that domestic consumption over the next 5 years and beyond will increase substantially. While alternative sources are expected to contribute a growing portion of the Nation's domestic energy production, no new technology is forecast to make a paradigm-shifting contribution to domestic energy production in the next 15 years. Crude oil and natural gas are expected to provide the lion's share of the Nation's energy for the foreseeable future. The OCS is one of the largest suppliers of crude oil for the United States, and is the third largest supplier of natural gas, after Texas and Alaska. Without the huge increase in deepwater oil and gas production from the Gulf of Mexico OCS since 1995, the recent decline in domestic production would have been twice as severe. The Nation's current and projected energy situation will require continued leasing, exploration, and development of OCS lands in an environmentally sound manner.

## B. Analysis of Environmental Concerns

### Introduction

The Act, as amended, includes provisions for considering environmental protection in managing the Nation's offshore oil and gas resources. The law's amendments contain policies pointing to the importance of applying safeguards to help limit the risks of environmental damage and of protecting the human, marine, and coastal environments. Section 18 of the Act, mandates that decisions on managing the mineral resources of the OCS strike a proper balance between the potential for discovery and development of oil and gas resources and the potential for adverse environmental impacts. It is therefore important in developing a 5-year program to solicit comments relating to environmental concerns, to consider and analyze carefully the comments received, and to make use of that information in the development of the EIS prepared for the program.

### Environmental Analyses

A final EIS for the 5-year program for 2007-2012 has been prepared to accompany this decision document for the Secretary's consideration. Preparation of the EIS began with publication of a Notice of Intent to Prepare an Environmental Impact Statement in the *Federal Register* (70 *FR*

*163*). That notice started the formal scoping process by calling for comments and information to be used to determine the scope of the planned EIS, and scoping continued through the close of the comment period on the draft proposed program. The draft EIS was prepared and issued with the proposed program. The final EIS accompanying this proposed final program has been analyzed, as well as the proposed leasing schedule in the Draft Proposed and Proposed Programs in the draft EIS, along with ten alternatives (see part III of this decision document and chapter 2 of the EIS for descriptions of the proposed action and alternatives). The potential environmental impacts that correspond to proposed and alternative lease sale options are summarized following each set of options presented in part III.

There is additional information relating to environmental concerns in the analyses of social costs, environmental sensitivity and marine productivity, and other uses of the OCS presented in part IV.C below. Also, much pertinent information is available in other documents cited and incorporated by reference.

## C. Comparative Analysis of OCS Planning Areas

This section presents the required comparative analysis of section 18 factors and considerations for the Proposed Final Program decision. The analyses address the section 18 criteria that lend themselves to quantification, as well as those that do not. Factors that are quantified to facilitate comparison among OCS program areas include social benefits and costs, and environmental sensitivity and marine productivity. The other factors are addressed more qualitatively. The comparative analysis also takes into account comments received, other considerations pursuant to the Act and NEPA, and applicable judicial opinions.

### 1. Social Value

***Introduction***

Prior to each 5-year program decision, MMS conducts a cost-benefit, or "net benefits," analysis of the social value of producing unleased, undiscovered OCS oil and gas resources in the areas being considered. This analysis examines the benefits to society associated with OCS oil and natural gas production commensurate with the accompanying costs. Because society would receive benefits from producing previously leased resources regardless of decisions made for the new program, only the net benefits from proposed *new* leasing are considered.

For the Draft Proposed Program decision documents, MMS provided a comparative analysis of all unleased, undiscovered oil and gas resources in all 26 “planning areas” comprising the OCS to obtain the required “relative ranking” of those planning areas. Consideration of this analysis and the various other factors outlined in section II, above, led to the “Draft Proposed Program for 2007-2012,” reflecting a decision that set the location and timing of a discrete number of specific lease sales in the most promising planning areas.

For the Proposed Program, MMS went beyond the relative ranking of planning areas and performed a “valuation of program alternatives” analysis, which provided estimates of net

benefits from anticipated production for each of the EIS alternatives[32] under which lease sales were proposed.[33] For this proposed final program net benefits analysis, MMS estimates and compares the net benefits attributable to each program area, as well as (in Table 6) the net benefits anticipated from each alternative.

***Estimates of Hydrocarbon Resources and Anticipated Production*:** Resource estimates from the 2006 National Assessment provide the basis for MMS's evaluation of planning areas. The National Assessment projects the undiscovered, technically and economically recoverable oil and natural gas resources on the U.S. OCS. The assessment considers recent geophysical, geological, technological, and economic information and uses a geologic play analysis approach to resource appraisal. A complete description of the methodology and results of resource estimation is available in the MMS report *Outer Continental Shelf Petroleum Assessment 2006*, which may be accessed on the internet at *www.mms.gov/revaldiv/RedNatAssessment.htm*.

The MMS Exploration, Development, and Production (EDP) Model combines National Assessment data with historical production, drilling, platform installation, and field discovery rate information to derive estimates of oil and gas activity levels and anticipated production from future discoveries for each program area. Anticipated production estimates provide the basis for valuation of the proposed final program and EIS analyses. Table 6 shows the latest anticipated production estimate, along with the resulting estimate of Net Economic Value, Environmental Costs, Net Social Value, Consumer Surplus Benefits, and Net Benefits, for each program area.

It should be noted that anticipated production differs from undiscovered technically and economically recoverable resource estimates in that anticipated production only includes oil and gas resources that are expected to be leased, developed, and produced as a result of a series of lease offerings in a new 5-year program or (for the cumulative case in the EIS) from the cumulative effect of all past, present, and future 5-year programs. Technically recoverable estimates are determined without consideration of economic conditions, such as resource prices relative to the costs of exploration, development, production, transportation, or technological constraints. Economically recoverable resource estimates will be lower, because they are limited by such economic conditions. Anticipated production excludes development activities that are unlikely to occur as a direct result of the proposal under consideration. In mature areas like the Gulf of Mexico, this means that anticipated production estimates amount to a larger proportion of the total economically recoverable resources in the program area. However, in frontier areas, infrastructure constraints may substantially reduce anticipated production in a foreseeable time frame. For example, the 2006 National Assessment reports mean undiscovered, technically recoverable natural gas resources of 76.77 Tcf for the Chukchi Sea province and potentially economically recoverable resources of 7.91 Tcf at $6.69 per Mcf (assuming a gas transportation system is available). Despite this large natural gas resource potential, Table 6 does not indicate any natural gas production in the Chukchi program area due to the lack of a transportation

[32] The decision documents for each stage of the 5-year program development process include decision options for each planning/program area. For the comparative analysis and the analysis leading to the environmental impact statement (EIS), these options are grouped into several program-wide "EIS alternatives," allowing the decision maker to better understand the overall effects of selecting similar options for individual planning/program areas.
[33] For the Proposed Program and the Proposed Final Program, MMS usually considers "program areas," rather than "planning areas." Program areas are those portions of planning areas considered for leasing, as shown in the maps near the beginning of this document.

system to carry the gas production to outside markets. MMS believes it is unlikely that a pipeline system will be operational and have capacity to transport large volumes of Chukchi gas until at least 2025. Therefore, the gas resources in Arctic OCS areas are considered "stranded" for the foreseeable future and are not anticipated to be produced as a result of this proposed final program.

***TABLE 6: Net Benefits for the Proposed Final Program***

| | Resources | | | Monetized Estimates | | | | |
|---|---|---|---|---|---|---|---|---|
| **Program Area** | **Oil (BBO)** | **Gas (Tcf)** | **BBOE** | **Net Economic Value** | **Envl. Cost** | **Net Social Value** | **Consumer Surplus Benefits** | **Net Benefits** |
| Central Gulf of Mexico | 5.604 | 23.707 | 9.822 | 87.66 | 0.3375 | 87.32 | 12.20 | 99.52 |
| Western Gulf of Mexico | 2.021 | 16.200 | 4.903 | 39.36 | 0.2733 | 39.09 | 5.35 | 44.44 |
| Cook Inlet | 0.200 | 0.200 | 0.236 | 1.11 | 0.0156 | 1.09 | 0.29 | 1.38 |
| Beaufort Sea | 1.000 | 0.000 | 1.000 | 5.33 | 0.0465 | 5.28 | 1.30 | 6.58 |
| Chukchi Sea | 1.000 | 0.000 | 1.000 | 3.79 | 0.0463 | 3.74 | 2.63 | 6.37 |
| North Aleutian Basin | 0.200 | 5.000 | 1.090 | 5.48 | 0.0129 | 5.47 | 2.23 | 7.70 |
| Mid-Atlantic | 0.056 | 0.327 | 0.114 | 0.20 | 0.0018 | 0.20 | 0.15 | 0.34 |

Oil estimates are expressed in billions of barrels (BBO); natural gas estimates are expressed in trillion cubic feet (Tcf); and estimates of resource totals are expressed in billions of barrels of oil equivalent (BBOE).
All dollar values represent net present value in billions of 2007 dollars.
The decrease in Net Economic Value and other monetized estimates for the Central GOM reflect a technical correction to the resource allocation among sales made after release of the proposed program.
Some Net Benefits estimates may differ slightly if calculated with the rounded numbers shown in this table.

### *Economic Analysis*

**Economic Assumptions.** The proposed final program is assumed to have a lifespan (leasing and subsequent exploration, development, and production) of approximately 40 years starting in July 2007. Given the uncertainty of future price levels, or the "price path," and other variables, the MMS uses a price scenario approach in which the inflation-adjusted, or "real," prices for oil and gas are assumed to remain constant throughout the time period considered for the analysis. This reduces the possible effects of incorrect price path forecasts on the value estimates and allows the decision maker to focus more clearly on comparative benefits.[34] MMS has chosen to base its estimates of anticipated production, exploration and development scenarios, and economic analysis on an oil price of $46 per barrel (bbl) and a natural gas wellhead price of $6.96 per mcf. While the oil price is below recent open market prices, MMS believes it to represent a realistic estimate of the kind of long-term price assumptions the oil and gas industry will be using for making its development decisions. In addition, an examination of previous OCS lease sales and activity levels (including the effects of infrastructure and capital equipment constraints) indicates

[34] Because MMS uses the common practice of discounting estimates of future costs and benefits to net present value, the timing of price increases or decreases, as well as the relative rates of price changes, could affect the Net Benefits values in ways that make it difficult for the decision maker to estimate the effects of alternate price assumptions.

that current prices have reached a point at which higher price levels are unlikely to have a major effect on activities that result from sales under this proposed final program. While lower prices could have an important effect on the results in Table 6, it is fairly easy to adjust an approved 5-year schedule to consequent reductions in industry interest. A real discount rate of 7 percent was chosen for the Proposed Final Program analysis.

For the Alaska OCS and the Atlantic OCS, where there is little or no development, the actual future benefits depend far more on the decisions of a handful of companies to be pioneers or to abandon plans for exploration and development. Absent major changes in price expectations, even rather large price variations may have little effect, because a company that has decided to take the huge risk of operating in the area is likely neither to initiate a minor project with little chance of ever paying for the necessary up-front investments in infrastructure nor to abandon that large early investment once it represents "sunk costs." Therefore, the Alaska estimates tend to be for levels that would result from fully dedicated efforts in frontier areas as opposed to those that might result from more conservative ventures.

Figure 1 summarizes the components of the MMS net benefit analysis. The methodology for the economic analysis and the additional assumptions required for the valuation of the proposed final program are described more fully in *Economic Analysis for the OCS 5-Year Program 2007-2012: Theory and Methodology* (OCS Study MMS 2007-017).

**Figure 1: Components of the Net Benefits Analysis**

**Available Undiscovered, Economically Recoverable Resources***
**x Assumed Price**
**= Gross Revenue**

**Gross Revenue**
**- Private Costs**
**= Net Economic Value (NEV)**

**NEV**
**- Environmental and Social Costs**
**= Net Social Value (Net Supply-Side Benefits)**

**Net Social Value**
**+ Consumer Surplus Benefits (Net Demand-Side Benefits)**
**= Net Benefits**

*The Proposed Final Program estimates are based on resources anticipated to be discovered, developed, and produced as a result of each EIS alternative.

**Estimates of Net Economic Value.** The net economic value of anticipated oil and gas production represents the net expected present (discounted) worth of oil and gas market values

less the discounted real cost of exploring, developing, producing, and transporting the resources to market. The net economic value estimates for each program area in the proposed final program are based on production and infrastructure projections appropriate for the schedule of sales for that specific program area. In addition, the number of wells, platforms, etc., (the exploration and development scenario) used in developing the net economic values are consistent with those used in the environmental cost analysis and in the EIS.

**Estimates of Environmental Costs.** The development and production of OCS oil and gas resources and the transportation of those resources to onshore facilities entail risk of damage to the environment. A serious risk of damage to the Nation's coastal environments is also posed when imported oil is used as an alternative to production of OCS oil and gas resources. The estimation of these risks and the costs associated with resulting environmental damages or the prevention of those damages is the focus of the environmental cost analysis.

Environmental costs are the costs to society not directly considered in the calculation of net economic value. More specifically, they are costs not reflected in the (private) exploration, development, production, and transportation costs associated with getting OCS oil and gas to market. Such costs are referred to as external costs because they are not factored into normal market transactions and are instead imposed, at least in part, on people other than those who produce or purchase the goods and services from which the costs arise. The environmental cost analysis includes estimates of only such costs that are judged to be readily and accurately quantifiable in monetary terms. The MMS uses the Offshore Environmental Cost Model to estimate environmental costs. This is a nine-sector model that uses data from the latest research to estimate the impact of typical activities associated with OCS production and typical OCS oil spills. Other social and environmental also consume costs that do not lend themselves to monetary quantification, while no less important, are examined in the 5-year program EIS.

**Net Social Value.** Net social value is a more or less complete estimate of net benefits on the supply side. In economic terms, net social value is a measure of net economic rent or net producer surplus from society's point of view.

**Consumer Surplus Benefits.** Economists refer to net demand-side benefits associated with a product, project, or program as consumer surplus. Consumer surplus is the difference between what consumers would be willing to pay for a service or product if they had to and the (lower) price actually charged. The availability of OCS oil and gas increases supply of those commodities on the market and thus lowers the price consumers must pay. Even if the per-unit price reduction is slight, the magnitude of OCS production leads to a large societal benefit. The MMS estimates of consumer surplus are calculated using the recently updated MarketSim model, which includes simultaneous equation system models for the international oil market and the domestic natural gas market.

**Total Net Benefits.** The sum of supply- and demand-side net benefits constitutes the total net benefits associated with available program area resources and the program alternatives. The estimated total net benefits of resources in currently available program areas form one of the bases for developing program options.

**Valuation of the Proposed Final Program.** There are two major changes reflected in the Proposed Final Program that affect program areas and anticipated production. The first is that, due to an out-of-court settlement of litigation with the State of Louisiana, MMS agreed to cancel Central Gulf Sale 201 under the current 5-year program, conduct additional study of the potential environmental effects of leasing in that area, and not offer Central Gulf acreage for lease until the new 5-year program is in place. Therefore, MMS has expanded the program area for Sale 205 to also include the acreage that would have been offered in Sale 201. A sizable amount of just-relinquished deep-water acreage[35] that would have been leased under the current program in Sale 201 will now be available for Sale 205 and should result in higher bid totals and more leased acreage under the new program than anticipated in the proposed program analysis. However, MMS does not expect eventual exploration and production to increase in proportion to available acreage, so anticipated production estimates were not increased appreciably. Companies are expected to continue to face severe capacity constraints (e.g., finding sufficient skilled labor and appropriate drilling rigs), especially for deep-water activities, limiting the potential benefits of accumulating large new chunks of leased acreage. The MMS expects the results of the change in Sale 205 primarily to be higher bids for prime acreage, rather than more leased acreage. Accordingly, any increases in production are likely to result largely from the availability of better prospects, not from the opportunity to lease more acreage. The second change is the passage of the Gulf of Mexico Energy Security Act of 2006, which will require a sale in the Eastern Gulf of Mexico, and will make available some deep-water acreage in later Central Gulf sales. Congress did not leave the size, timing, or location of the Eastern Gulf sale to the Secretary's discretion. Therefore, the sale is not undergoing section 18 analysis, and it is not included in these tables.

Table 6 shows the estimates of the components of the net benefit analysis for the available program areas in the proposed final program. Table 7 compares the total estimated net benefits for each of the EIS alternatives in the proposed final program.

[35] Sales 157 and 166 were the first two Central Gulf lease sales featuring royalty-free production volumes mandated by the Deep-Water Royalty Relief Act of 1995, and each sale set a new record for bidding activity. In part due to capacity constraints, much of the acreage leased in these sales was not developed. Undeveloped deep-water (10-year) leases from Sale 157 will be relinquished and re-offered in Sale 205, while–reflecting no change from the previous analysis–relinquished deep-water acreage from Sale 166 will be re-offered in Sale 206. (See http://www.gomr.mms.gov/homepg/lsesale/205/cgom205.html.)

***TABLE 7: Valuation (Net Benefits) of Program Alternatives***

[All figures in the table are in discounted billions of 2007 dollars]

| Program Areas | Net Economic Value | Environmental Costs | Net Social Value* | Consumer Surplus | Net Benefits* |
|---|---|---|---|---|---|
| Alternative 1 (Proposed Action) | $142.93 | $0.73 | $142.19 | $24.15 | $166.34 |
| Alternative 2 (Exclude North Aleutian Basin) | $137.45 | $0.72 | $136.72 | $21.94 | $158.66 |
| Alternative 3 (Exclude Cook Inlet) | $141.82 | $0.71 | $141.10 | $23.86 | $164.96 |
| Alternative 4 (Exclude Mid-Atlantic) | $142.73 | $0.73 | $141.99 | $24.00 | $165.99 |
| Alternative 5 (Defer Blocks within 25 Miles of Virginia and Chukchi Sea Coasts) | $142.93 | $0.73 | $142.19 | $24.15 | $166.34 |
| Alternative 6 (Exclude Blocks at Mouth of the Chesapeake Bay) | $142.93 | $0.73 | $142.19 | $24.15 | $166.34 |
| Alternative 7 (Limit Leasing in the North Aleutian Basin to Blocks Offered in Sale 92)** | $142.93 | $0.73 | $142.19 | $24.15 | $166.34 |
| Alternative 8 (Defer Blocks in the Beaufort Sea to Avoid Conflicts with Whaling)*** | $142.93 | $0.73 | $142.19 | $24.15 | $166.34 |
| Alternative 9 (Defer Blocks within 50 Miles of Virginia with Possible other Restrictions)*** | $142.93 | $0.73 | $142.19 | $24.15 | $166.34 |

All benefits and environmental costs are relative to Alternative 10 (the No Action alternative), the costs of which are primarily due to increased onshore production and oil imports, most of which would be transported to the United States by supertankers.

Although the changes inherent in Alternatives 5-9 could reduce available resources, given the location of likely exploration, development, and production activities, MMS believes that they probably would not reduce anticipated production and the resulting net benefits.

* Net Social Value and Net Benefits estimates in Table 7 were calculated using the numbers in Table 6. Due to slight rounding errors, a recalculation of these estimates using the aggregated numbers in Table 7 may not produce the exact NSV and Net Benefits numbers shown in the table.

** The Proposed Program decision differs from the Proposed Action in the EIS slightly in that the Secretary selected the program option reflected in Alternative 7. Although the approach throughout this document is to treat the proposed program decision as the base to which possible changes are offered as options or alternatives, MMS believes that the size of the North Aleutian Basin Program Area (beyond the Sale 92 area) would not affect eventual production and, therefore, Alternative 7 is retained "as is" to be consistent with the alternatives analyzed in the EIS. For an explanation of the difference between program options and EIS alternatives, see footnote to Introduction in this Social Value section, above.

*** Alternatives 8 and 9 are new and were not included in the proposed program analysis.

## 2. Environmental Sensitivity and Marine Productivity

### *a. Relative Environmental Sensitivity*

#### 1. Introduction

Unlike the original 2007-2012 relative environmental sensitivity analysis, which only considered sensitivity of the shoreline to oil spills, the following environmental sensitivity analysis considers sensitivity of the biological marine environment to multiple impact-producing factors, such as oil spills, sound and physical disturbance, and increased sensitivity due to climate change and ocean acidification. The results are summarized in Table 1 below. Because relatively small differences in total scores are not meaningful, this table presents the OCS planning areas grouped into four categories of relative sensitivity ranging from "most" to "least" sensitive to OCS oil and gas activities. Categorization of an OCS planning areas as "less" or "least" sensitive does not mean that environmental resources of that OCS planning area are not sensitive, but as a collection are found to be relatively less sensitive than other OCS planning areas to the types of impacts anticipated from OCS oil and gas activities. See section 5 for a detailed explanation of how these sensitivity groups were determined.

***TABLE 8: Grouping of OCS Planning Areas by Relative Environmental Sensitivity[1]***

| | |
|---|---|
| **Most Sensitive[1]** | Central Gulf of Mexico<br>Eastern Gulf of Mexico<br>Mid-Atlantic<br>South Atlantic |
| **More Sensitive[1]** | Beaufort Sea<br>Hope Basin<br>Norton Basin<br>St. Matthew Hall<br>Straits of Florida<br>Washington-Oregon<br>Western Gulf of Mexico |
| **Less Sensitive[1]** | Central California<br>Chukchi Sea<br>Cook Inlet<br>Gulf of Alaska<br>Kodiak<br>North Aleutian Basin<br>North Atlantic<br>Northern California<br>St. George Basin<br>Shumagin<br>Southern California |
| **Least Sensitive[1]** | Aleutian Arc<br>Aleutian Basin<br>Bowers Basin<br>Navarin Basin |

[1] OCS Planning Areas are listed in alphabetical order within each grouping.

2. Methodology

**Definitions**

The OCSLA and court opinions do not define relative environmental sensitivity, but defer to the Secretary's methodology "so long as it is not irrational."[36] For the purposes of this analysis, relative environmental sensitivity is defined as the vulnerability of an OCS planning area's ecological components (i.e., coastal habitats, marine habitats, marine fauna, and marine productivity) to the potential impacts of OCS oil and gas activities in comparison to the same ecological components in other OCS planning areas. This analysis also provides a discussion of the increased vulnerability of certain areas due to anticipated affects of global climate change.

Coastal and marine environmental resources in and adjacent to all 26 OCS planning areas were evaluated in this analysis. "Coastal" is defined as the coastline and boundaries of estuarine waters. "Marine" is defined as seaward of the shoreline, and includes both State and Federal waters.

**OCS Impact Factors Analyzed for Sensitivity**

This environmental analysis is based, in large part, on an evaluation of the sensitivity of various coastal and marine habitats and biota to accidentally spilled crude oil. Other relevant factors, such as sound generated by and physical disturbance from routine OCS oil and gas activities, were analyzed where appropriate or applicable. This analysis assumes these routine activities would be mitigated, to the extent possible, by measures in the form of lease stipulations, regulations, and laws to minimize impacts and protect marine resources. Monitoring and mitigation measures would be developed through consultation and coordination with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) as required by the Endangered Species Act of 1973 (ESA), Magnuson-Stevens Fishery Conservation and Management Act, and Marine Mammal Protection Act. Most recently, the USFWS issued a biological opinion on the proposed lease sales in the Beaufort and Chukchi Sea OCS Planning Areas, including associated seismic surveys (USFWS, 2009a). Biological opinions such as this identify Reasonable

[36] 43 U.S.C. §1344(a)(2)(G); *Watt I*, 668 F.2d 1290 (D.C. Cir. 1981); *Watt II*, 712 F. 2d 584 (D.C. Cir. 1983); *Center for Biological Diversity v. U.S. Department of the Interior* (D.C. Cir. No. 07-1247, decision April 17, 2009).

and Prudent Measures, Terms and Conditions, and/or Conservation Recommendations that can then be applied as lease stipulations.[37]

*Oil Spills*

One measure of relative environmental sensitivity is the sensitivity of the various ecological components to spilled crude oil. Unlike some assessments in the programmatic and sale-specific EIS's designed to estimate potential risks from proposed oil and gas leasing activities, this relative environmental sensitivity analysis does not consider risk, nor do the rankings for environmental sensitivity reflect potential risk. Analysis of the effects of oil and gas activities is left to programmatic, sale-specific, and site-specific reviews conducted pursuant to the NEPA. The programmatic final EIS accompanying this decision document describes the biological environments of the OCS regions in Chapter III and discusses the potential environmental consequences of OCS program activities in Chapter IV.

*Sound*

Another measure of relative environmental sensitivity is the sensitivity of marine fauna to sound, which was not considered in the original 2007-2012 relative environmental sensitivity analysis. Seismic surveys, drilling and production activities at OCS facilities, and support vessel traffic generate sound that could affect marine resources. This analysis assumes that monitoring and mitigation measures, such as the use of independently contracted protected species observers to monitor exclusion zones around the source vessels and shut down procedures when protected species are within the exclusion zone, would continue to be included as lease stipulations to minimize impacts from sound on marine resources. Such monitoring and mitigation measures would be developed through consultation and coordination with NMFS and USFWS as required by ESA, Magnuson-Stevens Fishery Conservation and Management Act, and Marine Mammal Protection Act.

*Physical Disturbance*

[37] For the Center for Biological Diversity v. U.S. Department of the Interior (D.C. Cir. No. 07-1247, decision April 17, 2009), the U.S. Court of Appeals for the District of Columbia Circuit held "graduated compliance with environmental and endangered life standards, [thereby making] ESA requirements more likely to be satisfied both in an ultimate and a proximate sense."

Another measure of relative environmental sensitivity is the sensitivity of various ecological components to physical disturbance, which was not considered in the original 2007-2012 relative environmental sensitivity analysis. Physical disturbance includes bottom disturbances from OCS platform and pipeline emplacements, as well as from anchors. This analysis assumes that MMS will continue to require site-specific surveys to assist in avoiding direct contact with marine habitats. However, unavoidable or accidental disturbances could result in physical destruction and burial of organisms and habitat.

**Habitats and Biota Analyzed**

Distribution, abundance, and/or environmental sensitivities of four ecological components within and/or on the adjacent coast of each OCS planning area are first evaluated based on their present condition. Thereafter, climate change effects projected to occur over the life of the program are considered in order to adjust for increased sensitivity to oil and gas activities. While this analysis continues to use NOAA's ESI data to analyze the sensitivity of shoreline (coastal) habitats, it does not use those data as a proxy for overall marine sensitivity, but separately considers the sensitivity of offshore (marine) resources. MMS has identified three relevant components of the various areas of the OCS (biological marine environment) that may be affected by oil and gas activities: marine habitats, marine productivity, and marine fauna (i.e., birds, fish, marine mammals and sea turtles).

This analysis is directed at the environmental sensitivity requirement under section 18(a)(2)(G) of OCSLA rather than considering the social value of these habitats and biota. The social value, such as subsistence or cultural use, is the analysis under section 18(2)(a)(D), which is in the 2007-2012 Final Program, July 2007. As an affecting factor, subsistence harvests include birds, fish and marine mammals in all coastal areas of Alaska and in some coastal locations in Washington, Oregon, and northern California. However, marine mammal harvests are managed by NMFS and USFWS within the potential biological removal of each stock. U.S. law prohibits any harvesting of sea turtles. Commercial fishing and recreational or subsistence harvests of fish and birds are managed within sustainable limits under existing laws and are reflected in the abundance levels of these resources in each OCS planning area. Subsistence harvests, in particular, represent a very small amount of the total annual

harvest. Therefore, subsistence harvest and other uses of the OCS are properly addressed as social values under section 18(2)(a)(D).

**Reports, Studies and Data Used**

Section 18 (a)(2)(A) of the OCSLA specifies that required analyses, including the relative environmental sensitivity analysis, shall be based on a consideration of existing information. The original 2007-2012 relative environmental sensitivity and marine productivity analysis relied on only two studies (CSA, 1990 and 1991) and one dataset (http://response.restoration.noaa.gov). In contrast, this revised analysis relies on almost 50 reports, studies, and datasets (see section 6). More than half of these references were not available when the original 2007-2012 relative environmental sensitivity analysis was prepared and first published as part of the Draft Proposed Program in April 2007.

**Qualifications**

To facilitate the scheduling of and preparation for sales in a 5-year program, the OCS is divided into 26 administrative geographical units called planning areas. These are areas, rather than ecoregions, for which decision on the size, timing and location of lease sales will be made. They do not necessarily correspond to ecosystem boundaries, and sometimes do not correspond to geographic areas with which the public is familiar. The Alaska OCS accounts for over half of the total acreage of the OCS. Because the Alaska OCS encompasses such a large area, it is divided into 15 of the 26 OCS planning areas. Many of these planning areas are not adjacent to coastal areas or include only portions of large geographic areas that are familiar to the public. These planning areas are named after the underlying geologic basins. For example, the Bering Sea is composed of eight full and partial OCS planning areas. The North Aleutian Basin OCS Planning Area is the eastern most OCS planning area in the Bering Sea. In another example, the Arctic Ocean north of Bering Strait includes the Arctic OCS, which is divided into three OCS planning areas: Beaufort Sea, Chukchi Sea, and Hope Basin. The U.S. Chukchi Sea south of Point Hope has been designated the Hope Basin Planning Area. See OCS planning area Maps 1 and 2 for the locations of the various OCS planning areas.

In this analysis, sensitivity is determined from the likely response of the resource to the environmental perturbation. Risk, likelihood of adverse impact,

and amount or size of disturbance is considered in the EIS. The 2007-2012, 5-Year Program Final EIS (USDOI, MMS, 2007), and several lease sale-specific environmental assessments and EIS's assess in detail the potential impacts from OCS activities.

## 3 Ecological Components

The relative environmental sensitivity ranking of OCS planning areas by ecological component is presented in Table 9 from most sensitive (1) to least sensitive (26) to OCS oil and gas activities. The rankings below are based on scoring of the OCS planning areas as described later in this section.

This analysis continues to use NOAA's ESI data to analyze the sensitivity of coastal habitats, thus indirectly including coastal fauna and productivity (see section 3.1). Unlike the original 2007-2012 relative environmental sensitivity analysis, this analysis also considers marine resources. However, there is not an equivalent dataset available for the biological marine environment, so this analysis has identified three components to the biological marine environment that may be affected by OCS oil and gas activities: marine habitats, marine productivity, and marine fauna (i.e., birds, fish, marine mammals and sea turtles).

The potential response of these four ecological components were considered and scored separately from the potential effects of oil and gas development. This analysis does not try to account for the interaction of these components in relation to each other, as this would involve a complex, ecosystem-level study, which is beyond the scope of this review.

***TABLE 9: Ranking of OCS Planning Areas by Relative Environmental Sensitivity from Most to Least Sensitive[1]***

| Coastal Habitats | Marine Habitats | Marine Fauna | Marine Productivity |
|---|---|---|---|
| South Atlantic | Eastern GOM | Southern California | Cook Inlet |
| Eastern GOM | Central California | Central California | South Atlantic |
| Mid-Atlantic | Washington-Oregon | North Atlantic | Norton Basin |
| Straits of Florida | Gulf of Alaska | Washington-Oregon | Hope Basin |
| Central GOM | Southern California | Gulf of Alaska | North Aleutian Basin |
| St. Matthew-Hall | Mid-Atlantic | Mid-Atlantic | St. Matthew-Hall |
| Western GOM | Beaufort Sea | Northern California | Navarin Basin |
| Hope Basin | Central GOM | Central GOM | Eastern GOM |
| Beaufort Sea | South Atlantic | South Atlantic | St. George Basin |
| Washington-Oregon | Western GOM | Eastern GOM | Central GOM |
| North Atlantic | Northern California | Kodiak | Shumagin |
| Norton Basin | Straits of Florida | Straits of Florida | Kodiak |
| North Aleutian Basin | North Atlantic | St. George Basin | Mid-Atlantic |
| Cook Inlet | Chukchi Sea | Aleutian Arc | Western GOM |
| Gulf of Alaska | Hope Basin | North Aleutian Basin | Gulf of Alaska |
| Kodiak | Bowers Basin | Western GOM | North Atlantic |
| Northern California | Kodiak | Shumagin | Northern California |
| Southern California | St. Matthew-Hall | St. Matthew-Hall | Aleutian Basin |
| Chukchi Sea | North Aleutian Basin | Norton Basin | Bowers Basin |
| Central California | St. George Basin | Cook Inlet | Straits of Florida |
| Shumagin | Navarin Basin | Chukchi Sea | Washington-Oregon |
| Aleutian Arc | Aleutian Basin | Hope Basin | Central California |
| St. George Basin | Shumagin | Navarin Basin | Southern California |
| Aleutian Basin | Aleutian Arc | Aleutian Basin | Chukchi Sea |
| Bowers Basin | Cook Inlet | Bowers Basin | Aleutian Arc |
| Navarin Basin | Norton Basin | Beaufort Sea | Beaufort Sea |

In the case of ties, OCS planning areas were listed in alphabetical order.

## 3.1 Coastal Habitats

Spilled oil is a major environmental risk from OCS oil and gas activities. Coastal environmental resources face the most significant environmental consequences from contact with spilled oil. Although the occurrence of an OCS oil spill that contacts the shoreline would be a rare event, its unlikely occurrence could result in widespread effects on biological resources over a large area. Direct contact to coastal biota and habitats could result in mortality, weakened populations and habitat degradation. Cleanup and restoration activities could result in further disruptions to fauna. Oil that persists in the environment after cleanup operations would continue to be re-released into the environment, causing effects over an extended period of time. Examples of the potential magnitude and duration of these effects have been documented in studies of major marine spills, such as EXXON Valdez (Peterson et al., 2003).

Concerns about oil spill impacts are reflected in the scoping information and public comments collected by MMS during the preparation of EIS's. Because oil spill effects are the major environmental concern when addressing coastal environments, this analysis uses the ESI database developed by NOAA to measure coastal relative environmental sensitivity. The ESI shoreline provides a systematic method for compiling standardized data to map shoreline sensitivity to spilled oil. Coastal states and other Federal agencies, including MMS, assisted in ESI development efforts and use ESI products. The ESI scoring approach has a strong scientific basis, and has been used for oil spill response planning for over three decades in the U.S. and overseas. The ESI shoreline database is complete for all coastal states with the exception of Washington, Oregon and Maine.

The ESI shoreline type classification uses standardized definitions of shoreline characteristics to assign the sensitivity rankings. The shoreline type classification is based on factors that include:

- Relative exposure to waves and tidal energy;
- Biological productivity and sensitivity of shoreline material;
- Substrate type (grain size, permeability, trafficability, and mobility);
- Shoreline slope;
- Ease of cleanup; and,
- Ease of restoration.

These factors determine how long the oil will persist in the shoreline environment and continue to cause potential environmental damage, how much damage may occur to the biologic properties of the shoreline substrate, and how much environmental damage may result from cleanup and restoration efforts. The sensitivity of many coastal biologic and socioeconomic resources to oil spills is determined to a large degree by these factors. Each shoreline segment is assigned an ESI score between 1 and 10 in order of increasing sensitivity to oil spill. Table 10 provides descriptive information about the types of shorelines associated with each score. Comparison of the standardized data over large areas reveals patterns in the distribution of the relative environmental sensitivity of coastal areas to oil spills. More information on the ESI shoreline can be found at http://response.restoration.noaa.gov.

***TABLE 10: ESI Scoring and Respective Descriptions***

| ESI Score | Description |
|---|---|
| 1 | Exposed rocky shores; Exposed, solid man-made structures |
| 2 | Exposed wave-cut platforms in bedrock, mud, or clay; Exposed scarps and steep slopes in clay |
| 3 | Fine to medium-grained sand beaches; Scarps and steep slopes in sand |
| 4 | Coarse-grained sand beaches |
| 5 | Mixed sand and gravel beaches |
| 6 | Gravel beaches; Riprap |
| 7 | Exposed tidal flats |
| 8 | Sheltered rocky shores and sheltered scarps in bedrock, mud, or clay |
| 9 | Sheltered tidal flats; Vegetated low banks |
| 10 | Salt/brackish-water marshes; Freshwater marshes/swamps; Scrub-shrub wetlands; Inundated tundra |

The shoreline analysis that follows is based on all the available digital ESI shoreline data from NOAA. This includes more recent data not incorporated in the previous analyses that were done for the 2002-2007 and 2007-2012 5-Year Programs. The total length of shoreline included in this analysis exceeds 130,000 miles. These ESI line data sets were aggregated or disaggregated as appropriate to represent respective planning areas. For some planning areas, incomplete data sets were used as the best available data to represent that

planning area. Each ESI value was weighted by the length of its line segment. An average rating for the OCS planning area was calculated based on the weighted average of the ESI for the coastal areas adjacent to the OCS planning area. Three OCS planning areas have no adjacent shoreline and are not assigned scores in this shoreline analysis.[38]

The results of this analysis are shown in Table 11, which lists the average ESI Shoreline scoring by OCS planning area in order of decreasing average ESI shoreline sensitivity rank. The table ranks OCS planning areas with the greatest amounts of sensitive shorelines, as reflected in high average ESI shoreline sensitivity rank, as being the most sensitive.[39]

A group of high scores at or near a score of 9.0 occur adjacent to the South Atlantic, Mid-Atlantic, the Straits of Florida, and the Eastern and Central Gulf of Mexico OCS Planning Areas, where extensive coastal lowlands made up of wetlands, swamps and other sensitive shorelines occur. The Aleutian Arc, St. George Basin, and other OCS planning areas along the Pacific and Alaska coasts have low average ESI sensitivity ranks because of the presence of exposed rocky shorelines.

The variation in ESI shoreline sensitivity rank used as a measure of coastal environmental sensitivity is the result of geographic variations in coastal geologic, biologic, and oceanographic characteristics that affect the degree to which oil accumulates and persists in coastal areas. T he actual presence or occurrence of specific biologic environmental resources is indirectly considered in the calculations, because accumulation and persistence of spilled oil would be the primary factors for determining impacts to these resources. The South Atlantic Planning Area has a high coastal sensitivity rank because oil will tend to accumulate, be difficult to clean, and persist in coastal and estuarine areas, causing widespread and relatively long-term effects on the collection of

---

[38] As shown on Table 11, the Aleutian Basin, Bowers Basin, and Navarin Basin OCS planning areas have no associated shoreline and were given a score of zero for the relative environmental sensitivity of coastal habitats. These three OCS planning areas rank relatively low for the three marine components of this analysis, see Table 9. Therefore, they would still be categorized as the "least" relatively sensitive based on marine factors alone.

[39] This method does not give extra weight to areas with smaller amounts of sensitive shoreline based upon a sensitive shoreline's rarity. While that kind of comparative analysis would be possible, it would require much more subjectivity and could undermine the agency's best efforts to create as objective an analysis as possible in comparing these greatly disparate areas. In addition, because persistence of oil, its penetration into shoreline substrate and the difficulty of cleanup are by far the most important factors in determining effects to shorelines and their inhabitants, the average sensitivity of an OCS planning area's shoreline is the best comparative tool for conducting the difficult analysis required.

environmental resources occupying the area during the impact period. A planning area bordered by a rocky coastline would have a lower sensitivity to oil spills because less oil would typically accumulate and the oil's presence in the environment would be relatively short-term. As a result the impacts on the affected environmental resources would be less severe than in a more sensitive area.

***TABLE 11: Relative Environmental Sensitivity of the OCS Planning Areas for Coastal Habitats***

| OCS Planning Area | Average ESI Score[1] |
|---|---|
| South Atlantic | 9.2 |
| Eastern Gulf of Mexico | 9.1 |
| Mid-Atlantic | 9.0 |
| Straits of Florida | 9.0 |
| Central Gulf of Mexico | 8.9 |
| St. Matthew-Hall | 8.1 |
| Western Gulf of Mexico | 7.6 |
| Hope Basin | 7.5 |
| Beaufort Sea | 7.4 |
| Washington-Oregon | 7.3 |
| North Atlantic | 7.0 |
| Norton Basin | 7.0 |
| North Aleutian Basin | 6.4 |
| Cook Inlet | 5.9 |
| Gulf of Alaska | 5.6 |
| Kodiak | 5.3 |
| Northern California | 5.2 |
| Southern California | 5.0 |
| Chukchi Sea | 4.9 |
| Central California | 4.3 |
| Shumagin | 4.3 |
| Aleutian Arc | 3.5 |
| St. George Basin | 3.5 |
| Aleutian Basin[2] | 0 |
| Bowers Basin[2] | 0 |
| Navarin Basin[2] | 0 |

[1] Higher scores indicate greater sensitivity to spilled oil.
[2] No shoreline associated with the OCS planning area.

## 3.2 Marine Habitats

Marine habitats are the arrangements of geologic, oceanographic, and biologic features of the ocean that combine in characteristic ways to create

environments favorable for the establishment, flourishing, and continued survival of the flora and fauna of marine and ecologically connected coastal areas. While marine habitats were not considered in the original 2007-2012 relative environmental sensitivity ranking of OCS planning areas, they are considered in this revised analysis in order to more fully account for the biological aspects of the marine environment.

Marine habitats, seaward of the shoreline, are divided into benthic or pelagic categories as shown in Table 12. Benthic marine habitats are attached to the seafloor. Some benthic features, such as kelp forest, can extend vertically from the seafloor upward to near the ocean surface, and downward, in the case of submarine canyons, over a thousand meters deep. Pelagic habitats occur within or at the surface of the ocean independent of the seafloor. Examples include drifting surface Sargassum vegetation that provides habitat for fish and marine reptiles, areas where dynamic ocean circulation processes result in high biological productivity, and sea ice. The analysis also includes the presence of officially designated federal marine critical habitats (USDOC, NOAA Fisheries, Office of Protected Resources, 2009a; and USFWS, 2009b) and marine sanctuaries (USDOC, NOAA, 2009) as a factor in marine habitat scores.

***TABLE 12: Examples of Marine Habitat Components***

| **Benthic** | | |
|---|---|---|
| **Marine Habitat Type** | **Example** | **OCS Planning Area** |
| Vegetated | Big Bend seagrass | Eastern Gulf of Mexico |
| Bottom Relief Features | Pinnacle trend | Central Gulf of Mexico |
| Coral Reef | Florida Keys | Straits of Florida |
| Deep/Cold Water Coral | Aleutian Islands Coral Gardens | Aleutian Arc |
| Seeps | Chemosynthetic communities | Western Gulf of Mexico |
| Canyons | Baltimore Canyon | Mid-Atlantic |
| **Pelagic** | | |
| **Marine Habitat Type** | **Example** | **OCS Planning Area** |
| Ice | Polynyas | Chukchi Sea |
| Vegetated | Floating Sargassum | South Atlantic |
| Oceanic Process | Ocean upwelling | Central California |
| **Designated Habitat/Sanctuary** | | |
| **Marine Habitat Type** | **Example** | **OCS Planning Area** |
| Critical Habitat | Right Whale | North Atlantic |
| Marine Sanctuary | Cordell Bank | Central California |

The analysis identified the relative abundance of benthic habitats, pelagic habitats, and designated habitat/sanctuary areas in each of the 26 OCS planning areas. A relative abundance value (i.e., high = 3, moderate = 2, and low = 1) was determined for each habitat type by the amount and kind of habitat that occurs within each OCS planning area (Table 13). No abundance value was applied if the habitat was absent from the OCS planning area. Information sources used to estimate abundance values include published reports and publications (for example, Navy 2005, 2006, 2007a, 2007b, 2008a, 2008b and 2008c; GeoHab, 2008; McGee et al., 2006; Lumsden et al., 2007; and

SEAMAP, 2001), and internal MMS information from environmental documents and data.

***TABLE 13: Marine Habitat Abundance Values***

| Marine Habitat Type | Abundance Value Criteria | | |
|---|---|---|---|
| | **High (3)** | **Moderate (2)** | **Low (1)** |
| **Benthic** | | | |
| Vegetated | Widespread occurrence of seagrasses extending beyond the coastal fringe | Some occurrence of seagrasses beyond coastal fringe | Scattered occurrences limited to coastal fringes |
| Relief Features | Abundant features with relief of 100 m or more | Some high relief features | Low relief features only or scattered occurrence of features |
| Chemosynthetic Communities | Likely abundant occurrence of features | Likely occurrence of features | Unlikely occurrence of features |
| Cold/Deep Coral | Extensive occurrence of coral and communities with reef building coral | Abundant coral organisms but no reef building | Occurrence of coral organisms |
| Tropical Coral | Extensive development of coral communities and reefs | Coral communities occur | Coral organisms occur |
| Canyons | Abundant canyon habitat with high relief | Common occurrence of canyon habitat, some with high relief | Some canyon habitat |
| **Pelagic** | | | |
| Ice | Substantial sea and landfast ice existing for > 6 months/yr | Substantial sea and landfast ice for < 6 months/yr | Discontinuous or scattered ice for < 4 months/yr |
| Vegetated | Widespread occurrence of coalesced vegetative mats | Some occurrence of floating mats | Scattered occurrences |
| High | Widespread | Some occurrence | Scattered and |

| | | | |
|---|---|---|---|
| Productivity Resulting from Oceanic Processes | occurrence in area for much of the year | for much of the year; or widespread for part of the year | short-term occurrences |

Benthic habitats are considered predominately sensitive to bottom disturbances associated with anchoring, structure installation and removal, and pipeline installation activities. While marine oil spills are unlikely to contact benthic habitats, spills of synthetic drilling muds from a platform could settle on benthic habitats (Boland et al., 2004). Physical disruption, destruction, and smothering of benthic habitat from these activities could result in long term or permanent impacts because of slow recovery rates from physical disruptions.

Pelagic habitats are assumed to be most sensitive to oil spills, as these habitats would be exposed at or near the sea surface to open contact from marine spills. Pelagic habitats are typically seasonal as their occurrences are related to seasonal properties of the global ocean circulation and temperature of the atmosphere. As a result, while the habitat could be degraded to the extent of being unavailable or dangerous to the habitat users for the remainder of the season, the habitat could return in the next cycle of its occurrence with no remnant evidence of the spill. Pelagic habitats could also be sensitive to disturbance from nearby normal OCS operations, such as service vessel and helicopter traffic, regulated discharges, and sound.

Impact coefficients were developed based on the expected sensitivity of marine habitats to oil and gas activities. The analysis applies the same degree of sensitivity to both the short-term but potentially dramatic impacts to pelagic habitats from oil spills and the potentially long-term impacts from bottom disturbances. The highest impact coefficient (4) was used in habitats that span both pelagic and benthic environments, such as seagrasses and coral reefs that occur in relatively shallow water and that could be exposed to impacts from both oil spills and bottom disturbances. The highest impact coefficient (4) was also applied to sea ice habitat, which by its physical presence during much of the year would keep the oil more confined and concentrated than what would occur in an open ocean habitat. A slightly lower impact coefficient (3) was applied to floating vegetation, whose habitat value could become degraded through absorption of oil, but not bottom disturbance. The lowest coefficient (2) was applied to the remaining habitats.

The presence of marine sanctuaries, critical habitat, and other officially designated and protected marine habitat areas in an OCS planning area is used as an additional indicator of marine habitat sensitivity. Each Federally designated area was given a value of 1. Examples include designation of critical habitat for the southwest Alaska Distinct Population Segment of the Northern Sea Otter in seven Alaska planning areas, Spectacled Eider critical habitat in the Chukchi Sea Planning Area (USFWS, 2009a), Right Whale critical habitat in the South and North Atlantic Planning Areas, and the Monterey Bay National Marine Sanctuary in the Central California Planning Area.

This relative environmental sensitivity analysis only incorporates "critical habitat" that has been designated through the regulatory process. While ***proposed*** critical habitats have been examined for this analysis, critical habitat proposals are subject to public notice and comment, and remain uncertain until published in the *Federal Register* as a final federal regulation. Therefore, no proposed critical habitat is considered in the scoring of OCS planning areas for sensitivity of marine habitats. This includes the October 2009 proposal designating critical habitat for polar bear.[40] However, as described earlier in this section, the greater sensitivity of sea ice habitat to oil and gas activities is accounted for in Table 14, and the effects of climate change on sea ice is addressed in section 4. In addition, the sensitivity of the polar bear, themselves, to oil and gas activities is considered in section 3.3.3, Marine Mammals.

The relative sensitivity scores and rankings of each of the 26 OCS planning areas are presented in Table 14 below. The scores were calculated by summing the product of each benthic and pelagic marine habitat type's abundance value by each habitat's sensitivity coefficient. An additional value was added to this sum based on the number of federally designated areas present in an OCS planning area.

[40] Though the proposed critical habitat for polar bear was not accounted for in the scoring of OCS planning areas for sensitivity of marine habitats, a hypothetical analysis was created that included that area as critical habitat. Even if the proposed critical habitat for polar bear were considered, the final grouping of OCS planning areas by relative environmental sensitivity, as shown in 8, would not change.

***TABLE 14: Relative Environmental Sensitivity of the OCS Planning Areas for Marine Habitats***

| OCS Planning Area | Score[1] |
|---|---|
| Eastern Gulf of Mexico | 43 |
| Central California | 39 |
| Washington-Oregon | 37 |
| Gulf of Alaska | 35 |
| Southern California | 35 |
| Mid-Atlantic | 34 |
| Beaufort Sea | 32 |
| Central Gulf of Mexico | 32 |
| South Atlantic | 32 |
| Western Gulf of Mexico | 32 |
| Northern California | 31 |
| Straits of Florida | 31 |
| North Atlantic | 28 |
| Chukchi Sea | 25 |
| Hope Basin | 24 |
| Bowers Basin | 23 |
| Kodiak | 23 |
| St. Matthew-Hall | 22 |
| North Aleutian Basin | 21 |
| St. George Basin | 21 |
| Navarin Basin | 20 |
| Aleutian Arc | 19 |
| Shumagin | 19 |
| Aleutian Basin | 18 |
| Cook Inlet | 17 |
| Norton Basin | 16 |

[1] Higher scores indicate greater sensitivity to OCS oil and gas activities.

## 3.3 Marine Fauna

The ESI shoreline data provide a systematic method for compiling standardized data to map shoreline sensitivity to spilled oil. However, there is not an equivalent dataset available for the biological marine environment, so this analysis identifies three components of the biological marine environment that

may be affected by OCS oil and gas activities: marine habitats, marine productivity, and marine fauna (i.e., birds, fish, marine mammals and sea turtles) to create a comparative analysis to supplement the original 2007-2012 relative environmental sensitivity analysis. While marine fauna were not considered in the original 2007-2012 relative environmental sensitivity ranking of OCS planning areas, they are considered in this analysis in order to more fully account for the biological aspects of the marine environment.

### 3.3.1 Birds

This analysis considers the sensitivity of birds to OCS oil and gas activities, because bird species comprise important and often prominent elements of most coastal onshore, nearshore, and offshore biological communities, especially in Alaska (USDOI, MMS, 2007). The greatest source of potential harm to coastal and marine birds from OCS oil and gas activities is from a large oil spill. The relative environmental sensitivity of marine and coastal birds within each OCS planning area is dependent upon the number of birds that could be exposed to a large oil spill. Birds listed as threatened or endangered under the ESA are considered more sensitive to a large oil spill. Marine and coastal birds were considered to primarily consist of three species groups: seabirds, waterfowl, and shorebirds.

The evaluation of the sensitivity of marine and coastal birds was limited to spilled crude oil because (1) the different planning areas could be evaluated against a common factor, in this case, spilled oil, and (2) oil spills, although rare, are anticipated to cause the largest, most visible and measurable effects of OCS activities on birds. Adverse effects to marine and coastal birds, such as collisions with structures, displacement/disturbance from sound and other human activities, and habitat loss from installation of facilities, etc., are individually and collectively much smaller than the potential effects from a large crude oil spill.

**Methodology**

The following assumptions were included in the analysis.

(1) *Spilled oil has not weathered substantially when it contacts bird populations.* The impacts of spilled oil are substantially reduced by the effects of weathering and by eliminating the mitigating effects of weathering in the

analysis of environmental sensitivity, the adverse effects of spilled oil, both toxicity and coating, are maximized. This assumption is conservative and provides an assessment of the most severe effects of spilled oil.

(2) *All of the bird populations within a planning area are vulnerable to being contacted by spilled oil.* Migratory species, which may inhabit the OCS planning area for only a short period, are assumed to be present and contacted by spilled oil.

(3) *Planning areas that have little or no shoreline would have a correspondingly small coastal bird population.*

(4) *In the absence of site-specific information, marine and coastal bird abundance and distribution does not change abruptly from one planning area to the next.* As a consequence, the final assessment required interpolation and extrapolation of population numbers based on gradients and trends in the best available information. There are legitimate reasons why there can be abrupt differences between planning areas (i.e., where an island group in one OCS planning area may host millions of breeding seabirds and the adjacent planning area, without nesting islands, does not support breeding birds).

(5) *The best available datasets reflect the current distribution and abundance of marine and coastal bird resources*

Best available information on marine and coastal birds was reviewed and used to compile total numbers of birds according to the 26 OCS planning areas. Much of this information came from regional waterbird plans that were specific to seabirds, waterfowl, or shorebirds. These plans were often step-down plans from larger continental plans that focused on bird resources of a particular bio-conservation unit or country. For example, the North American Waterbird Conservation Plan (Kushlan et al., 2002) steps down from the Waterbird Conservation for the Americas Plan. The Kushlan et al. (2002) plan stepped further down into units for the Southeast U.S., the Mid-Atlantic/New England/Maritimes region, etc. Similarly, USFWS has completed a Seabird Conservation Plan for the Pacific Region (USFWS, 2005) and a draft plan is completed for Alaska (USFWS, 2009c). Information from the scientific literature and books were also used as sources of population information for seabirds, waterfowl, and shorebirds using the 26 OCS planning areas and adjacent coastal areas. Information from these data sources was combined to enumerate birds according to coastal (nearshore) or marine (offshore) habitats.

Breeding birds and migratory waterfowl and shorebirds were considered associated with nearshore coastal habitats. Summer migrants from the southern hemisphere make seasonal use of marine habitats. Where two or more OCS planning areas were included in a population estimate, the population was apportioned across the OCS planning areas unless particular population segments could be attributed to a specific OCS planning area. Similarly, where population data was based on a geographic area that was larger than OCS planning areas (such as including non-U.S. waters), the population was apportioned to the OCS planning areas.

The total number of marine and coastal birds using an OCS planning area is the primary determinant in ranking OCS planning areas, because the number of birds using an area is directly related to the potential magnitude of effects on the bird population as a whole. Each OCS planning area is assigned two abundance values based on its relative abundance of marine and coastal birds. For both coastal and marine birds, an OCS planning area with relatively low population size is given a value of 1, moderate a 3, and high a 5. The following convention was used, which generally corresponds to natural breaks in the distribution of marine and coastal bird numbers:

| | |
|---|---|
| Low (1) | < 250,000 individuals |
| Moderate (3) | > 250,000 to < 2,500,000 individuals |
| High (5) | > 2,500,000 individuals |

Both marine and coastal birds in all OCS planning areas have an equally high sensitivity to oil spills. Therefore, all OCS planning areas are assigned a sensitivity value of 5 for both marine and coastal birds.

Threatened and endangered birds are typically perceived to have unique sensitivities to adverse effects that could affect the recovery of these species. Therefore, status under the ESA was considered a secondary factor for ranking OCS planning areas for the relative sensitivity of birds to oil and gas activities. Each ESA-listed bird species present in an OCS planning area is given a value of 1.

Each OCS planning area's relative sensitivity score is calculated by summing: (1) the product of the marine bird abundance and sensitivity values, (2) the product of the coastal bird abundance and sensitivity values, and (3) the number of ESA-listed species.

(Marine Abundance Value X Sensitivity Value)
+
(Coastal Abundance Value X Sensitivity Value)
+
Number of ESA-listed species

**Results**

Population data was compiled on marine and coastal birds for each OCS planning area (Table 15); however, there were some challenges: (1) complete datasets were not available for seabirds, waterfowl, and shorebirds for all planning areas; (2) some datasets appeared to be highly accurate, but this accuracy was undermined because it applied to a large geographic area that required subdividing according to country and/or planning area, which assumed bird resources were evenly distributed; and (3) information contained in contemporary conservation plans reported information differently, often either as breeding pairs or individuals, but seldom accounting for non-breeding adult or juvenile bird sub-populations. A few plans also reported population data as a term that corresponded to a numeric range -- some of these ranges were wide. In such cases, and consistent with a conservative approach, the maximum number of a range was used for population estimates. While some inconsistency in the marine and coastal bird data sets was noted, this did not prevent the relative comparison of OCS planning areas as data were combined at a scale that minor differences did not disproportionately influence the grouping by abundance, which was the primary factor in determining the vulnerability of marine and coastal birds to a large oil spill.

***TABLE 15: Relative Environmental Sensitivity of the OCS Planning Areas for Coastal and Marine Birds***

| OCS Planning Area | Score[1] | General Abundance (coastal/marine) | ESA-Listed Species[2] | Primary Resource (coastal/marine) |
|---|---|---|---|---|
| Aleutian Arc | 52 | high/high | STAL, STEI | large colonies/non-breeding seabirds |
| St. George Basin | 52 | high/high | STAL, STEI | large colonies/non-breeding seabirds |
| Gulf of Alaska | 51 | high/high | STAL | migratory shorebirds/non-breeding seabirds |
| St. Matthew-Hall | 43 | high/moderate | STAL, SPEI, STEI | large colonies, migrating shorebirds/ |
| North Aleutian Basin | 42 | moderate/high | STEI, SPEI | /non-breeding seabirds |
| Norton Basin | 42 | high/moderate | STEI, SPEI | large colonies/ |
| North Atlantic | 41 | moderate/high | PIPL | /non-breeding seabirds |
| Central California | 35 | moderate/moderate | STAL, MAMU, BRPE, SNPL, LETE | |
| Northern California | 35 | moderate/moderate | STAL, MAMU, BRPE, SNPL, LETE | |
| Southern California | 35 | moderate/moderate | STAL, MAMU, BRPE, SNPL, LETE | |
| Washington-Oregon | 34 | moderate/moderate | STAL, MAMU, BRPE, SNPL | mod. colonies/ |
| Chukchi Sea | 32 | moderate/moderate | STEI, SPEI | /mod. non-breeding seabirds |
| Kodiak | 32 | moderate/moderate | STAL, STEI | |
| Shumagin | 32 | moderate/moderate | STAL, STEI | /non-breeding seabirds |

| | | | | |
|---|---|---|---|---|
| Hope Basin | 31 | moderate/moderate | SPEI | |
| Mid-Atlantic | 31 | moderate/moderate | PIPL | |
| South Atlantic | 31 | moderate/moderate | PIPL | |
| Central Gulf of Mexico | 23 | moderate/low | BRPE, LETE, PIPL | |
| Eastern Gulf of Mexico | 23 | moderate/low | BRPE, LETE, PIPL | |
| Western Gulf of Mexico | 23 | moderate/low | BRPE, LETE, PIPL | |
| Beaufort Sea | 22 | moderate/low | STEI, SPEI | |
| Navarin Basin | 22 | low/moderate | STAL, SPEI | no breeding habitat/non-breeding seabirds |
| Cook Inlet | 21 | moderate/low | STEI | |
| Straits of Florida | 21 | moderate/low | PIPL | |
| Aleutian Basin | 20 | low/moderate | | no breeding habitat/non-breeding seabirds |
| Bowers Basin | 20 | low/moderate | | no breeding habitat/non-breeding seabirds |

[1] The total score was calculated by summing: 1) the product of the marine bird abundance and sensitivity values, 2) the product of the coastal bird abundance and sensitivity values, and 3) the number of ESA-listed species. Higher scores indicate greater sensitivity to OCS oil and gas activities.

[2] Birds listed as threatened or endangered: BRPE = Brown Pelican; LETE = Least Tern; MAMU = Marbled Murrelet; PIPL = Piping Plover; SNPL = Snowy Plover; SPEI = Spectacled Eider; STAL = Short-tailed Albatross; STEI = Steller's Eider.

### 3.3.2 Fish

This analysis considers the sensitivity of fish to OCS oil and gas activities, because most OCS planning areas support varied and abundant fish and shellfish populations, including threatened and endangered species, non-listed species, and fishes and shellfish important to commercial and recreational fisheries (USDOI, MMS, 2007). The following analysis discusses the relative sensitivity of each OCS planning area's estuarine, diadromous and marine fish and shellfish to potential negative impacts of OCS oil and gas activity. Most OCS oil and gas activities have the potential to alter fish behavior, and may cause physical injury of individuals in the immediate vicinity of airguns and death of individuals in the immediate vicinity of explosive removals. Pelagic eggs and larval fish would be most sensitive to oil spills. This analysis of the sensitivity of fish does not consider sensitivity of coastal and marine habitats to OCS oil and gas activity, because they are discussed in sections 3.1 and 3.2, respectively.

While individual fish may be physically injured or killed in the immediate vicinity of air guns, explosive removals, or oil spills, OCS oil and gas activities are not expected to add significantly to the mortality of fish populations. However, individual species are already at risk, as indicated by the ESA listings, or status of U.S. fisheries stocks may be more sensitive to species-level impacts from these activities and events.

There are estuarine, diadromous and marine fish and shellfish listed as either endangered or threatened species under the ESA in most of the 26 OCS planning areas. According to the ESA, a species is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become endangered in the future. The two ESA statuses are weighted by severity as follows: individual threatened species are assigned a value of 5 and individual endangered species are assigned a value of 10.

Table 16 shows the number of marine fisheries stocks designated as overfished or subject to overfishing. A stock that is overfished has a biomass level below a biological threshold. A stock that is subject to overfishing has a fishing mortality (harvest) rate above the level that provides for the maximum sustainable yield or the largest average catch or yield that can continuously be taken from a stock under existing environmental conditions. Stocks can be

designated in both categories, and these two categories are weighted equally in this analysis. Each overfished stock or stock that is subject to overfishing in an OCS planning area is given a value of 1.

This analysis used the weight of commercial landings to estimate relative abundance of fish for each OCS planning area. The OCS planning areas are divided into three categories of relative abundance to compensate for any bias in the data caused by timing, location, and effort of commercial fishing. The abundance categories used are:

| | |
|---|---|
| low (5) | < 200 million pounds; |
| moderate (25) | 200 million to 1 billion pounds; and |
| high (50) | > 1 billion pounds. |

Commercial landings provided the most recent and complete dataset for the OCS planning areas. While stock assessments may be more accurate, they are not available for all species and areas, and may not be as recent as the commercial landings data. While Alaska accounts for over half of the U.S. commercial landings, those values had to be allocated among the 15 Alaskan OCS planning areas (Woodby et al., 2005). Therefore, not every Alaskan OCS planning area was given a value of high for relative abundance.

Each OCS planning area's overall score was calculated by adding its relative abundance value to the sum of its ESA score and number of stocks subject to overfishing and/or overfished. Table 16 presents the relative sensitivity of each OCS planning area's fish population to OCS oil and gas activities.

***TABLE 16: Relative Environmental Sensitivity of the OCS Planning Areas for Fish***

| OCS Planning Area | Total Score[1] | ESA Species[2] | | | Stocks Subject to Overfishing and/or Overfished[4] | Relative Abundance (Value)[5] |
|---|---|---|---|---|---|---|
| | | Number Endangered | Number Threatened | Score[3] | | |
| Southern California | 76 | 4 | 1 | 45 | 6 | 25 |
| North Atlantic | 73 | 2 | 0 | 20 | 28 | 25 |
| Central Gulf of Mexico | 68 | 0 | 1 | 5 | 13 | 50 |
| Mid-Atlantic | 57 | 1 | 0 | 10 | 22 | 25 |
| Central California | 56 | 3 | 3 | 45 | 6 | 5 |
| Washington-Oregon | 56 | 0 | 5 | 25 | 6 | 25 |
| Gulf of Alaska | 55 | 0 | 1 | 5 | 0 | 50 |
| Kodiak | 55 | 0 | 1 | 5 | 0 | 50 |
| Northern California | 41 | 1 | 4 | 30 | 6 | 5 |
| South Atlantic | 35 | 1 | 0 | 10 | 20 | 5 |
| Eastern Gulf of Mexico | 34 | 1 | 1 | 15 | 14 | 5 |
| Cook Inlet | 30 | 0 | 1 | 5 | 0 | 25 |
| North Aleutian Basin | 30 | 0 | 1 | 5 | 0 | 25 |
| Shumagin | 30 | 0 | 1 | 5 | 0 | 25 |
| Straits of Florida | 25 | 0 | 0 | 0 | 20 | 5 |
| Western Gulf of Mexico | 18 | 0 | 0 | 0 | 13 | 5 |
| St. George Basin | 11 | 0 | 1 | 5 | 1 | 5 |
| Aleutian Arc | 10 | 0 | 1 | 5 | 0 | 5 |
| Aleutian Basin | 10 | 0 | 1 | 5 | 0 | 5 |
| Navarin Basin | 10 | 0 | 1 | 5 | 0 | 5 |
| Norton Basin | 10 | 0 | 1 | 5 | 0 | 5 |
| St. Matthew-Hall | 10 | 0 | 1 | 5 | 0 | 5 |
| Beaufort Sea | 5 | 0 | 0 | 0 | 0 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Bowers Basin | 5 | 0 | 0 | 0 | 0 | 5 |
| Chukchi Sea | 5 | 0 | 0 | 0 | 0 | 5 |
| Hope Basin | 5 | 0 | 0 | 0 | 0 | 5 |

[1] The total score was calculated by adding the abundance value to the sum of the ESA score and number of stocks subject to overfishing and/or overfished. Higher scores indicate greater sensitivity to OCS oil and gas activities.

[2] Sources: USDOC, NOAA Fisheries, Office of Protected Resources, 2009b and 2009c.

[3] Individual endangered species were given a value of 10, while individual threatened species were given a value of 5. The ESA score is the total number of species multiplied by their value.

[4] Source: USDOC, NMFS, 2009.

[5] Relative abundance: low (5) = < 200 million pounds, moderate (25) = 200 million to 1 billion pounds, and high (50) = > 1 billion pounds. Sources: USDOC, NOAA Fisheries, Office of Science and Technology, 2009; Woodby et al., 2005; and California Department of Fish and Game, 2008.

### 3.3.3 Marine Mammals

As a group, marine mammals include whales, dolphins, porpoises, seals, sea lions, walrus, dugongs, manatees, sea otters, and polar bears. Marine mammals are widely distributed throughout the world's oceans and are represented in all OCS planning areas. Marine mammals can profoundly influence marine ecosystems and are generally considered to be good indicators of changes in the marine environment.

The diversity of marine mammal species and their sensitivity to OCS oil and gas activities varies among OCS planning areas. For this analysis, the most recent marine mammal stock assessment reports prepared by the NMFS and USFWS (Angliss et al., 2009; Carretta et al., 2009; and Waring et al., 2009) were used to identify marine mammal species present in each OCS planning area. Species may occasionally wander beyond the ranges identified in the stock assessment reports but this analysis excludes extralimital sightings (e.g., humpbacks in Arctic waters) because of their relative rarity and unpredictability.

Each species in a planning area was evaluated with respect to following factors: the species' listing status, sensitivity to oil spills, and sensitivity to underwater sound. Each of these factors was considered equal in importance and values between 0 and 10 were assigned to rate sensitivity of each species within each factor. Differences in how a species may react to OCS oil and gas activities in high human use areas vs. low human use areas were not evaluated because of

the inherent complexity of marine mammal behaviors and the speculative nature of this level of behavioral analysis.

**Listing Status**

A marine mammal may be listed as "depleted" under the Marine Mammal Protection Act (MMPA) or "threatened" or "endangered" under the ESA. For each OCS planning area, the listing status of each marine mammal species was identified. Recognizing that there are significant differences between the definitions of each status, a value of 1 was assigned for marine mammal stocks listed only as depleted under the MMPA, a value of 5 for species listed as threatened (likely to become endangered) under the ESA, and a value of 10 for species listed as endangered (in danger of extinction) under the ESA. Candidate species and species petitioned for listing, such as the Pacific walrus by the Center for Biological Diversity, are not given added value because their status is under review, and therefore, decisions on listings under the ESA are uncertain.

This analysis includes recently listed species, such as the southern Beaufort and Chukchi/Bering Sea stocks of polar bear (threatened), the southwest Alaska stock of northern sea otters (threatened), and the eastern and western stocks of Steller sea lion (endangered/threatened) thus adding to the value attributed to planning areas that support these species. Critical habitat for listed species was considered in the marine habitat component (section 3.2) of this environmental sensitivity analysis and is not included in the marine mammal component.

**Sensitivity to Oil Spills**

In general, marine mammals are affected by oil spills through direct contact, inhalation, or ingestion of oil or oil-tainted prey. Based on mortalities and injuries experienced during past oil spill events, marine mammal species known to be highly susceptible to oil spills (e.g., sea otters) were assigned a value of 10. In this analysis, Arctic species with limited access to open (ice-free) water were also considered highly susceptible based on perceived risks associated with these species' inability to avoid extended contact with spilled oil in a confined marine environment. All other species were considered less susceptible to oils spills and assigned a value of 5. Environmental sensitivity of shoreline habitat that some marine mammals may use is captured in our shoreline sensitivity analysis.

**Sensitivity to Underwater Sound**

Exploration for oil and gas often requires seismic surveys to locate and identify key geologic features. Offshore construction activities (e.g., pile driving) may also introduce sound into the marine environment. Many species of marine mammals depend on creation and detection of sound to navigate, find prey, potential mates or calves, and avoid danger.

All marine mammal species have some ability to detect anthropogenic sound but values were assigned differently for species that depend on sound for critical life functions and that may be affected by sounds typically associated with OCS oil and gas activities. Species that do not use sound for navigation, underwater communication, or to find prey/mates were assigned a value of 1; species that use sound for navigation, underwater communication, or to find prey/mates/offspring at frequencies outside the typical range of offshore development sound were assigned a value of 5; and species that use sound for navigation, underwater communication, or to find prey/mates at frequencies within the typical range of offshore development sound were assigned a value of 10. This includes all deep diving cetacean species.

**Calculation of OCS Planning Area Rankings**

For each species a score was calculated by adding the values given for that species' listing status, sensitivity to oil spills, and sensitivity to underwater sound. The resulting score for each species within a planning area were added to create an overall score for the OCS planning area. The OCS planning area scores were then ranked according to values with higher scores indicating a higher sensitivity.

**OCS Planning Area Rankings with Respect to Marine Mammal Sensitivity**

The marine mammal sensitivity methodology described above yields the ranking of OCS planning areas presented in Table 17.

*TABLE 17: Relative Environmental Sensitivity of the OCS Planning Areas for Marine Mammals*

| OCS Planning Area | Total Score[1] | Number of Species | Number of Species by Listing Status | | | Listing Status Score[2] | Number of Species by Oil Spill Sensitivity | | Oil Spill Sensitivity Score[3] | Number of Species by Sound Sensitivity | | | Sound Sensitivity Score[3] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | E | T | D | | H | M | | H | M | L | |
| Southern California | 451 | 31 | 6 | 3 | 0 | 75 | 1 | 30 | 160 | 13 | 17 | 1 | 216 |
| Central California | 436 | 30 | 6 | 2 | 0 | 70 | 1 | 29 | 155 | 13 | 16 | 1 | 211 |
| Washington/Oregon | 411 | 28 | 6 | 1 | 0 | 65 | 1 | 27 | 145 | 13 | 14 | 1 | 201 |
| Northern California | 410 | 28 | 6 | 1 | 0 | 65 | 0 | 28 | 140 | 13 | 15 | 0 | 205 |
| North Atlantic | 385 | 28 | 5 | 0 | 0 | 50 | 0 | 28 | 140 | 11 | 17 | 0 | 195 |
| Mid-Atlantic | 300 | 22 | 4 | 0 | 0 | 40 | 0 | 22 | 110 | 8 | 14 | 0 | 150 |
| Kodiak | 297 | 18 | 6 | 1 | 1 | 66 | 1 | 17 | 95 | 10 | 7 | 1 | 136 |
| Shumagin | 296 | 18 | 6 | 1 | 0 | 65 | 1 | 17 | 95 | 10 | 7 | 1 | 136 |
| Aleutian Arc | 291 | 18 | 6 | 1 | 0 | 65 | 1 | 17 | 95 | 9 | 8 | 1 | 131 |
| St. George Basin | 291 | 19 | 6 | 1 | 0 | 65 | 1 | 18 | 100 | 7 | 11 | 1 | 126 |
| Gulf of Alaska | 286 | 18 | 5 | 1 | 0 | 55 | 1 | 17 | 95 | 10 | 7 | 1 | 136 |
| South Atlantic | 265 | 20 | 3 | 0 | 0 | 30 | 0 | 20 | 100 | 7 | 13 | 0 | 135 |
| Eastern Gulf of Mexico | 255 | 20 | 2 | 0 | 0 | 20 | 0 | 20 | 100 | 7 | 13 | 0 | 135 |
| North Aleutian | 251 | 18 | 4 | 1 | 0 | 45 | 1 | 17 | 95 | 5 | 12 | 1 | 111 |
| Aleutian Basin | 250 | 15 | 6 | 0 | 0 | 60 | 0 | 15 | 75 | 8 | 7 | 0 | 115 |
| St. Matthew-Hall | 245 | 17 | 4 | 1 | 0 | 45 | 1 | 16 | 90 | 5 | 12 | 0 | 110 |
| Straits of Florida | 240 | 18 | 3 | 0 | 0 | 30 | 0 | 18 | 90 | 6 | 12 | 0 | 120 |
| Navarin Basin | 235 | 14 | 6 | 0 | 0 | 60 | 0 | 14 | 70 | 7 | 7 | 0 | 105 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bowers Basin | 230 | 13 | 6 | 0 | 0 | 60 | 0 | 13 | 65 | 8 | 5 | 0 | 105 |
| Central Gulf of Mexico | 225 | 18 | 1 | 0 | 0 | 10 | 0 | 18 | 90 | 7 | 11 | 0 | 125 |
| Norton Basin | 190 | 12 | 1 | 1 | 0 | 15 | 8 | 4 | 100 | 3 | 9 | 0 | 75 |
| Cook Inlet | 182 | 12 | 4 | 0 | 1 | 41 | 1 | 11 | 65 | 4 | 6 | 1 | 76 |
| Chukchi Sea | 180 | 11 | 1 | 1 | 0 | 15 | 8 | 3 | 95 | 3 | 8 | 0 | 70 |
| Hope Basin | 180 | 11 | 1 | 1 | 0 | 15 | 8 | 3 | 95 | 3 | 8 | 0 | 70 |
| Western Gulf of Mexico | 170 | 13 | 1 | 0 | 0 | 10 | 0 | 13 | 65 | 6 | 7 | 0 | 95 |
| Beaufort Sea | 155 | 9 | 1 | 1 | 0 | 15 | 8 | 1 | 85 | 2 | 7 | 0 | 55 |

[1] The total score was calculated by adding the listing status, oil spill sensitivity, and sound sensitivity scores. Higher scores indicate greater sensitivity to OCS
oil and gas activities.

[2] Sum of the products of number of listed species and status value (i.e., endangered (E) = 10, threatened (T) = 5, and depleted (D) = 1).

[3] Sum of the products of number of species and sensitivity value (i.e., high (H) = 10, moderate (M) = 5, and low (L) = 1).

### 3.3.4 Sea Turtles

Sea turtles are greatly influenced by ocean temperature, and therefore are not found in all OCS planning areas. However, all sea turtles are listed as either endangered or threatened under the ESA, and they are considered susceptible to oil and gas activities, including sensitivity to possible oil spills, and their possible hearing sensitivity to the low frequency sounds generated by exploration, pile driving, and drilling activities. Therefore, sea turtles are considered in this analysis.

The diversity of sea turtle species varies between OCS planning areas. To identify sea turtle species likely to occur in OCS planning areas and to determine their relative sensitivity, this analysis considered all Recovery Plans, 5-Year Reports for sea turtles, published by the NMFS and USFWS, as well as NMFS and USFWS Status Reviews for Sea Turtles Listed under the ESA (Plotkin et al., 1995) and Occurrences of Marine Turtles in Alaska Waters: 1960-1998 (Hodge and Wing, 2000). Species found in each OCS planning area were identified and assigned values for:

(1) Presence (rare, seasonal, year-round);

(2) Status (threatened and endangered under the ESA);

(3) Relative sensitivity to oil spills (high); and,

(4) Relative sensitivity to underwater sound (medium).

Further clarification of how values were assigned for each species and how the values were combined to rank OCS planning areas is provided in the following discussion.

**Presence**

Sea turtles are found in only some of the OCS planning areas and the number of species found in any given area varies. The distribution of most species of sea turtle is limited by water temperature and varies by season. They are highly migratory and therefore have a wide geographic range in tropical, sub-tropical, and temperate waters.

By default, OCS planning areas with more sea turtle diversity may achieve higher scores than those with fewer sea turtle species. However, some species

may be exceedingly rare and others may be year-round residents in an OCS planning area. Year-round residents may be disproportionately affected by offshore activities and are factored higher. In this analysis, species rarely seen in an OCS planning area (i.e., OCS planning area is outside normal range, but area has a record of sightings) are assigned a value of 1; species with seasonal or occasional visitors are assigned a value of 2; and species with year-round residents and areas known for nesting are assigned a value of 3. Planning areas with no data indicating the presence of sea turtles were not further analyzed and were assigned a value of 0.

**Status**

All sea turtles have a protected status (with respect to the ESA and the Convention on International Trade in Endangered Species). They are either listed as listed as "threatened" or "endangered" under the ESA. Special consideration is given to these species when planning OCS oil and gas activities and formal consultations between the MMS and NMFS and/or USFWS may be required. At this time, there is no critical habitat for any sea turtles in any of the OCS planning areas. The presence of special status species in each OCS planning area is important to the decision making process. Threatened species are assigned a value of 5; and endangered species are assigned a value of 10.

**Relative Sensitivity to Oil Spills**

Development of OCS oil and gas resources poses a risk of an oil spill. This analysis does not attempt to identify all possible interactions that may occur between sea turtles and oil. A relative sensitivity to oil spills is assigned based on a species biology and/or habitat restrictions. Other values for this sensitivity have not been identified or assigned. All sea turtles, regardless of species, are considered to be highly sensitive to oil spills for several reasons, including their need to be at the surface of the water to breathe, migratory nature, relatively slow movement, presence in both deeper waters and shallower waters, high susceptibility to oil when it reaches the shore, and potential difficulty detecting and avoiding spilled oil. Therefore, all sea turtle species were assigned a high sensitivity (10) relative to risks from oil spills.

**Relative Sensitivity to Underwater Sound**

Exploration for oil and gas often requires seismic surveys to locate and identify key geologic features. Offshore construction activities (e.g., pile driving) may also introduce sound into the marine environment. Data on sea turtle sound production and hearing are limited. Based on the structure of the inner ear, there is some evidence to suggest that marine turtles primarily hear sounds in the low frequency range and that turtles are insensitive to high frequencies. Based on the known data, for the purposes of this sensitivity analysis, it is assumed that sea turtles have low frequency hearing but possibly lower sensitivity to sounds compared to other fauna. Therefore, acoustic impacts to sea turtles were assigned a medium sensitivity (5) relative to risks of acoustic impacts.

**Calculation of OCS Planning Area Rankings**

For each species, the following function was used to calculate a value for each species within each OCS planning area:

$$Presence \times (Status + Oil\ Sensitivity + Sound\ Sensitivity)$$

All calculated values were added within an OCS planning area to create an overall score for that OCS planning area.

**OCS Planning Areas Rankings with Respect to Sea Turtle Sensitivity**

The sea turtle sensitivity methodology described above yields the ranking of OCS planning areas presented in Table 18.

***TABLE 18: Relative Environmental Sensitivity of the OCS Planning Areas for Sea Turtles***

| OCS Planning Area | Score[1] |
|---|---|
| South Atlantic | 360 |
| Straits of Florida | 360 |
| Eastern Gulf of Mexico | 360 |
| Central Gulf of Mexico | 345 |
| Western Gulf of Mexico | 345 |
| Mid-Atlantic | 255 |
| Central California | 235 |
| Southern California | 235 |
| Northern California | 150 |
| Washington/Oregon | 150 |
| North Atlantic | 140 |
| Gulf of Alaska | 85 |
| Kodiak | 65 |
| Shumagin | 25 |
| Hope Basin | 0 |
| Chukchi Sea | 0 |
| Aleutian Arc | 0 |
| Norton Basin | 0 |
| Beaufort Sea | 0 |
| St. George Basin | 0 |
| Bowers Basin | 0 |
| Aleutian Basin | 0 |
| St. Matthew-Hall | 0 |
| Navarin Basin | 0 |
| North Aleutian Basin | 0 |
| Cook Inlet | 0 |

1 Higher scores indicate greater sensitivity to OCS oil and gas activities.

### 3.3.5 Combining Fauna and Ordinal Ranking

Marine fauna is the grouping of birds, fish, marine mammals, and sea turtles. Each fauna was first considered individually using the different scoring

methods described above. Then the resulting scores were normalized for each fauna (Table 19).

There are many normalization methods available, but not all are appropriate to apply to ordinal data. To create an overall marine fauna rank, the most appropriate method to apply to the four subsets of marine fauna scores (i.e., fish, birds, marine mammals, and sea turtles) is the min-max normalization method. This method subtracts the minimum value of a score subset from each OCS planning area value and then divides the difference by the range of the subset scores, to transform the data into a new range of values within the interval [0,1]. This method was applied to all four score subsets. After applying the min-max normalization, the four normalized scores for each OCS planning area were added to create a total normalized score with a range of [0,4]. The overall scores were ordered and ranked to obtain the marine fauna rank presented in Table 19.

*TABLE 19: Relative Environmental Sensitivity of the OCS Planning Areas for Marine Fauna*

| OCS Planning Areas | Fish | | Birds | | Marine Mammals | | Sea Turtles | | Total Normalized Score[1] |
|---|---|---|---|---|---|---|---|---|---|
| | Score | Normalized | Score | Normalized | Score | Normalized | Score | Normalized | |
| Southern California | 76 | 1.00 | 35 | 0.47 | 451 | 1.00 | 235 | 0.65 | 3.12 |
| Central California | 56 | 0.72 | 35 | 0.47 | 436 | 0.95 | 235 | 0.65 | 2.79 |
| North Atlantic | 73 | 0.96 | 41 | 0.66 | 385 | 0.78 | 140 | 0.39 | 2.78 |
| Washington-Oregon | 56 | 0.72 | 34 | 0.44 | 411 | 0.86 | 150 | 0.42 | 2.44 |
| Gulf of Alaska | 55 | 0.70 | 51 | 0.97 | 286 | 0.44 | 85 | 0.24 | 2.35 |
| Mid-Atlantic | 57 | 0.73 | 31 | 0.34 | 300 | 0.49 | 255 | 0.71 | 2.27 |
| Northern California | 41 | 0.51 | 35 | 0.47 | 410 | 0.86 | 150 | 0.42 | 2.25 |
| Central Gulf of Mexico | 68 | 0.89 | 23 | 0.09 | 225 | 0.24 | 345 | 0.96 | 2.18 |
| South Atlantic | 35 | 0.42 | 31 | 0.34 | 265 | 0.37 | 360 | 1.00 | 2.14 |
| Eastern Gulf of Mexico | 34 | 0.41 | 23 | 0.09 | 255 | 0.34 | 360 | 1.00 | 1.84 |
| Kodiak | 55 | 0.70 | 32 | 0.38 | 297 | 0.48 | 65 | 0.18 | 1.74 |
| Straits of Florida | 25 | 0.28 | 21 | 0.03 | 240 | 0.29 | 360 | 1.00 | 1.60 |
| St. George Basin | 11 | 0.08 | 52 | 1.00 | 291 | 0.46 | 0 | 0.00 | 1.54 |
| Aleutian Arc | 10 | 0.07 | 52 | 1.00 | 291 | 0.46 | 0 | 0.00 | 1.53 |
| North Aleutian Basin | 30 | 0.35 | 42 | 0.69 | 251 | 0.32 | 0 | 0.00 | 1.36 |
| Western Gulf of Mexico | 18 | 0.18 | 23 | 0.09 | 170 | 0.05 | 345 | 0.96 | 1.29 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Shumagin | 30 | 0.35 | 32 | 0.38 | 296 | 0.48 | 25 | 0.07 | 1.27 |
| St. Matthew-Hall | 10 | 0.07 | 43 | 0.72 | 245 | 0.30 | 0 | 0.00 | 1.09 |
| Norton Basin | 10 | 0.07 | 42 | 0.69 | 190 | 0.12 | 0 | 0.00 | 0.88 |
| Cook Inlet | 30 | 0.35 | 21 | 0.03 | 182 | 0.09 | 0 | 0.00 | 0.47 |
| Chukchi Sea | 5 | 0.00 | 32 | 0.38 | 180 | 0.08 | 0 | 0.00 | 0.46 |
| Hope Basin | 5 | 0.00 | 31 | 0.34 | 180 | 0.08 | 0 | 0.00 | 0.43 |
| Navarin Basin | 10 | 0.07 | 22 | 0.06 | 235 | 0.27 | 0 | 0.00 | 0.40 |
| Aleutian Basin | 10 | 0.07 | 20 | 0.00 | 250 | 0.32 | 0 | 0.00 | 0.39 |
| Bowers Basin | 5 | 0.00 | 20 | 0.00 | 230 | 0.25 | 0 | 0.00 | 0.25 |
| Beaufort Sea | 5 | 0.00 | 22 | 0.06 | 155 | 0.00 | 0 | 0.00 | 0.06 |

[1]Higher scores indicate greater sensitivity to OCS oil and gas activities.

## 3.4 Marine Productivity

While marine productivity was not considered in the original 2007-2012 relative environmental sensitivity ranking of OCS planning areas, (it was, however, considered as a separate factor), it is considered in this analysis in order to more fully account for the biological aspects of the marine environment.

"Productivity" is a term used to indicate the amount of plant or animal biomass that is produced over a period of time. Primary production is the assimilation of organic carbon through photosynthesis. The most common example is simply a plant using energy from the sun to make organic matter. It is the basis for growth in most ecosystems. The productivity of the marine aquatic community is its capacity to produce food for its component species, which thus sets limits on the overall biological production in an ecosystem. Primary production in the marine environment is conducted primarily by phytoplankton, macroalgae, such as Sargassum or kelp, and submerged aquatic vegetation (sea-grasses). The rate at which this occurs is based largely on the plants' ability to photosynthesize. The methods of measuring phytoplankton productivity are relatively standard and results are normally expressed in terms of chlorophyll-a, or the amount of carbon fixed during photosynthesis per square meter of ocean surface per unit time.

Phytoplankton can occupy all surface waters of an OCS planning area and fix carbon, as long as sufficient light and nutrients are available. Farther from shore, fewer nutrients, primarily of terrestrial origin, are available for use by phytoplankton, and surface mixing due to wave action, down-dwelling, fronts, and convergence may push some phytoplankton down into the water column where light is insufficient for photosynthesis to occur.

Marine ecosystems can be significantly affected by the rates and magnitude of primary production within their boundaries. Any alteration in primary production in an ecosystem will have wide-ranging effects on all dependent species and chemical processes occurring within the affected system. Having sufficient knowledge of the magnitude and rates of primary production within an ecosystem allows for an accurate understanding of the overall potential productivity within that system. This knowledge may help elucidate the potential effects that altering the base of the food-chain may have on dependent species and processes. Therefore, it is important to include estimates

of primary production in any analysis of environmental sensitivity related to OCS oil and gas activities. Besides any direct effects of an oil spill on higher trophic levels, any anthropogenic alteration of the base of the food-chain (i.e., spilled oil on the surface of the ocean decreasing light penetration, and thus decreasing rates of photosynthesis) of a system would necessarily affect the functioning of the system as a whole. These effects on primary production would most likely be very short term in duration and low magnitude.

For these reasons, the 26 OCS planning areas have been ranked for relative sensitivity by their areal averaged production (annual amount of carbon produced per acre of ocean surface) rather than metric tons per year, as in the 2007-2012, 5-Year Program. Areas with the highest mean levels of productivity are ranked highest, as the potential loss to the system would have the greatest effect (seen as a reduction in the amount of biomass the area could support). This method allows for a direct comparison of each OCS planning area without a bias towards ranking OCS planning areas higher due to encompassing a larger area. It is important to note that measurements of phytoplankton can vary greatly both spatially and temporally, resulting in significant differences in measurements within and between OCS planning areas.

***TABLE 20: Relative Environmental Sensitivity of the OCS Planning Areas for Marine Productivity***

| Planning Area | Metric Tons/yr | Acres (Millions) | Areal Averaged Production (Metric tons/acre/yr) |
|---|---|---|---|
| Cook Inlet | 24,152,550 | 5.36 | 4.506 |
| South Atlantic | 203,124,209 | 54.34 | 3.738 |
| Norton Basin | 84,262,675 | 24.25 | 3.475 |
| Hope Basin | 38,728,168 | 12.82 | 3.021 |
| North Aleutian Basin | 84,251,465 | 32.45 | 2.596 |
| St. Matthew-Hall | 134,067,143 | 54.57 | 2.457 |
| Navarin Basin | 69,706,304 | 34.02 | 2.049 |
| Eastern Gulf of Mexico | 117,466,816 | 64.56 | 1.819 |
| St. George Basin | 117,301,462 | 70.23 | 1.670 |
| Central Gulf of Mexico | 110,234,566 | 66.45 | 1.659 |
| Shumagin | 137,606,171 | 84.65 | 1.626 |
| Kodiak | 134,247,604 | 89.00 | 1.508 |
| Mid-Atlantic | 139,781,399 | 112.86 | 1.239 |
| Western Gulf of Mexico | 31,331,220 | 28.58 | 1.096 |
| Gulf of Alaska | 105,574,501 | 112.1 | 0.942 |
| North Atlantic | 81,157,898 | 92.32 | 0.879 |
| Northern California | 37,915,717 | 44.79 | 0.847 |
| Aleutian Basin | 33,569,865 | 41.33 | 0.812 |
| Bowers Basin | 63,952,718 | 87.59 | 0.730 |
| Straits of Florida | 6,850,743 | 9.64 | 0.711 |
| Washington-Oregon | 45,742,749 | 71.00 | 0.644 |
| Central California | 20,592,712 | 43.68 | 0.471 |
| Southern California | 39,983,470 | 88.98 | 0.449 |
| Chukchi Sea | 8,237,533 | 62.59 | 0.132 |
| Aleutian Arc | 25,554,257 | 259.06 | 0.099 |
| Beaufort Sea | 4,591,039 | 65.08 | 0.071 |

Sources: Continental Shelf Associates, 1990 and 1991.

# 4. Climate Change and Relative Environmental Sensitivity

## 4.1 Introduction

Unlike the original 2007-2012 relative environmental sensitivity analysis, this revised analysis considers climate change and ocean acidification in the overall sensitivity of OCS planning areas to oil and gas activity.

Climate changes during the 20th century have been detected on all continents and oceans, suggesting noticeable relationships among atmospheric concentrations of anthropogenic carbon dioxide ($CO_2$) and other greenhouse gases, mean global temperature increases, and observed effects on physical and biological systems. Climate change effects, including warming air and water temperatures, rising sea levels, and more intense storms have been documented in many U.S. coastal regions. New scientific research shows that oceans are beginning to face yet another threat due to global warming-related emissions – a process referred to as ocean acidification; basic ocean chemistry is changing because of the uptake of $CO_2$ released by human activities (Feely, et al., 2006). These changes will continue to affect the habitats and biota discussed in this environmental sensitivity analysis, possibly making them more vulnerable to human activities, such as OCS oil and gas exploration and development. Climate change is discussed in more detail in the EIS prepared for the 2007-2012, 5-Year Program (USDOI, MMS, 2007).

This section provides an assessment of climate change effects on the relative environmental sensitivity of OCS planning areas during the life of the 5-Year Program. The assessment examines the extent to which rising temperatures, sea-level rise and ocean acidification may affect the environmental sensitivity of different areas of the OCS, and whether meaningful differences in the magnitude of these effects occur spatially. The time frame of interest is the life of the 2007-2012, 5-Year Oil and Gas Program, which extends 40 years or approximately until 2050. This task is challenging because the overall response of the global climate to warming is inherently complex due to a number of positive and negative feedbacks that can have strong influence on the climate system (IPCC, 2007). The responses of physical and biological systems to global climate change bring additional complexities because climatic, biologic, and physical processes interact in complicated and

nonlinear ways that are not fully understood at this time. Because of the complexities and incomplete understanding of the underlying science that exists at this time, climate change projections must be presented in probabilistic terms rather than as certainties.

The Intergovernmental Panel on Climate Change (IPCC) uses a 10-fold likelihood scale ranging from virtually certain (>99 percent probability of occurrence) to 'exceptionally unlikely' (<1 percent probability) to define consistent terminology for climate change projections. This assessment uses assumptions and projections from the IPCC report that are considered at a minimum to be 'likely' (>66 percent) to occur, in order to focus on the most likely drivers of climate change effects on environmental sensitivity.

Projections of climate change and its effects are generally more reliable when applied to a large area compared to a smaller area. It is currently difficult to model temperature changes, and the processes that temperature changes spawn, at less than continental scales (IPCC, 2007). Reliable projections are possible for areas the size of the Alaskan Arctic or Gulf of Mexico, but in most cases existing information does not support making more detailed distinctions at the scale of an individual OCS planning area. This assessment uses projections and assumptions of climate change and its effects that can be reliably applied to large areas, such as the Arctic or Gulf of Mexico. The projected increased sensitivity of the larger area is applied to the individual OCS planning areas that it contains.

Reliable projections of effects of climate change on individual or groups of species usually are made at high levels of generality. The IPCC (2007) concludes that it is 'likely' (>66 percent chance of occurrence) that 20 to 30 percent of the plants and animals assessed so far are at risk of extinction within the next century, but does not indicate the specific species or groups of species most at risk. Thomas et al. (2004) suggest that up to 37 percent of a sample of land plants and animals could become extinct as a result of climate change by 2050, a date encompassing the 40-year life of the 2007-2012 program. These large extinction scenarios suggest that effects of climate change on species will be pandemic in marine and coastal environments. Research is beginning to identify possible climate change effects on specific fauna or groups of fauna, such as a recent report that identified marine birds as being particularly susceptible to climate change effects compared to other

birds (Vié, et al., 2008), a relevant observation if validated with additional research. Generally, however, it is not possible to reliably identify individual species or species groups with relatively high extinction risks along with the OCS planning areas where the extinction risks are relatively higher or lower. An exception is the North American Arctic in Alaska, which the IPCC (2007) identifies as an "Especially Affected Region" because of the projected high rates of warming that will likely result in substantial degradation of ice-water habitats that many species, and subsistence hunters, depend on.

## 4.2 Climate Change Factors Influencing Relative Sensitivity and Marine Productivity

Climate change impacts on the ocean's physical properties, such as temperature, winds, precipitation, currents, sea level, salinity, and upwelling, will likely affect both open-ocean and nearshore ecosystems. Changes to the oceans are expected to cause species- and community-level shifts that will have consequences for species interaction and may ultimately affect ecosystem function. Distribution patterns of southern species may shift northward as water temperatures warm, but the colonization of new areas will depend on successful dispersal across barriers, such as from one estuary to another. The ability of species to adapt to different locations will depend on their ability to find suitable habitat, compete with other species for resources and avoid predators. Hence, the fundamental structure of complex food webs may change. For example, in some cases, climate-induced changes may be positive if they increase habitat for depleted fishery stocks, while in other cases changes may be negative if they spread the distribution of invasive species or disease-causing microbes. Marine and coastal systems are being affected negatively by pollution, overfishing, and other stressors that may act in combination with climate change to damage ecosystems.

### 4.2.1. Temperature

Global mean surface temperatures have risen by $0.74^0$ C $\pm$ $0.18^0$ between 1905 and 2005 (IPCC, 2007). The rate of warming for the past 50 years has been almost double the rate for the past 100 years ($0.13^0$ C/decade). The IPCC projections suggest about a $0.8^0$ C increase in temperature during the 40 year life of the proposed program.

Atmospheric warming has not been spatially uniform. In particular, Arctic temperatures have increased about twice as much as those in lower latitudes. The IPCC predicts that the Arctic will continue to warm at a faster rate than elsewhere during the time span covered by the life of the 2007-2012 program. Preferential warming in the Arctic is partially the result of the ice-albedo effect, which occurs when highly reflective ice is replaced by less reflective water and land surfaces resulting in more heat being absorbed by the land and water rather than being reflected back to the atmosphere.

About 80 percent of the warmth caused by greenhouse gases has been absorbed in the oceans. Evidence for warming is widespread in the upper 700 m of the global ocean (IPCC, 2007).

The IPCC reports, there is "high confidence" that rising ocean temperatures are associated with observed changes in marine biological systems. Ocean warming will continue during the life of the program proportional to atmospheric warming. The ocean warming is penetrating deeper in the Atlantic Ocean Basin than in the Pacific Ocean due to the deep overturning circulation cell that occurs in the North Atlantic.

**Environmental Sensitivity Factors Related to Temperature**

*Species Composition*

Climate variation is a recognized, primary driver of marine ecosystems and associated biological resources (USDOC, NOAA Fisheries Service, 2009). Effects of warming temperatures have already been seen in the form of northward shift of species, change in migration patterns and timing, change in location and timing of reproduction, and increased disease. As warming drives changes in timing and geographic ranges for marine fauna, it is important to note that entire communities of species do not shift intact. Rather, the range and timing of each species within an existing community shifts in response to its own sensitivity to climate change, mobility, lifespan, and the availability of the resources. The speed with which species can shift their ranges is influenced by factors including their size and lifespan. All of these variations result in the breakup of existing ecosystems and formation of new ones, with uncertain consequences (Karl et al., 2009).

While all OCS planning areas will be affected by species migrations, the Alaskan Arctic will likely be relatively more affected. The IPCC (2007) concludes that the Arctic is likely (>66 percent likelihood) to be "especially affected" by climate change because of the impacts of high rates of projected warming on natural systems.

Most affected OCS planning areas: Beaufort Sea, Chukchi Sea, Hope Basin, Norton Basin, and St. Matthew-Hall.

*Coral bleaching*

Warmer water temperatures cause coral to lose their symbiotic algae, a process called bleaching. Intensities and frequencies of bleaching events have increased substantially over the past 30 years, leading to the death or severe damage of about one third of the world's shallow water corals (Karl et al., 2009). The IPCC (2007) recognizes warm water corals as a resource that is 'likely' (>66 percent likelihood) to be particularly affected by climate warming.

Most affected OCS planning areas: Western Gulf of Mexico, Central Gulf of Mexico, Eastern Gulf of Mexico, and Straits of Florida

*Permafrost thawing*

The temperature at the top of the permafrost layer has increased by up to 3º C since the 1980s in the Arctic (IPCC, 2007). In the Alaskan Arctic specifically, the permafrost base has been thawing at a rate of up to 0.04 m/yr. Thawing of coastal soils is expected to result in more rapid rates of shore erosion. This effect is expected to be compounded by reduced duration and extent of shoreline protection provided by landfast ice and more exposure to ocean storms. The IPCC (2007) identifies coasts exposed to the Arctic Ocean, such as along the Chukchi Sea and Beaufort Seas, as the most sensitive regions for permafrost thermal degradation effects, largely because of erosion issues.

Most affected OCS planning areas: Beaufort Sea, Chukchi Sea, and Hope Basin

*Increases in Major Storm Frequency and Intensity*

While stronger storms associated with global warming are likely to affect most coastal habitats, this effect is expected to be most evident along the Southeast

and Gulf Coasts (Karl et al., 2009). Observational evidence for an increase of tropical cyclone activity in the Northern Hemisphere Atlantic Ocean since about 1970 also suggests a substantial upward trend toward longer lasting and more intense storms (IPCC, 2007). The IPPC considers it 'likely' (>66 percent likelihood) that increased tropical cyclone activity will occur, resulting in erosion, flooding, and landscape disruptions that will affect the relative environmental sensitivity of coastal and nearshore environmental resources.

Most affected OCS planning areas: Western Gulf of Mexico, Central Gulf of Mexico, Eastern Gulf of Mexico, Straits of Florida, South Atlantic, and Mid-Atlantic.

*Sea-Ice Biome*

The presence of sea ice and landfast ice in the marine environment of the Arctic and near Arctic creates a productive marine-ice biome essential for the flourishing and survival of marine animals and the traditional subsistence life style. These environments provide hunting, resting and birthing platforms along the ice-water interface, generate local upwelling responsible for high productivity in polynyas and release large quantities of algae growing beneath the ice surface into the food chain at ice melt. The IPCC (2007) considers it likely (>66 percent likelihood) that the Arctic sea-ice biome will be especially affected by climate change because of sensitivity to warming.

Most affected OCS planning areas: Beaufort Sea, Chukchi Sea, Hope Basin, Norton Basin, and St. Matthew-Hall.

*Ocean Dynamics*

Warming of the atmosphere and oceans can change the dynamic properties of the ocean circulation. In particular, upwelling areas, prevalent along the Pacific coast, could be affected by climate change as a result of changes in the dynamics of the Trade Winds. Nutrient-rich bottom water ascends to the ocean surface in these upwelling areas, creating very high marine productivity. Upwelling is naturally an intermittent process that varies in intensity and location from year to year. Existing information on effects of climate warming on upwelling processes is equivocal with regard to the magnitude and the direction of the effect. Some evidence suggests a reduction in upwelling along

the Pacific coast of North America related to reduction in the strength of the Trade Winds (Barth et al., 2007). Others project enhanced upwelling brought on by increased coastal winds (Bakun, 1990; Snyder et al., 2004).

At this time existing information on climate change effects on the dynamic properties of the ocean does not support a reliable prediction of these effects on the relative environmental sensitivity of the different OCS planning areas.

### 4.2.2. Sea Level

Recent global sea-level rise has been caused by warming-induced thermal expansion of the oceans, and accelerated melting of glaciers and ice sheets. Current predictions for future sea levels projected a rise in sea level from 8 to 24 inches by 2100 (IPCC, 2007). The amount of relative sea-level rise along different parts of the U.S. coast depends not only on thermal expansion and ice sheet melting, but also on the changes in elevation of the land that occur as a result of subsidence (sinking) or geologic uplift (rising) (Karl et al., 2009). In the past 50 years, sea level has risen up to 8 inches or more along some coastal areas of the United States and fallen in other locations.

A recent report (CCSP, 2009) identifies areas along the Atlantic and Gulf of Mexico coasts as undergoing relatively rapid inundation and landscape changes because of the prevalence of low lying coastal lands. The report identified submergence hotspots where, because of local subsidence, the rate of rise of sea level relative to the land is expected to be higher than in other parts of the area. Sea-level rise hotspots include coastal Louisiana adjacent to the Central Gulf of Mexico Planning Area and southern Florida in the eastern Gulf of Mexico. Because these submergence hot spots occur as a result of local geologic factors, it is possible in these cases to assign climate change-elevated environmental sensitivity to specific OCS planning areas.

Rapid submergence of these coastal lands would destabilize ecological and socioeconomic uses of the coastal zone through accelerated coastal erosion and the movement of marine environments landward over terrestrial landscapes. Coastal environmental resources affected this way would be stressed and presumably be made more sensitive to these impacts from OCS oil and gas activities.

Most affected OCS planning areas: Mid-Atlantic, Central Gulf of Mexico, and Eastern Gulf of Mexico.

### 4.2.3. Ocean Acidification

Ocean acidification refers to the decrease in the pH of the oceans caused by the uptake of $CO_2$ from the atmosphere. Atmospheric $CO_2$ reacts with seawater to form carbonic acid, leading to increased acidity in the oceans. The future pH of the ocean is predicted to decrease by approximately 0.3-0.4 units by the year 2100 (Orr et al., 2005). Higher latitudes will experience the greatest changes and impacts due to the increased solubility of $CO_2$ due to generally lower temperature (Karl et al., 2009).

Ocean acidification affects the process of calcification by which living organisms create shells and skeletons, with substantial negative consequences for coral reefs, mollusks, and some plankton species important to marine and coastal food chains (Karl et al., 2009). As a result, marine life that uses calcium carbonate to form protective shells or skeletal structures is unable to form these structures or the existing structures dissolve. Current evidence indicates that the calcification rates of warm corals will be reduced by 20 – 60 percent at double preindustrial atmospheric $CO_2$ concentrations (Kleypas et al., 2006). Potentially affected marine organisms include warm and cold water corals, mollusks and calcareous phytoplankton.

The IPCC (2007) concludes that progressive ocean acidification is expected to have negative impacts on marine shell-forming organisms and their dependent species. These effects would be relatively higher in cold water areas where sea water can absorb more $CO_2$.

This assessment, however, does attribute an effect of acidification to relative environmental sensitivity based on the absence of observed effects of acidification on ecological resources (IPCC, 2007), and uncertainties as to when effects from acidification would occur in different ocean areas.

## 4.3 Effects of Climate Change on Relative Environmental Sensitivity and Marine Productivity of OCS Planning Areas

Table 21 shows offshore and adjoining coastal areas where factors resulting from climate change could increase relative environmental sensitivity to OCS development. For example, increased sea-level rise would inundate coastal marshes causing land loss, but also exposing remaining marshes to greater impacts from oil spills by removing the protection of barrier islands. The relative effects of climate change are identified for groups of adjacent OCS planning areas with similar climatic and ecological characteristics compared to other areas. Table 21 lists OCS planning areas with effects on relative sensitivity from climate change based on the previous section. A high relative magnitude of effects from climate change was assigned to OCS planning areas in which at least three climate change effects were expected to be relatively greater than in other planning areas. A moderate relative magnitude was given to OCS planning areas with 1-2 projected effects. A designation of low relative magnitude does not mean that climate change effects will not occur, but that the magnitude of the effects is not expected to be relatively greater than the effects in other OCS planning areas.

## *TABLE 21: Relative Effects of Climate Change on Environmental Sensitivity of the OCS Planning Areas*[1]

| Geographic Region/ OCS Planning Area | Climate Change Effects | Relative Magnitude |
|---|---|---|
| **Arctic** | | |
| Beaufort Sea | Sea-Ice biome; species composition; permafrost thawing | High |
| Chukchi Sea | Sea-Ice biome; species composition; permafrost thawing | High |
| Hope Basin | Sea-Ice biome; species composition; permafrost thawing | High |
| **Bering Sea** | | |
| Aleutian Basin | | Low |
| Bowers Basin | | Low |
| Navarin Basin | | Low |
| North Aleutian Basin | | Low |
| Norton Basin | Sea-ice biome; species composition | Moderate |
| St. George Basin | | Low |
| St. Matthew-Hall | Sea-ice biome; species composition | Moderate |
| **North Pacific** | | |
| Aleutian Arc | | Low |
| Cook Inlet | | Low |
| Gulf of Alaska | | Low |
| Kodiak | | Low |
| Shumagin | | Low |
| **West Coast** | | |
| Central California | | Low |
| Northern California | | Low |
| Southern California | | Low |
| Washington-Oregon | | Low |
| **Gulf of Mexico** | | |
| Central Gulf of Mexico | Coral bleaching; increased storms; submergence | High |
| Eastern Gulf of Mexico | Coral bleaching; increased storms; submergence | High |
| Western Gulf of Mexico | Coral bleaching; increased storms | Moderate |
| Mid Atlantic | Submergence; increased storms | Moderate |
| North Atlantic | | Low |
| South Atlantic | Increased storms | Moderate |
| Straits of Florida | Coral bleaching; increased storms | Moderate |

[1] Source: Karl et al., 2009.

**Climate Change Sensitivity Coefficients**

Table 8 presents the OCS planning areas grouped into four categories ranging from most to least sensitive to OCS oil and gas activities, and considers increased sensitivity due to climate change and ocean acidification. This grouping uses a coefficient of 2.0 for high relative magnitude of effects, such as in the Alaskan Arctic, to apply to the overall environmental sensitivity. This coefficient is based on the temperature increase that has occurred in the Arctic double that of other areas. A linear relationship between temperature increase and environmental sensitivity in the Arctic is reasonable, because ocean and atmosphere warming there has directly resulted in increased sensitivity to the sea-ice biome and permafrost degradation. A coefficient of 1.5 is used for OCS planning areas that are projected to experience moderate relative effects from global warming, a value half way between the value of 1.0 used for no relative effect of global warming and 2.0 for high relative effect.

## 5. Conclusion

Unlike the original 2007-2012 relative environmental sensitivity analysis, which only calculated sensitivity of the shoreline to oil spills, the above environmental sensitivity analysis considers sensitivity of the biological marine environment to multiple impact producing factors, such as oil spills, sound and physical disturbance, and increased sensitivity due to climate change and ocean acidification. Because relatively small differences suggest a level of precision that is not possible for this analysis, Table 8 presents the OCS planning areas grouped into four categories of relative sensitivity ranging from "most" to "least" sensitive to OCS oil and gas activities. Categorization of an OCS planning areas as "less" or "least" sensitive does not mean that environmental resources of that OCS planning area are not sensitive, but as a collection are found to be relatively less sensitive than other OCS planning areas to the types of impacts anticipated from OCS oil and gas activities.

To determine this grouping, the scores for each of the four ecological components were first normalized to a scale of 0-1, and then added together. A coefficient (see section 4.3) was then applied to the sum of the normalized scores for OCS planning areas based on the relative level of climate change effects projected. The sums of the normalized scores were ranked from 1 to 26 with and without applying the coefficient for climate change. The OCS planning

areas defined as "most" or "more" sensitive had scores equal to or greater than the average OCS planning area score, while the OCS planning areas defined as "less" or "least" sensitive had scores less than the average OCS planning area score.

After incorporation of climate change and ocean acidification, there was no change in the relative environmental sensitivity rankings for the four OCS planning areas that ranked "most" sensitive. These four OCS planning areas also were one or more standard deviations greater than the mean OCS planning area score. OCS planning areas defined as "more" sensitive are less than one standard deviation greater than the mean OCS planning area score.

Similarly after incorporation of climate change and ocean acidification, there was no change in the relative environmental sensitivity ranking for the four OCS planning areas that ranked the "least" sensitive. Several OCS planning areas, including the three Arctic OCS planning areas (i.e., Hope Basin, Chukchi Sea, and Beaufort Sea), had a significant increase in their overall sensitivity rankings when increased sensitivity due to climate change was considered.

In *Watt I*, the U.S. Court of Appeals for the District of Columbia Circuit held the relative environmental sensitivity analysis "must at least attempt to identify those areas whose environment and marine productivity are most and least sensitive to OCS activity. In an effort to meet the court's requirement, yet avoid the appearance of unrealistic preciseness associated with a top to bottom ranking this analysis (Table 8) identifies the OCS planning areas "most" relatively sensitive to OCS oil and gas activities as the South Atlantic, Eastern Gulf of Mexico, Mid-Atlantic, and Central Gulf of Mexico, and the "least" relatively sensitive as the Aleutian Arc, Navarin Basin, Bowers Basin, and Aleutian Basin. Table 8 also lists the OCS planning areas that fell between these two categories.

- References
  - Arctic Climate Impact Assessment (ACIA). 2005. Arctic Climate Impact Assessment: ACIA Scientific Report. Cambridge University Press, Cambridge, UK/New York, NY, USA, 1042 pp.

- Angliss, R.P., and B.M. Allen. 2009. Alaska marine mammal stock assessments, 2008. U.S. Department of Commerce, NOAA Tech. Memo. NMFS AFSC-193, 258 p.
- Bailey, R.G. 1998. Ecoregions: The Ecosystem Geography of the Oceans and Continents. New York: Springer.
- Bakun, A. 1990. Global Climate Change and Intensification of Coastal Ocean Upwelling. Science 247: 198-201.
- Barth, J.A., B.A. Menge, J. Lubchenco, F. Chan, J.M. Bane, A.R. Kirincich, M.A. McManus, K.J. Nielsen, S.D. Pierce, and L. Washburn. 2007. Delayed upwelling alters nearshore coastal ecosystems in the northern California Current. Proc. Natl. Ac. Sci., 104(10). 3719-3724.
- Boland G., C. Current, M. Gravois, M. Metcalf, and E. Peuler. 2004. Fate and Effects of a Spill of Synthetic-Based Drilling Fluid at Mississippi Canyon Block 778. OCS Report MMS 2004-039. 18 p.
- California Department of Fish and Game. 2008. Table 15 - Poundage and Value of Landings of Commercial Fish Into California By Area – 2007. Available at: http://www.dfg.ca.gov/marine/landings07/table15.pdf.
- Carretta, J.V., K.A. Forney, M.S. Lowry, J. Barlow, J. Baker, D. Johnston, B. Hanson, M.M. Muto, D. Lynch, and L. Carswell. 2009. U.S. Pacific marine mammal stock assessments, 2008. U.S. Department of Commerce, NOAA Tech. Memo. SWFSC-434, 316 p.
- Continental Shelf and Associates (CSA). 1990. Comparison of Marine Productivity Among Outer Continental Shelf Planning Areas. U.S. Department of Interior, Minerals Management Service. Contract Number 14-35-0001-30487. Herndon, Virginia 20170.
- Continental Shelf and Associates (CSA). 1991. Comparison of Marine Productivity Among Outer Continental Shelf Planning Areas: Supplement – An Evaluation of Benthic Habitat Primary Productivity. U.S. Department of Interior, Minerals Management Service. Contract Number 14-35-0001-30487. Herndon, Virginia 20170.
- Feely, R.A., C.L. Sabine, and V.J. Fabry. 2006. Carbon Dioxide and Our Ocean Legacy. Available at: http://www.pmel.noaa.gov/pubs/PDF/feel2899/feel2899.pdf.

- GeoHab. 2008. GeoHab Conference 2008. Marine Geological and Biological Habitat Mapping. Sitka, AK. Available at http://geohab.org/sitka.html.
- Hodge, R. and B.L. Wing. 2000. Occurrences of Marine Turtles in Alaska Waters: 1960-1998. Herpetological Review. 3(13): 148-151.
- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, editors. Cambridge University Press, Cambridge, UK, 976pp. Available at: http://www.ipcc-wg2.org/index.html.
- T.R. Karl, T.R, J. M. Melillo, and T.C. Peterson, editors. 2009. Global Climate Change Impacts in the United States. Cambridge University Press, New York, NY. Available at: http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf.
- Kleypas, J.A., R.A. Feely, V.J. Fabry, C. Langdon, C.L. Sabine, and L.L. Robbins. 2006. Impacts of Ocean Acidification on Coral Reefs and Other Marine Calcifiers: A Guide for Future Research, report of a workshop held 18–20 April 2005, St. Petersburg, FL, sponsored by NSF, NOAA, and the U.S. Geological Survey, 88 pp.
- Kushlan, J.A., M.J. Steinkamp, K.C. Parsons, J. Capp, M. Acosta Cruz, M. Coulter, I. Davidson, L. Dickson, N. Edelson, R. Elliot, R.M. Erwin, S. Hatch, S. Kress, R. Milko, S. Miller, K. Mills, R. Paul, R. Phillips, J.E. Saliva, B. Sydeman, J. Trapp, J. Wheeler, and K. Wohl. 2002. Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1. Waterbird Conservation for the Americas. Washington, DC, U.S.A. Available at http://www.waterbirdconservation.org/nawcp.html
- Lumsden S., T. Hourigan, A. Bruckner, G. Dorr (eds). 2007. State of Deep Coral Ecosystems of the United States. NOAA Technical Memorandum, CRCP-3.

- McGee, L., D. Boelke, D. Stevenson, D. Reid, R. Protecting. 2006. Sensitive Deep-Sea Canyon Habitats through Fisheries Management: A Case Study in the Northeastern United States. Available at http://www.nefmc.org/habitat/managing_fisheries_poster.pdf.
- Orr, J.C. et al. 2005. Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying organisms. Nature, vol. 437, pp. 681-686.
- Peterson, C.H., S Rice, J Short, D Esler, J Bodkin, B Ballachey, and D Irons. Long-Term Ecosystem Response to the Exxon Valdez Oil Spill. Science 19 December 2003: Vol. 302. no. 5653, pp. 2082–2086. DOI: 10.1126/science.1084282.
- Plotkin, P.T. (Editor). 1995. National Marine Fisheries Service and U. S. Fish and Wildlife Service Status Reviews for Sea Turtles Listed under the Endangered Species Act of 1973. National Marine Fisheries Service, Silver Spring, Maryland.
- Snyder, M.A., L.C. Sloan, N.S. Diffenbaugh, and J.L. Bell. 2003. Future climate change and upwelling in the California Current. Geophysical Research Letters. Vol. 30, No. 15, 1823, 10.1029/2003GL017647.
- Southeast Area Monitoring and Assessment Program (SEAMAP). 2001. Distribution of Bottom Habitats on the Continental Shelf from North Carolina through the Florida Keys. Atlantic States Marine Fisheries Commission, Washington, D.C.
- Spalding, M.D., H. Fox, G. Allen, N. Davidson, Z. Ferdana, M. Finlayson, B. Halpern, M. Jorge, A. Lomabana, K. Lourie, K. Martin, E. McManus, J. Molnar, C. Recchia, and J. Robertson. Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas. BioScience, V57 No. 7.
- Thomas C.D., A. Cameron, R.E. Green, M. Bakkenes, L.J. Beaumont, Y.C. Collingham, B.F.N. Erasmus, M.F. de Siqueira, A. Grainger, L. Hannah, L. Hughes, B. Huntley, A.S. van Jaarsveld, G.F. Midgley, L. Miles, M.A. Ortega-Huerta, T. Peterson, O.L. Phillips, and S.E. Williams. 2004. Extinction Risk from Climate Change. Nature, 427, 145-148.

- U.S. Climate Change Science Program (CCSP). 2009. Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region. A report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. [James G. Titus (Coordinating Lead Author), K. Eric Anderson, Donald R. Cahoon, Dean B. Gesch, Stephen K. Gill, Benjamin T. Gutierrez, E. Robert Thieler, and S. Jeffress Williams (Lead Authors)]. U.S. Environmental Protection Agency, Washington D.C., USA, 320 pp.
- U.S. Dept. of Commerce. National Marine Fisheries Service (NMFS). 2009. Annual Report to Congress on the Status of U.S. Fisheries-2008. Silver Spring, MD. Available at http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm.
- U.S. Dept. of Commerce. National Oceanographic and Atmospheric Administration (NOAA). 2009. National Marine Sanctuaries. Internet website: http://sanctuaries.noaa.gov/. Accessed on July 24, 2009.
- U.S. Dept. of Commerce. NOAA Fisheries Service. 2009. Climate Change and Ocean Productivity. Northwest Fisheries Science Center. Internet websitehttp://www.nwfsc.noaa.gov/research/divisions/fed/climatechange.cfm. Accessed on June 29, 2009.
- U.S. Dept. of Commerce. NOAA Fisheries. Office of Protected Resources. 2009a. Chritical Habitat. Internet website: http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm. Accessed on July 24, 2009.
- U.S. Dept. of Commerce. NOAA Fisheries. Office of Protected Resources. 2009b. Marine and Anadromous Fish. Internet website: http://www.nmfs.noaa.gov/pr/species/fish/. Accessed on June 8, 2009.
- U.S. Dept. of Commerce. NOAA Fisheries. Office of Protected Resources. 2009c. Marine Invertebrate and Plant Species Under the Endangered Species Act (ESA). Internet website: http://www.nmfs.noaa.gov/pr/species/esa/invertebrates.htm. Accessed on June 8, 2009.
- U.S. Dept. of Commerce. NOAA Fisheries. Office of Science and Technology. 2009. Annual Commercial Landing Statistics. Internet website: http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html. Accessed June 8, 2009.

- U.S. Dept. of the Interior. Minerals Management Service (MMS). 2007. Outer Continental Shelf Oil and Gas Leasing Program: 2007-2012—Final Environmental Impact Statement. Volumes I-II. U.S. Dept. of the Interior, Minerals Management Service, Washington, DC. OCS EIS/EA MMS 2007-003.
- U.S. Department of Navy. 2005. Marine Resources Assessment for the Northeast Operating Area. Final Report. Contract Number N62470-02-D-9997.
- U.S. Department of Navy. 2006. Marine Resources Assessment for the Gulf of Alaska Operating Area. Final Report. Contract Number N62470-02-D-9997.
- U.S. Department of Navy. 2007a. Marine Resources Assessment for the Gulf of Mexico. Final Report. Contract Number N62470-02-D-9997.
- U.S. Department of Navy. 2007b. Marine Resources Assessment for Southeastern Florida and the Autec-Andros Area. Final Report. Contract Number N62470-02-D-9997.
- U.S. Department of Navy. 2008a. Marine Resources Assessment Update for the Charleston/Jacksonville Area. Final Report. Contract Number N62470-02-D-9997.
- U.S. Department of Navy. 2008b. Marine Resources Assessment for the Southern California and Point Mugu Operating Areas. Final Report. Contract Number N62470-02-D-9997.
- U.S. Department of Navy. 2008c. Marine Resources Assessment Update for the Virginia Capes Operating Area. Final Report. Contract Number N62470-02-D-9997.
- U.S. Fish and Wildlife Service (USFWS). 2009a. Endangered Species Act, Section 7 Biological Opinion for Beaufort and Chukchi Sea Program Area Lease Sales and Associated Seismic Surveys and Exploratory Drilling. September 3.
- U.S. Fish and Wildlife Service (USFWS). 2009b. FWS Critical Habitat for Threatened & Endangered Species. Internet website: http://criticalhabitat.fws.gov/. Accessed July 24, 2009.

- U.S. Fish and Wildlife Service (USFWS). 2009c. Draft Alaska Seabird Conservation Plan. U.S. Fish and Wildlife Service, Alaska Region, Migratory Bird Management, Non-game Program. 135 pages.
- U.S. Fish and Wildlife Service (USFWS). 2005. Seabird Conservation Plan: Pacific Region. Regional Seabird Conservation Plan, Pacific Region. U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, Pacific Region, Portland, Oregon. 262 pages. Available at: http://www.fws.gov/pacific/migratorybirds/Seabird_Conservation_Plan_Webpages/Complete_USFWS_Seabird_Conservation_Plan.pdf.
- Vié, J.-C., C. Hilton-Taylor, and S.N. Stuart, editors. 2009. Wildlife in a Changing World – An Analysis of the 2008 IUCN Red List of Threatened Species. Gland, Switzerland: IUCN. 180 pp.
- Waring G.T., E. Josephson, C.P. Fairfield-Walsh, and K. Maze-Foley K, editors. 2009. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments, 2008. U.S. Department of Commerce, NOAA Tech Memo NMFS NE-210; 440 p.
- Woodby, D., D. Carlile, S. Siddeek, F. Funk, J.H. Clark, and L. Hulbert. 2005. Commercial Fisheries of Alaska. Alaska Department of Fish and Game, Juneau, AK. Special Publication No. 05-09. Available at: http://www.sf.adfg.state.ak.us/FedAidPDFs/sp05-09.pdf.


***b. Relative Marine Productivity***

Productivity means the primary productivity of marine plants. Primary productivity is the amount of plant tissue produced through photosynthetic fixation of carbon during a standard period of time. The most common example is simply a plant using energy from the sun to make organic matter. It is the basis for growth in most ecosystems. Phytoplankton, microscopic marine plants, and fixed or rooted plants contribute to the primary productivity of most OCS planning areas. Phytoplankton can occupy all surface waters of a planning area and fix carbon as long as sufficient light and nutrients are available. Inshore waters typically have a much higher primary productivity than most open-ocean waters because of the presence of increased nutrients and light penetration possible to the sediment-water interface allowing for the establishment of fixed vascular plants on the ocean floor. Farther from shore, fewer nutrients, primarily of terrestrial origin, are available for use by phytoplankton, and surface mixing due to wave action, down-dwelling, fronts, and convergence may push some phytoplankton down into the water column where insufficient light allows for photosynthesis to occur.

The methods of measuring phytoplankton productivity are relatively standard and the results are normally expressed in terms of chlorophyll-a, or the amount of carbon fixed during

photosynthesis per square meter of ocean surface per unit time. It is important to note that measurements of phytoplankton can vary greatly both spatially and temporally resulting in significant differences in measurements within and between planning areas. As a result the reader must be aware of the highly variable mosaic pattern of productivity estimates.

There are two methods to provide an analysis for primary production–total estimated primary production and normalized or average per unit area production. In the first method, the size of the planning area is incorporated into the analysis and can greatly contribute to the overall relative rankings. Therefore, it is possible to have a highly productive on average, but small, planning area that would be lower ranked than a larger planning area with average productivity. In the second method, the sizes of the planning areas are not incorporated into the analysis and the planning areas with the highest average per square meter productivity would be higher ranked. To ensure a complete analysis of the primary productivity of each planning areas, as required under the Act, both methods have been used.

Table 22 shows the estimates for the total primary productivity of each planning area in metric tons per year. Estimates range from the highest in the Mid-Atlantic Planning Area, yielding a total primary productivity of over 140 million metric tons of carbon per year to the lowest, 4.5 million metric tons of carbon per year in the Beaufort Sea. For the purposes of this analysis, the planning areas have been broken down into 4 different classes of estimated total primary production, with the first and highest being the Mid-Atlantic Planning Area.

***TABLE 22: Primary Production Estimates for Each Program Area***

| Rank | Program Area | Metric Tons/yr |
|---|---|---|
| 1 | Mid-Atlantic | 139,781,399 |
| 2 | Central Gulf of Mexico | 110,234,566 |
| 3 | North Aleutian Basin | 84,251,465 |
| 4 | Western Gulf of Mexico | 31,331,220 |
| 5 | Cook Inlet | 24,152,550 |
| 6 | Chukchi Sea | 8,237,533 |
| 7 | Beaufort Sea | 4,591,039 |

Source: CSA (1990, 1991)

The second group consists of planning areas with total primary productivity values ranging from 84 million to 110 million metric tons of carbon per year. This group includes the Central Gulf of Mexico and the North Aleutian Basin.

Two planning areas fall within the third category of estimated primary productivity which ranges between values of 24 to 31 million metric tons of carbon per year. This group includes the Western Gulf of Mexico and Cook Inlet Planning Areas.

The fourth and lowest category of estimated primary productivity includes those planning areas with less than 9 million metric tons of carbon per year, the Chukchi Sea and Beaufort Sea Planning Areas.

*TABLE 23: Relative Annual Water Column Primary Productivity, Variability, and Confidence in Available Data for OCS Program Areas*

| Planning Area | Productivity Level* | | | Variability | Confidence |
|---|---|---|---|---|---|
| | *High* | *Medium* | *Low* | | |
| Mid-Atlantic | X | | | High | Moderate - High |
| Central Gulf of Mexico | | | | | |
| Coastal | X | | | High | Poor |
| Offshore | | X | | High | Poor |
| North Aleutian Basin | | X | | | |
| Coastal Domain | | X | | High | High |
| Central | | X | | High | High |
| Sea Ice | | | X | High | Poor - Moderate |
| Western Gulf of Mexico | | | | | |
| Embayments | | X | | Unknown | Moderate |
| Coastal | | X | | High | Moderate |
| Offshore | | X | | Low | Poor |
| Cook Inlet | X | | | High | Poor-Moderate |
| Chukchi Sea | | | | | |
| Coastal (Lisburne) | | X | | Unknown | Poor-Moderate |
| Coastal (Barrow) | | | X | Unknown | Poor-Moderate |
| Ice Algae | | | X | Unknown | Poor-Moderate |
| Beaufort Sea | | | X | High | Poor-Moderate |

Source: CSA, 1990

* Relative Phytoplankton productivity categories: High (200-500 g C/$m^2$/year), Moderate (50 - 200 g C/$m^2$/yr), and Low (<50 g C/m2/yr).

Table 23 shows the estimates for the primary productivity per square meter in each program area, broken down where possible in grams of carbon per meter square per year. The high productivity program areas are those with 200-500 g C/$m^2$/year. Two areas are included in this category the Mid-Atlantic and Cook Inlet. The confidence level associated with these estimates are poor to moderate with the exception of the Mid-Atlantic Program Area where the confidence level is moderate to high. The variability of productivity levels within these areas is high.

The moderate productivity program areas are those ranging from 50-200 g C/$m^2$/yr. The Western Gulf of Mexico, Central Gulf of Mexico and North Aleutian Basin are in this category. The variability of productivity levels within these areas is overall high. Similarly, the confidence level associated with these estimates is fairly poor with the exception of the North Aleutian Basin.

Two program areas, Beaufort Sea and Chukchi Sea fall in the least productive category where primary productivity is less than 50 g C/m2/yr.

Over 50 years of activity in the Gulf of Mexico has not indicated any incompatibility between maintaining high marine primary productivity and production from the OCS. The Central Gulf coastal area ranks second in marine primary productivity only to the Mid-Atlantic. The marine primary productivity of the Central Gulf does not appear to have been appreciably diminished by offshore exploration and production activities. The same is true of other areas of the OCS with existing operations and production. Thus, the size, location, and timing of lease sales in the

proposed final program are consistent with the marine primary productivity of the areas in which lease sales will be held.

***References***


- Continental Shelf and Associates. 1990. Comparison of Marine Productivity Among Outer Continental Shelf Planning Areas. U.S. Department of Interior, Minerals Management Service. Contract Number 14-35-0001-30487. Herndon, Virginia 20170.

- Continental Shelf and Associates. 1991. Comparison of Marine Productivity Among Outer Continental Shelf Planning Areas: Supplement – An Evaluation of Benthic Habitat Primary Productivity. U.S. Department of Interior, Minerals Management Service. Contract Number 14-35-0001-30487. Herndon, Virginia 20170.


**3. Industry Interest**

Section 18(a)(2)(E) of the OCS Lands Act requires the Secretary to consider "the interest of potential oil and gas producers in the development of oil and gas resources." Throughout preparation of this 5-year program for 2007-2012, industry commenters have expressed highest interest in the Gulf of Mexico region: the Eastern Gulf of Mexico, the Central and the Western GOM Planning Areas. Next in interest are the North Aleutian Basin, Beaufort Sea, and Chukchi Sea Planning Areas off Alaska. The Cook Inlet Planning Area, off Alaska, also received moderate interest. The Mid-Atlantic Planning Area received light interest, followed by the North and South Atlantic Planning Areas. The discussions of options in part III include pertinent summaries of industry comments, and all comments that the MMS received on the proposed program are summarized in the appendix. Overwhelmingly, industry commenters urged expansion of the program to include all OCS areas. Many took exception to deferrals and buffers within which no leasing should occur, and they recommended that where legislative restrictions are in place, the areas should be offered as available once restrictions are lifted.

The Proposed Final Program corresponds to areas of highest industry interest, with two exceptions. One is the Eastern Gulf of Mexico Planning Area, in which the industry expressed very high interest. However, the vast majority of that area is not available under existing legal constraints. Recent congressional actions have reaffirmed that unavailability. Second, under the Proposed Final Program, MMS will offer a up to two special interest sales in the Cook Inlet if industry interest over the 5-year span of the program proves to be sufficient. The greatest industry interest in the Atlantic was in the Mid-Atlantic region, a portion of which is included in the program, contingent on a change in the existing legal restrictions.

**4. Equitable Sharing of Developmental Benefits and Environmental Risks**

***Introduction***

Section 18(a)(2)(B) of the Act requires that the Secretary base the timing and location of OCS exploration, production, and development on a consideration of, among other things, "an

equitable sharing of developmental benefits and environmental risks among the various regions." Because developmental benefits and many environmental risks often accrue outside the OCS regions, which are portions of land lying under the ocean, analysis of this factor usually goes beyond the strict requirements of the OCS Lands Act and considers the sharing of benefits and risks to the onshore U.S. population, particularly in the coastal areas near producing regions of the OCS.

Section 18 does not require that the leasing program achieve an equitable sharing of developmental benefits and environmental risks, nor have the courts set a specific standard of equitable sharing that the Secretary is to achieve. As the court recognized in *California I* and *California II*, the degree to which a proposed 5-year schedule of lease sales might achieve an equitable sharing of benefits and risks must be considered in light of a number of other factors, many of which are not under the control of the Department and some of which greatly affect the options available.

***Benefits and Risks***

Some benefits and risks of OCS leasing are shared widely while others are concentrated in regions adjacent to areas of OCS oil and gas activity. The benefits that accrue primarily to producing regions and nearby onshore areas are derived primarily from employment, increased revenues, reduced risk of accidents involving tankers carrying imported oil and from expenditures on the factors of production, i.e., labor, land, materials, and equipment. Benefits flowing from Federal Government revenues (e.g., royalties) obtained through OCS-related activities tend to be widely distributed among the geographic onshore regions of the United States, including those near OCS oil and gas exploration and production. Financial rewards for profitable operations in the form of stock dividends and increased stock values also tend to be widely distributed, as owners live throughout the country. The benefits of an improved balance of trade are shared nationally as well. The immediate environmental risks of OCS oil and gas activities are borne primarily by producing regions and nearby onshore areas, while some of the financial consequences of those risks (e.g., financial losses due to unprofitable endeavors, compensation by responsible parties for natural resource damage and payments into funds established to provide compensation for losses not attributable to specific parties) are shared by companies and individuals throughout the Nation.

The nature of developmental benefits and environmental risks associated with the OCS oil and gas program, as summarized above, has been well documented in previous 5-year program analyses. Those analyses concluded that the 5-year program has a certain innate equity in that the geographic areas bearing the greatest risks also receive a higher share of the benefits while certain financial aspects of both benefits and risks are shared somewhat widely. However, the Secretary can consider those factors mentioned in the previous paragraph that do lead to greater benefits and/or risks for local areas when oil and gas activities occur nearby. Once the Secretary decided on the specifics of the proposed program—size, timing, and location—a specific equitable sharing analysis of the decision and each alternative was begun for the Proposed Final Program.

The previous equitable sharing analyses have noted that there are actions that may be taken independent of the 5-year program to influence the equitable sharing of developmental benefits, environmental risks, or both. Two such influential developments have occurred since the approval of the 5-year program for 2002-2007 are the enactment of the Energy Policy Act (EPAct) of 2005 and the Gulf of Mexico Energy Security Act (GOMESAct) of 2006, each providing for distribution of additional Federal revenues, as impact assistance to certain coastal states and localities near OCS activity. The coastal impact assistance provisions of EPAct are to be funded at $1 billion over 4 years, differing from a previous version of coastal impact assistance legislation in that the funding is no longer subject to annual appropriations legislation. These funds are available to Alabama, Alaska, California, Louisiana, Mississippi, and Texas. Through fiscal year 2016, the GOMESAct applies only to revenues from the areas covered by Eastern Gulf Sale 224 and the "181 South Area". In fiscal years 2017 and thereafter, GOMESAct shares revenues from all Gulf of Mexico leases issued after 2006, subject to an annual cap through 2055; but, it is otherwise a more unconditional commitment to distribute additional revenues to the four "Gulf producing States." Subject to the limits above, the GOMESAct designates 50 percent of rentals, royalties, bonus bids, and other Gulf OCS revenues for direct distribution through complex formulaic calculations and for financial assistance through the Land and Water Conservation Fund. Twenty percent of each state's share is to go directly to that state's coastal political subdivisions.

The long-term executive withdrawal of huge sections of the OCS, including two entire OCS regions (the Atlantic and the Pacific), from disposition by leasing severely restricts the Secretary's ability to make decisions that retain or enhance equitable sharing. However, in the proposed program issued in August 2006, the Secretary proposed three sales that could be held in two restricted planning areas, and the President has since chosen to modify the withdrawal affecting one of those areas—the North Aleutian Basin in the Alaska OCS Region (two sales in the proposed program). The provisions of the withdrawal remain in effect for Atlantic OCS Region, which encompasses the Mid-Atlantic Program Area (Sale 220). Sales in either planning area could lead to oil and gas activities that would result in a broader sharing of both developmental benefits and environmental risks. While some OCS oil and gas activities on leases issued in previous sales will continue in the Pacific OCS Region, the level of activity there would not be affected by the proposed final program.

***Possible Effects of Different 5-Year Program Decisions***

Decisions determining the size, timing, and location of OCS leasing in the 5-year program for 2007-2012 can affect the distribution of associated developmental benefits and environmental risks among the coastal regions of the United States. Environmental risks are discussed in great detail in the 5-year program EIS, and environmental impacts associated with specific decision options are summarized in part III.A, which also describes the relationship of EIS alternatives and program decision options. Decision options usually are offered for individual program areas, and the EIS alternatives are program-wide aggregations of these options. Developmental benefits—as measured by effects of the program on employment and personal income—are discussed below.

As in previous 5-year programs, this analysis examines the distribution of developmental benefits among coastal regions near planning areas proposed for OCS lease sales. Due to the long-term withdrawal of the east and west coasts from leasing, Regions III (Florida), IV (Alabama, Mississippi, Louisiana, and Texas) and VII (Alaska) are the only coastal regions examined in the main analysis. In addition, there will be some discussion of Region I (Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, and Virginia) in case the Presidential withdrawal on lease sales in the Mid-Atlantic Program Area is modified and the Congressional moratorium discontinued such that the proposed Mid-Atlantic lease sale can be held. All other States, coastal and inland, are part of a grouping characterized as the "Rest of the United States," which is included for comparative purposes. The MMS used its recently updated regional economic impact models to estimate the relative economic effects on each of these regions that might result under the alternatives analyzed in the EIS. These models are the same as those used to estimate employment and income effects for EISs prepared by the MMS, and the updated models have a more integrated approach to such modeling across the OCS regions.

The analysis has determined that the proposed final program would have its greatest economic effect in Region IV, which comprises the States adjacent to, and near, the Central and Western Gulf of Mexico OCS Planning Areas. Region IV would receive roughly 65 percent of the employment and personal income generated by the proposed final program. Region VII (Alaska) would receive about 6 percent, Region III (Florida) could receive as much as 3 percent, and the Rest of the United States would receive the remainder, a little more than a quarter of the total. Should the proposed Mid-Atlantic sale be held and exploration, development, and production activities ensue, MMS estimates that Region I would receive less than 1 percent of the employment, income, and total economic output generated by the proposed final program. These results depend upon the existence and discovery of oil and/or natural gas resources in economic quantities. As described in the EIS, the employment and related effects in the coastal Mid-Atlantic States would be minor, given the lack of established oil and gas infrastructure in the area. If production in the Mid-Atlantic does occur, there would be a gradual buildup of such infrastructure, and more developmental benefits would flow to communities along the East Coast.

These results are consistent with the existence of current infrastructure and the expected location of most of the offshore activity likely to result from the proposed final program. Not coincidentally, it is the vicinity of Region IV that is expected to face the most environmental risks as well. It should be noted that the *per capita* share of these developmental benefits is greater for Alaska than for the States in Region IV. Also, to the extent that Alaska continues to develop the means to supply the goods and services needed for offshore oil and gas activities, Region VII would be expected to increase its share of the developmental benefits flowing from the 5-year program for 2007-2012. Because no near-shore areas directly off the coast of Florida are proposed for leasing, it is not expected that much economic activity would result in Region III, and the associated environmental risks would be minimal, if any. However, there are opportunities for Florida industries to benefit from supplying goods and services to the OCS industry operating in the eastern portion of the Central Gulf. Many such opportunities would require investments in related infrastructure.

An analysis of the groups of program options labeled Alternatives 2-9 in the EIS shows similar patterns of sharing of economic activities. Only the first 2 alternatives would be likely to affect the distribution of developmental benefits to an appreciable extent, and even their effects should be minor in the context of the entire proposed final program. Alternative 2, which would exclude the North Aleutian Basin Program Area sales, could cut the Alaska proportion of expected economic activity by 1 or 2 percentage points. The shares of benefits accruing to Region IV (the 4-State GOM region) and to the Rest of the United States would therefore increase slightly. Likewise, Alternative 3, which would exclude the Cook Inlet Program Area sales, would reduce Region VII's share of developmental benefits but by a smaller amount, probably by less than 1 percentage point. Alternative 4, which would exclude the Mid-Atlantic Program Area sale, should not have much effect on the distribution of developmental benefits, because of the small amount of expected activity and because of the fact that most of the activities in the Mid-Atlantic are likely to be staged out of Region IV unless and until the level of OCS activity increases to the point that it justifies infrastructure development. The Alternatives 5, 6, 7, 8 and 9 would not likely change resulting OCS activity levels and, thus, should not affect the distribution of development benefits.

## *Summary*

The general findings and conclusions of previous equitable sharing analyses are still valid. Since the distribution of benefits associated with factors of production is linked significantly to the location of OCS oil and gas support industries—which exist primarily along the Gulf of Mexico, Southern California, and Alaska coasts—the Secretary's decision on an OCS leasing schedule for the period 2007-2012 would not be expected to alter substantially the distribution of benefits and risks achieved under previous 5-year programs. The exception among the three coastal areas mentioned above has been Southern California, whose exclusion from the three previous programs (1992-1997, 1997-2002, and 2002-2007) has precluded it from sharing in direct benefits and risks resulting from those programs. Despite that fact that the New England, Mid-Atlantic, and South Atlantic States account for well over 25 percent of the Nation's oil and natural gas consumption and for only a small percentage of its production, the Atlantic remains the only one of the four OCS regions without any oil and gas activities. Because the Secretary is considering a sale in the Mid-Atlantic Program Area for the proposed final program, it would be possible to further equitable sharing by retaining that sale in the proposed schedule, assuming that the current restrictions are lifted.

The Federal revenues that traditionally have accrued to adjacent onshore areas as a result of OCS oil and gas activities will be augmented by the newly enacted impact assistance program mandated by section 384 of the EPAct and the new revenue distribution provisions in the GOMESAct. Finally, measures such as the implementation of new lease stipulations and operating regulations remain available to reduce the risks borne by the affected areas.

Given the long-term executive withdrawal of the Pacific and Atlantic OCS regions from leasing consideration, the availability of OCS planning areas for leasing consideration in the new 5-year program has been severely limited. Under these circumstances, the best attempt at achieving an

equitable sharing of benefits and risks would be to continue to focus on the Central and Western Gulf of Mexico, while also including sales in promising areas of the Alaska OCS. Should restrictions be rescinded for OCS oil and gas activities in the Atlantic, holding proposed Sale 220 could further the long-term equitable sharing of developmental benefits and environmental risks.

**5. Other Uses of the OCS**

Section 18(a)(2)(D) requires the Secretary to examine the location of areas considered for leasing with respect to other uses of the resources and space within those areas. Other uses of the OCS that could affect or be affected by oil and gas leasing and ensuing activities are described below. The following types of uses are addressed:

- ·Subsistence (hunting and fishing activities by Alaska Natives);
- Commercial Fishing;
- Essential Fish Habitat and Habitat Areas of Particular Concern (pursuant to section 303(a)(7) of the Magnuson-Stevens Fishery Conservation and Management Act, as amended, and implementing regulations);
- Other Areas of Special Concern (onshore and offshore areas designated for special uses and protections, such as parks and sanctuaries);
- Tourism and Recreation;
- Military and NASA (operating areas in the Gulf of Mexico and Atlantic Regions);
- Commercial Space Flight (Mid-Atlantic Region);
- Liquefied Natural Gas (Gulf of Mexico Region);
- Nonenergy Marine Mineral Activities; and
- Alternative Energy.

The information presented below summarizes detailed regional descriptions of the environment that are included in the 5-year program final EIS. The discussion of options in part III includes pertinent summaries including “other uses” comments, and all comments that MMS received are summarized in the appendix.

***Alaska Region***

**Subsistence:** Subsistence activities have value in the context of culture, lifestyle, society, and community. Subsistence activities in the Beaufort Sea marine and coastal area focus on the bowhead whale, as well as caribou, freshwater and ocean fish, ducks and geese, and bearded

seals. Species subject to subsistence activities in the Chukchi Sea area include bowhead whale, beluga whale, caribou, seal, walrus, polar bear, fish, duck, and goose. Bowhead whaling is the single most valued activity in the North Slope subsistence economy today. In the North Aleutian Basin area, subsistence activities focus on fish (salmon and herring), marine mammals (seals and walrus), waterfowl, and shellfish offshore, and caribou and moose onshore. Widely varying subsistence patterns in the vicinity of Cook Inlet reflect the area's diverse population. Generally, the inhabitants of small traditional villages harvest saltwater and freshwater fish and small sea mammals in the summer and fall, moose in the fall, and invertebrates and some sea mammals year round. In the larger industrial communities, the people generally fish in the summer and hunt in the fall, and more households do not partake in subsistence activities. Due to recent declines in the population of beluga whales in Cook Inlet, their harvest is now subject to co-management by NMFS and the Cook Inlet Marine Mammal Council, which represents Native subsistence hunters. The current co-management agreement allows for the harvest of one beluga by the Tyonek Native community located on the upper northwest shore of Cook Inlet.

**Commercial Fishing:** In the Beaufort Sea area there is one family operating a commercial fishery focused primarily on cisco and whitefish in the Colville River Delta during summer and fall. The port of Barrow also documented a small amount of commercially landed salmon in 1999. There are currently no commercial fisheries in the Chukchi Sea. Commercial fisheries for salmon, ground fish, and shellfish are the major economic base in the North Aleutian Basin area. Commercial fishing is an important segment of the local economy of the Cook Inlet region, focusing mainly on salmon and to a lesser degree on crab, shrimp, and halibut.

**Essential Fish Habitat and Habitat Areas of Particular Concern:** Essential Fish Habitat (EFH) has been designated in all of the areas off Alaska that are proposed for leasing. In the Beaufort Sea and Chukchi Sea areas, essential habitat has been established for all five salmon species. Several habitats of particular concern are located in the North Aleutian Basin. In Cook Inlet the habitat designations cover 42 species. The Stefansson Sound Boulder Patch in the Beaufort Sea Planning Area is a designated Habitat Area of Particular Concern. Several Habitats of Particular Concern are located in the North Aleutian Basin.

**Other Areas of Special Concern:** All of the areas proposed for leasing off Alaska are adjacent to coastal portions of National Parks or Wildlife Refuges. The Beaufort Sea program area is adjacent to the Arctic NWR (ANWR). The Chukchi Sea program area is located off the Alaska Maritime NWR, Chukchi Sea Unit. The North Aleutian Basin area is adjacent to or near the Alaska Maritime NWR, the Alaska Peninsula NWR, the Izenbek Lagoon NWR, the Aniakchak Crater National Monument and Preserve, the Bechar of NWR, the Katmai National Park and Preserve, and the Togiak NWR. The Cook Inlet program area is near Lake Clark National Park and Preserve, and the Katmai National Park and Preserve is located on the eastern shore of the Shelikof Strait, which is south of the program area.

The NOAA-Fisheries issued a final rule (50 CFR Part 226) to revise the critical habitat for the northern right whale by designating additional areas in the Northern Pacific Ocean, which include the Bering Sea.

**Tourism and Recreation:** In the Beaufort Sea and Chukchi Sea areas, recreation activities take place mainly in the summer and include fishing, boating, hunting, hiking, sightseeing, camping, and picnicking. Most nonresident activity is by tour groups that visit Barrow and Deadhorse, both of which have lodging available. Hikers and river rafters also visit ANWR. In the North Aleutian Basin area there is very little developed tourism or recreation, but the area has significant potential due to its scenic coastline and the historic sites. The Cook Inlet area offers abundant high quality tourist and recreation resources that attract numerous State, national, and international visitors. Additional information relating to tourism and recreation in Alaska is available in the draft EIS description of areas of special concern.

**Military:** Although there are military use areas within the Alaska Region, OCS oil and gas leasing and related activities are not expected to interfere with military operations.

**Nonenergy Marine Mineral Activities:** There is no current development of offshore nonenergy minerals in any of the Alaska OCS program areas under consideration for oil and gas leasing. There are sand and gravel deposits in the Beaufort Sea, but their value as a construction material is not known.

***Gulf of Mexico Region***

**Commercial Fishing:** The Gulf of Mexico fisheries are very important to the economies of the adjacent coastal States. The Gulf of Mexico commercial fisheries include nearly 100 species from 33 families. Menhaden is the most important finfish harvested, followed by nine other species of significant value. Shrimp is the most important shellfish, along with various oyster, lobster, and crab species. Louisiana ranked first among Gulf States in total commercial fisheries landed in 2005, followed in descending order by Mississippi, Texas, Florida (west coast), and Alabama.

**Essential Fish Habitat and Habitat Areas of Particular Concern:** Approximately 33 percent of the species managed by the Gulf of Mexico Fisheries Management Council have been selected for EFH designation. They include invertebrate and reeffish species, red drum and other coastal pelagic species, and highly migratory species such as swordfish, tunas, and sharks. The Management Council has designated nine Habitat Areas of Particular Concern in the Gulf. Only the Flower Garden Banks National Marine Sanctuary, which is located in the Western Gulf Planning Area, is located in an area proposed for leasing.

**Other Areas of Special Concern:** Special areas in the Gulf of Mexico include a National Marine Sanctuary, National Park System units, National Wildlife Refuges, a National Estuarine Research Reserve, and National Estuary Program areas. The Flower Garden Banks National Marine Sanctuary covers a 146-square kilometer area located 177 kilometers (110 miles) offshore within the Western Gulf of Mexico Planning Area (including the addition of Stetson Bank in 1996). National Park System units along the Gulf coast that are adjacent to areas considered for leasing include Jean Lafitte National Historic Park and Preserve in Louisiana, Padre Island National Seashore off Texas, and Gulf Islands National Seashore off Mississippi and Alabama. There are 28 National Wildlife Refuges located along the coast from Texas to

Alabama. The Weeks Bay National Estuarine Research Reserve encompasses a small estuary in the vicinity of Mobile Bay adjacent to the Central Gulf of Mexico Planning Area. The Grand Bay National Estuarine Research Reserve is located in Mississippi and Mission-Aransas Reserve (designated on May 3, 2006) is located in Texas. National Estuary Program areas include the Galveston Bay and Corpus Christi Bay systems in Texas, the Barataria-Terrebonne Estuarine Complex and Lake Pontchartrain Basin Program in Louisiana, and Mobile Bay in Alabama.

**Tourism and Recreation:** The northern Gulf of Mexico coastal zone is one of the major recreational regions of the United States, particularly in connection with marine fishing and beach-related activities. The shorefronts along the Gulf States offer a diversity of natural and developed landscapes and seascapes. The coastal beaches, barrier islands, estuarine bays and sounds, river deltas, and tidal marshes are extensively and intensively used for recreational activity by residents of the Gulf States and tourists from throughout the Nation, as well as from foreign countries. Publicly owned and administered areas, such as national seashores, parks, beaches, and wildlife lands, as well as specially designated preservation areas, such as historic and natural sites and landmarks, wilderness areas, wildlife sanctuaries, and scenic rivers, attract residents and visitors throughout the year. Commercial and private recreational facilities and establishments, such as resorts, marinas, amusement parks, and ornamental gardens, also serve as primary interest areas and support services for people who seek enjoyment from the recreational resources associated with the Gulf of Mexico. Although there are a variety of beach activities along the Gulf Coast, the growth of casinos in Mississippi and southwest Louisiana has attracted many visitors since the 1990's. Before the 2005 hurricane season, Mississippi was the third largest casino market in the United States, behind Las Vegas, Nevada, and Atlantic City, New Jersey.

**Military:** The Gulf of Mexico is the most important over-water testing and training area in the United States, with areas designated for air-to-surface and air-to-missile testing, surface vessel testing, and training for air, surface, mine, and submarine operations. Areas used by the military include the Corpus Christi Operating Area off Texas (mine warfare and aircraft carrier landing training), the New Orleans Operating Area off Louisiana (naval live firing maneuvers), and the Pensacola Operating Area off Alabama and Florida (aircraft carrier landing training, naval vessel shakedown testing, and live firing exercises). The DOI and the Department of Defense coordinate activities and reduce use conflicts according to procedures established in a longstanding Memorandum of Agreement.

**Liquefied Natural Gas:** Natural gas is liquefied to concentrate a much greater volume of product in a given space to facilitate storage and transportation. In the Gulf of Mexico LNG terminals have been planned, approved and built on the OCS. These facilities will offload LNG from tankers into the existing offshore natural gas pipeline system. Currently in the Gulf of Mexico, there are 5 of these facilities that are at the planning or permitting stages. One, the Gulf Gateway facility, began operation 214 kilometers (116 miles) off the coast of Louisiana in 2005.

**Nonenergy Marine Mineral Activities:** Several minerals in the north-central Gulf of Mexico have the potential to be developed. Two salt and sulphur operations exist on the OCS offshore Louisiana, and other deposits of salt and sulphur are known to occur in the north-central Gulf of

Mexico. Federal sand was dredged in 2002 to restore Holly Beach on the western coast of Louisiana. Sand deposits located in Federal waters in the Ship Shoal area off Louisiana are being considered for use in restoring barrier islands to protect the State's coastal wetlands. Sands in Federal and State waters off Mississippi and Alabama have the potential to be developed for glass production and for coastal restoration uses including beach replenishment.

**Alternative Energy:** The Energy Policy Act gave the Secretary of the Interior responsibility for regulating federal offshore alternative energy projects. The MMS will accept for review new applications for OCS alternative energy projects only once the programmatic regulations are in place. Wind Energy Systems Technology's Gulf of Mexico wind farm has started the process of deploying a tower in state waters to monitor wind and migratory bird flight and to determine proper locations for 50 wind turbines.

***Atlantic Region***

**Commercial Fishing:** Commercial fisheries are managed via the Mid-Atlantic Council. Commercial fishery landings are substantial along the Atlantic coast. The entire Atlantic seaboard represents 16.6 percent of the volume and 36.1 percent of the total value of all commercial U.S. landings in 2004 (USDOC, NMFS, 2006). The most productive states were represented by Maine with a total landing value of over $367 million followed by Massachusetts with $327 million and Virginia with $160 million in landings. Virginia had the highest commercial landings weight of all Atlantic states with the total of over 481 million pounds in 2004 valued at over $24 million dollars. The dominant species making up this total was Atlantic menhaden with a weight of approximately 400 million pounds landed in 2004. The next largest landing totals were blue crabs with 26 million pounds and sea scallops with 19.6 million pounds. The most valuable species throughout the Atlantic states is the American lobster valued at nearly $366 million in 2004 (only for north Atlantic states and especially for Maine) followed closely by sea scallops valued at over $321 million. Other species landed in 2004 valued at over $25 million for all Atlantic states included Atlantic surf clams, quahoq clams, blue crabs, summer flounder, goosefish, Atlantic menhaden, squids, and white shrimp.

**Essential Fish Habitat and Habitat Areas of Particular Concern:** There are numerous EFH designated by the Mid-Atlantic Fishery Management Council. Managed species vary between different fisheries management councils. For the Mid Atlantic states including New York, Pennsylvania, New Jersey, Maryland, Delaware, Virginia, and North Carolina, managed species include Atlantic mackerel, long finned squid, short-finned squid, butterfish, bluefish, spiny dogfish, surf clam, ocean quahoq clam, summer flounder, scup, black sea bass, tilefish, and monkfish. The Highly Migratory Species division of the NMFS manages Atlantic highly migratory species including tunas, sharks, swordfish, and billfish. For the New England and Mid-Atlantic regions, EFH has been identified for a total of 59 species covered by 14 fishery management plans, under the auspices of the New England, Mid-Atlantic, South Atlantic Fisheries Management Councils or the NMFS.

One federally threatened and endangered species, the Shortnose Sturgeon; and a Species of Concern, the Atlantic Sturgeon, are found in this area.

**Other Areas of Special Concern:** There are national marine sanctuaries, national seashores, parks, wildlife refuges, estuarine research reserves, and estuaries within the Mid-Atlantic area. The Monitor National Marine Sanctuary has been established. Three National Park Service sites include Assateague Island, Maryland; Cape Hatteras, North Carolina: and Cape Lookout, North Carolina. There are 27 National Wildlife Refuges located along the coastline or within coastal areas of the Mid-Atlantic area. National Estuarine Research Reserves located adjacent to the program area are Chesapeake Research Reserves in Maryland and Virginia. Adjacent National Estuary Program sites include Back Bay, Chincoteague Island, the Eastern Shore of Virginia, Wallops Island, and Fisherman Island. The Delaware Inland Bays, Maryland Coastal Bays, and the Chesapeake Bay are proximate to the Proposed Final Program area.

**Tourism and Recreation:** The Mid-Atlantic coastal region is a popular recreational destination. Beach-related activities, recreational fisheries, resorts and seasonal homes are a major attraction. Public lands are intermingled with developed areas. Ocean-front counties accounted for 17 percent of the travel and tourism expenditures in North Carolina. The coast of North Carolina is almost exclusively a barrier island system stretching over 300 miles and a mixture of private holding, wildlife refuges, and parks. South of the mouth of the Chesapeake Bay is Virginia Beach, one of the most popular tourist destinations in the Mid-Atlantic.

**Military:** Important Department of Defense facilities are located in the vicinity, including U.S. naval and air force facilities. The Virginia Capes Operations Area is used for training, testing and evaluations by the Navy, Army, Air Force and Marine Corps. NASA Goddard Space Flight Center Wallops Flight Facility operates a Research Range off of Virginia's Eastern Shore. It is utilized by several Federal Government and Department of Defense tenants. The range is also used by the Mid-Atlantic Regional Spaceport, an economic development through aerospace projects and commercial space launch operations.

Warning and Operating Areas of the U.S. Atlantic Fleet are offshore Norfolk, Virginia and extend northward to the Narragansett Bay Operating Area. Six submarine lanes and portions of two Fleet operating Areas (Virginia Capes and Cherry Point Operating Areas) are offshore North Carolina. Operating Areas are normally established in areas with superadjacent airspace designated as a warning area. A warning area includes airspace of defined dimensions outside of U.S. territorial waters in which a hazard to aircraft exists.

Operations off the Virginia Capes Operating Area include gunnery exercises, airborne mine countermeasures, general subsurface operations, surface-to-air weapon delivery including strafing, rockets and bombs, and antisubmarine rocket and torpedo firing. Activities in the Cherry Point Operating area are primarily air oriented. Air Force activities include readiness training for tactical fighters and interceptor aircrafts, refueling operations, basic fighter maneuvering, air combat training, and air-to-air intercepts. The NASA uses the Wallops Island Flight Test Center in Virginia.

**Commercial Space Flight:** The Mid-Atlantic Regional Spaceport (MARS), Virginia's commercial space flight facility, is located at the Wallops Flight Facility.

**Nonenergy Marine Mineral Activities:** Sand has been dredged from a number of offshore areas in both State and Federal waters for beach nourishment. All of these areas are less than 10 miles from shore. In addition, large deposits of gravel, salt, phosphate, calcium carbonate, manganese, titanium, and other industrial minerals have been identified in the Atlantic OCS.

Between 1995 and 2006, several States in the Mid- and South Atlantic OCS have benefited from OCS resources. The states of South Carolina, Virginia, Maryland, and Florida used over 23 million cubic yards of OCS sand for coastal restoration and protection efforts. The MMS funded a large number of studies that identified sand resources in the OCS and studies that investigated the impacts associated with sand removal and placement. Maintenance of beaches is a high priority with Maryland and since 1988, over ten million cubic yards of sand has been placed on the beaches from Ocean City northward to the Delaware line. In addition, the U.S. Army Corps Engineers and the National Park Service recently completed restoration work on Assateague Island beaches. In 1996, OCS sand was used to nourish the beach and construct a berm to protect the U.S. Navy's Combat Training Facility at Dam Neck against severe impacts caused by hurricanes. A total of 4 million cubic yards of OCS sands have been used to restore Virginia beaches. Other Mid-Atlantic States have investigated suitable sources of OCS sand in lieu of diminishing onshore sources and will likely request leases for this material in the future.

**Alternative Energy:** The EPAct gave the Secretary of the Interior responsibility for regulating federal offshore alternative energy projects. The MMS will accept for review new applications for OCS alternative energy projects only once the programmatic regulations are in place. The EPAct also gave the Secretary of the Interior responsibility for two proposed offshore alternative energy projects, the Cape Wind project offshore Massachusetts and the Long Island Offshore Wind Park offshore New York. Each project's application and supporting information are being reviewed and environmental evaluations are being prepared.

## Summary

The size, timing, and location of lease sales in the proposed final program are generally consistent with the variety of other uses of the OCS described above. The principal potential areas of conflict involve Alaska native whaling and subsistence activities and military needs in parts of the Gulf of Mexico and in the mid-Atlantic. The proposed final program restricts or defers identified areas as appropriate to resolve these conflicts. Other uses of the OCS that may affect particular tracts considered for leasing, such as alternative energy uses, are more appropriately addressed and managed at the lease sale stage rather than in the proposed final program.

### *References*


- U.S. Dept. of Commerce. National Marine Fisheries Service. 2006. Information and databases on fisheries landings. Internet website, latest data for 2004: http://www.st.nmfs.gov/st1/commercial/landings/annual_landings.html

## D. Laws, Goals, and Policies of Affected States

The MMS asked the governors of affected states to identify laws, goals, and policies of their states as relevant matters for consideration in the proposed final program. The then-Governor of Virginia was the only governor to respond. Virginia's comments led to the selection of the 50-mile buffer option for the part of the Mid-Atlantic area addressed in the Proposed Final Program.

## E. Balancing Considerations under Section 18

***Introduction***

Section 18(a)(3) of the Act requires the Secretary to "select the timing and location of leasing, to the maximum extent practicable, so as to obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone." Striking this balance based on a consideration of the principles and factors enumerated in section 18(a) is essentially a matter of judgment for which no ready formula exists. Section 18 requires the consideration of a broad range of principles and factors rather than imposing an inflexible formula for making decisions. Thus, previous 5-year programs have scheduled as many as 37 lease sales in 22 planning areas and as few as 16 sales in 8 planning areas.

Some of the factors that section 18 specifies for consideration are embodied in the benefit-cost analysis, i.e., resource potential and certain environmental values. Others are not as readily quantifiable and are therefore described qualitatively. For example, environmental considerations, such as aesthetics or concerns for certain species are extremely difficult to translate into accurate economic estimates. In order to provide the Secretary full and appropriate information for the proposed final program decision, this document is supplemented by relevant NEPA documents and other analyses that present information relating to such environmental factors and other qualitative considerations. This information, which is identified in part II, is incorporated by reference.

***Judicial Guidance***

The U.S. Court of Appeals for the D.C. Circuit has elaborated in great detail on the statutory criteria for the balancing decision required by section 18(a)(3). Pertinent excerpts from the Court's opinions on litigation concerning previous 5-year programs are presented below.

The Court has stated the following concerning the weight to be accorded the three elements of section 18(a)(3).

> That the Act has an objective—the expeditious development of OCS resources—persuades us to reject petitioners' view that the three elements in section 18(a)(3) are "equally important" and that no factor is "inherently more important than another." The environmental and coastal zone considerations are undoubtedly important, but the Act does not require they receive a weight equal to that of

> potential oil and gas discovery. A balancing of factors is not the same as treating all factors equally. The obligation instead is to look at all factors and then balance the results. The Act does not mandate any particular balance, but vests the Secretary with discretion to weigh the elements so as to "best meet national energy needs." The weight of these elements may well shift with changes in technology, in environment, and in the Nation's energy needs, meaning that the proper balance for 1980-1985 may differ from the proper balance for some subsequent five-year period. (*California I*, 668 F.2d at 1317)

The following three statements of the Court pertain to the analysis of the section 18 factors and the Secretary's discretion in weighing the results of that analysis:

> (1) The Act recognized the difficult burden the Secretary must shoulder by stating that the selection of timing and location of leasing must strike the proper balance "to the maximum extent practicable." The Secretary must evaluate oil and gas potential, which can be quantified in monetary terms, in conjunction with environmental and social costs, which do not always lend themselves to direct measurement. Because of this, they must be considered in qualitative, as well as quantitative terms.
>
> Although the secretarial discretion we have described is broad, as a result of both the general wording of the statute and the nature of the task the Secretary is asked to perform, the Secretary's discretion is not unreviewable. The policies and purposes of the Act provide standards by which we may determine whether the Secretary's decision was arbitrary, irrational, or contrary to the requirements of the Act. To do so, we consider "whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." (*California I*, 668 F.2d at 1317)
>
> (2) In deciding whether to include an area, the Secretary weighed qualitative factors, as well as quantitative factors. The Secretary listed among qualitative factors "national security, industry interest, and equitable sharing of development costs and benefits." The OCSLA specifically directs the Secretary to weigh such qualitative factors in his balance.
>
> Taking qualitative factors into account implies that the inclusion of areas with a calculated NSV of zero may nonetheless be compatible with section 18(a)(3). (*NRDC*, 865 F.2d at 307)
>
> (3) The Secretary must make a good-faith effort to balance environmental and economic interests. So long as he proceeds reasonably, however, his decisions warrant our respect. (*NRDC*, 865 F.2d at 308-309)

### Other Considerations

Other relevant considerations that have implications for balancing environmental and socioeconomic issues and concerns with potential benefits of OCS activity are discussed in this document, the Final EIS prepared for the 5-year program for 2007-2012, and in other referenced documents. Such considerations are summarized below.

**Findings and Purposes of the OCS Lands Act:** Title I of the OCS Lands Act Amendments of 1978 sets forth a number of findings and purposes with respect to managing OCS resources. Those principles generally pertain to recognizing national energy needs and related circumstances and addressing them by developing OCS oil and gas resources in a safe and efficient manner that provides for environmental protection; fair and equitable returns to the public; state and local participation in policy and planning decisions; and resolution of conflicts related to other ocean and coastal resources and uses.

**Industry Interest:** Interest, as indicated in the comments responding to both the Draft Proposed and Proposed programs, is summarized above. Industry interest is a key criterion for deciding whether to propose an area for a lease sale. However, it is not the sole and absolute indicator of the potential of an area to contribute oil and gas resources for regional and national use. Therefore, as with all of the balancing information discussed in this part, industry interest should be weighed with other considerations in deciding where and when to propose OCS leasing. The presentation of size, timing, and location options in part III includes discussions of industry interest along with other significant considerations. Summaries of all industry comments are provided in the appendix.

**Information Incorporated by Reference:** Documents pertaining to geographical, geological, and ecological characteristics, to local and national energy markets and needs, and to environmental and predictive information, as cited in part II, are incorporated by reference.

**Issues Raised in Comments:** All comments received in response to the proposed program are summarized in the appendix. Those that correspond more specifically to program options are described in part III.

## F. Assurance of Fair Market Value

### Introduction

The 5-year program includes general provisions for assuring the receipt of fair market value in accordance with section 18(a)(4). Those provisions pertain to setting a minimum bid level and to maintaining a process for reviewing the adequacy of bids received for OCS oil and gas leases. In addition to the minimum bid requirement and bid adequacy process, MMS establishes lease terms and conditions to assure receipt of fair market value. Those more specific measures are designed and implemented based on regular reviews and evaluations that are independent of the 5-year program preparation process.

**Minimum Bid Requirement**

The minimum bid levels that currently apply to Gulf of Mexico OCS lease sales are $25 per acre in water depths of less than 400 meters and $37.50 per acre in water depths of 400 meters or greater (Leases in water depths of 400 meters or greater have a 10-year primary term). On the Alaska OCS, recent minimum bid levels differ by planning area and are $25 per hectare (around $10 per acre) in the Cook Inlet and $25 per hectare in Zone B or $37.50 per hectare (around $15 per acre) in Zone A in the Beaufort Sea.

**Bid Adequacy Process**

The 5-year program for 2007-2012 continues the two-phase post-sale process for determining bid adequacy that essentially has been in effect since 1983. The process was instituted with the implementation of the areawide leasing policy and has undergone several refinements to address specific concerns pertaining to fair market value. The most recent revision was published in the *Federal Register* on July 12, 1999 (64 *FR* 37560).

The bid adequacy process now in effect consists of two phases for distinguishing those bids that reflect competitive market forces assuring receipt of fair market value and those that require further detailed analysis. A more detailed description of the existing bid adequacy process—*Summary of Procedures for Determining Bid Adequacy at Offshore Oil and Gas Lease Sales: Effective July 1999, with Sale 174*—is available on the internet at www.gomr.mms.gov/homepg/lsesale/bidadeq.html .

The bid evaluation methodology now in use has proven over many years to be a reliable and accurate instrument for assuring that the United States receives fair market value in the lease issuance process. Bonus bids and payments necessarily will vary depending on geologic evaluations and the anticipated likelihood of commercial discoveries, royalty rates, royalty relief, and other factors that are particular to a specific lease sale and to specific tracts, all of which are taken into account in the evaluation of bonus bids. Should circumstances change in ways that make reconsideration of the bid evaluation methodology appropriate, that methodology can be revised without an amendment to the program.

## G. Appropriations and Staffing Estimates[41]

Section 18(b) of the OCS Lands Act requires that the leasing program include estimates of the appropriations and staff needed to obtain information for preparing the program, to analyze and interpret data and information, to conduct environmental studies and prepare EISs, and to supervise operations pursuant to the leases that will be issued.

Table 24 presents the appropriations and staffing estimates associated with the proposed final 5-year program for 2007-2012.

[41] These estimates have not been updated.

**TABLE 24:** Appropriations and Staffing Estimates (by Fiscal Year)
[Funding estimates are in thousands of dollars; staffing estimates are in full-time equivalent positions.]

| | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Activities** | **Funds** | **Staff** | **Funds** | **Staff** | **Funds** | **Staff** | **Funds** | **Staff** | **Funds** | **Staff** | **Funds** | **Staff** |
| **1** | 15,807.6 | 127.1 | 15,049.6 | 121.1 | 15,057.6 | 121.1 | 15,100.6 | 123.1 | 15,100.6 | 123.1 | 15,100.6 | 123.1 |
| **2** | 6,377.9 | 35 | 6,445.3 | 35.7 | 6,892.2 | 39.4 | 7,066.8 | 40.9 | 7,010.6 | 40.4 | 7,066.8 | 40.9 |
| **3** | 14,898 | 117.7 | 15,996 | 126.2 | 17,431 | 137.2 | 16,181 | 127.2 | 14,931 | 117.2 | 16,681 | 131.2 |
| **4** | 506.8 | 4 | 759 | 6 | 1,009 | 8 | 1,386.3 | 11 | 1,763.6 | 14 | 2,013.6 | 16 |

(1) Resource Information [section 18(b)(1)]

(2) Exploration Data and Other Information [section 18(b)(2)]

(3) Environmental Studies and EIS Preparation [section 18(b)(3)]

(4) Supervise Operations [section 18(b)(4)]

*The text of this appendix is that of the April 2007 Proposed Final Program (PFP) document, as approved on June 29, 2007.*

Appendix A

**Summary of Comments in Response to the August 25 and November 14, 2006, *Federal Register* Notices Concerning the Proposed 5-Year OCS Oil and Gas Leasing Program for 2007-2012**

**Introduction**

Section 18 of the Act (43 U.S.C. 1344) requires the DOI to prepare a 5-year OCS oil and natural gas leasing program. As an intermediate step in the preparation of the 5-year program for 2007-2012, the MMS issued a *Federal Register* Notice soliciting comments. This appendix is a summary of all comments received in response to those Notices. Due to the high number of responses, submittals have been condensed to express summaries of all of the ideas received by the MMS by responder category. Responder Categories are listed below along with the number of comments received in that Category. A Summary of Comments compiled by Category follows.

**Number of Comments by Category**

Governors, State Elected Officials, and State Agencies..... 19
Local Governments, Tribes and Alaska Native Corporations..... 48
Members of Congress and Federal Agencies..... 13
Environmental and Other Public Interest Organizations..... 34
Oil and Gas Companies and Associations..... 44
Non-Energy Industry Interests and Business Groups..... 90
General Public..... 73,417
**Total**..... 73,665

**Summary of Comments by Category**

**Governors, State Elected Officials, and State Agencies**

The State of Alaska provided a 3-page submission containing strong support for the program and advising MMS that the Alaska OCS could play a significant role in meeting future U.S. energy supply needs. In the comments, the Governor thanks MMS for following State of Alaska recommendations submitted in response to the proposed program, to the extent MMS did so. The Governor supports the proposed leasing programs in the Beaufort and Chukchi Seas contained in the proposed program. The Governor supports special interest sales Options for the Cook Inlet planning area. The Governor is disappointed that the proposed program does not include special interest sales for the Hope Basin and Norton Basin. The Governor states that oil and gas activities must minimize conflicts with fishing interests and there must be significant stakeholder consultation. The Governor discusses the Bristol Bay fisheries and the North

Aleutian Basin planning area, and reiterates that lease sales should be limited to the Sale 92 portion of the North Aleutian Basin. Draft EIS comments are sent under separate cover and addressed in the Final EIS.

Alabama Department of Environmental Management supports the Governor's comments in response to the Draft EIS, that the MMS federal leasing program be contingent on all OCS activities in waters adjacent to Alabama's coast being carried out in full compliance with Alabama laws and in a manner consistent with Alabama's coastal program. Specifically, it emphasizes the Governor's opposition to offering of blocks south and within 15 miles of the Baldwin County, Alabama coast. Sensitive environments in the OCS off of Alabama's coast are also a major concern, specifically with respect to the live bottom areas, pinnacle reefs, chemosynthetic communities, and other sensitive environments in the OCS off Alabama's coast.

Delaware Department of Natural Resources and Environmental Control supports the current Congressional Moratoria and Presidential Withdrawal on oil and gas lease sales on the Atlantic OCS. A sale proposed in 2011 is contradictory given the prohibitions against such activities.

The State of Florida's Governor writes that the MMS proposal contains some short-term protection for Florida. However, the State seeks a long-term strategy, specifically, a permanent ban on leasing in the State and federal waters within 100 miles of the coast, including the "stovepipe" previously in the Eastern Gulf of Mexico and east of the military line to ensure that armed services can achieve missions. This comment continues to oppose the new administrative boundary line to define the area for federal consistency review pursuant to the Coastal Zone Management Act (CZMA).

The State of Louisiana Department of Natural Resources comments primarily on the Draft EIS, and includes a number of suggestions on the proposed 5-year leasing program. The State urges MMS to expand the areas offered for sale and/or assessment and to provide for adequate sharing of federal mineral revenues with the States. The focus of the Draft EIS comments is on the information needed for Consistency Determinations under the program. The State views the process as deflecting informed analysis until very late in the process and deferring until a subsequent stage, any meaningful analysis. This is a programmatic trend that the State feels can no longer be justified. The State objects to the trend of developing theoretical environmental documents with respect to OCS oil and gas activities and favors actual analysis in connection with proposed activities, as essential to an accurate assessment of the impacts associated with future OCS leasing. Absent a complete vetting of the issues and positions expressed by the State, documentations supporting MMS activities may be insufficient for the State to move forward under the CZMA. As a consequence of the Draft EIS deferring actual discussion of impacts to the lease sale stage, the State is constrained in its ability to comment under section 18 of the OCSLA, until it has had an opportunity to review the multi-sale EIS for the Gulf of Mexico. This procedural gap leads the State to propose a short hiatus in leasing in the Gulf of Mexico until adequate information has been developed. The State's policy to ensure that any future leasing activity is fully mitigated is limited by insufficient federal assessments. The MMS must address how its proposed program will affect the State's coastal zone management program, and the State suggests that MMS do this by undertaking a revised Draft EIS.

State of Louisiana Senator Reggie Dupre provides a discussion of the onshore impacts of oil and gas activities and the importance of mitigation funding and revenue sharing.

Louisiana House of Representative Loulan Pitre discusses the Port Fourchon area as a support base and the Louisiana Offshore Oil Port operations as adding to the stress points for onshore infrastructure.

Maryland Department of the Environment comments on behalf of the Governor. The Secretary notes that the proposed plan includes the mid-Atlantic sale off the coast of Virginia.

Michigan House Representative Gaffney strongly supports production in the OCS and urges MMS to present a more extensive program.

The Governor of New Jersey supports the existing moratoria and Presidential withdrawal. The Governor further comments that the proposed special interest sale in the Mid-Atlantic violates the letter and the spirit of the moratoria and even proposed activities along the Atlantic coast are not to be federally funded. Lastly, the Governor comments that the program option that New Jersey supports is "no sale" for a possible offshore Virginia lease offering. New Jersey does not agree with the 25-mile buffer and no-obstruction zone as they are insufficient to protect the State New Jersey will continue to have a direct interest in any proposed resource evaluation in the Mid-Atlantic region.

North Carolina's Governor reiterates his objection to the proposed OCS oil and gas leasing program for 2007-2012 stating that it includes a possible special interest lease sale off the Virginia coast in 2011. This comment concludes that the coasts of North Carolina and Virginia are highly environmentally sensitive areas. The addition of a 25-mile buffer is not sufficient to mitigate the possible impacts. The Governor restates North Carolina's longstanding support for the Congressional Moratorium and the Presidential Withdrawal and respectfully requests that any sale off the Virginia coast be removed from consideration.

North Carolina Department of Administration took a position in opposition to MMS planning in the Mid-Atlantic. Specifically, North Carolina continues to support a moratorium on offshore oil and gas activity and points out that its citizens are directed toward reducing their energy needs.

North Carolina State Representative Pryor Gibson strongly supports the most expansive and acceptable plan possible. This letter notes the hurricanes of 2005 are a "wake-up" call, and cites Energy Information Agency estimates of the U.S. reserves.

The Governor of Texas and the Commissioner of the Texas General Land Office strongly support expanded leasing of the U.S. OCS. They do not support the reconfiguration of the planning area boundaries announced in January 2006. The change in boundaries does not reflect the total costs to state infrastructure and state natural resources. Adverse financial impacts to Texas are not acceptable.

The Chairman of the Texas House Committee on Energy Resources Buddy West supports leasing in all available areas and urges MMS to expand the plan to include any areas with oil and gas potential. This comment supports revenue sharing, and environmentally sound development.

Virginia's Secretaries of Commerce and Trade and of Natural Resources, on behalf of the Governor, respond to the plan's option to hold a special interest sale in OCS waters offshore Virginia, by restating portions of the state policy as set forth in state legislation. Specifically, Virginia supports federal efforts to determine the extent of natural gas resources 50 miles or more offshore. The Commonwealth finds the proposed program inconsistent with state policy in four respects. First, MMS should include areas in the whole of the Atlantic Planning area, not just off the shore of one state. Second, Virginia policy only addresses natural gas, not oil. Third, Virginia policy only addresses exploration, not production as set forth in the proposed program. Lastly, the proposed program excludes a 25-mile buffer zone, whereas the Virginia policy calls for a 50-mile minimum setback. Virginia urges MMS to modify its planning to be fully consistent with the Virginia policy or remove the Virginia planning areas from the plan entirely. Virginia also objects to the use of equidistance to determine the state administrative boundary.

By letter dated February 22, 2007, the Governor of Virginia reiterated the State's energy policy, but asked that the Department consider keeping Virginia in the program as a way that comports with the State's policy.

**Local Governments, Tribes and Alaska Native Corporations**

Akiak Native Community, Alaska, opposes MMS planning in the North Aleutian Basin based on spiritual, subsistence, historical and economic facts submitted in Resolution 06-11-21.

Akutan Traditional Council, Alaska, provided Resolution No. 2007-02 supporting oil and gas leasing in the North Aleutian Basin and recommending that the 1998 presidential withdrawal prohibiting leasing for a small portion of the North Aleutian Basin be withdrawn. Resolution 2007-02 requests federal funding and adequate lease stipulations to address social and environmental affects.

Aleutian Pribilof Island Community Development Association, Alaska, seeks employment opportunities for the region, and supports MMS proposed planning, including the North Aleutian Basin for oil and gas exploration. Requests to mitigate and consult are extremely detailed. Support is contingent on adherence to each element of Res. 07-001.

Aleutian Pribilof Island Community Development Association, Alaska, seeks employment opportunities for the region, and supports MMS including the North Aleutian Basin for oil and gas exploration. Draft EIS comments are extensive.

Aleutians East Borough (AEB), Alaska, attached Resolution No. 07-09 and submitted comments that support oil and gas leasing in the OCS of the North Aleutian Basin, provided maximum protection is given to fishery resources and lease stipulations are included to safeguard local interests. The AEB finds serious problems with the Draft EIS, and seeks collaboration for

mitigation. The MMS is charged with taking a national perspective, not a perspective focused on only local needs and MMS must take in to account the recent economic declines in the commercial fishing industry and balance current needs with alternative economic opportunities and environmental protection. Federal funding should be allocated for studies addressing local features, concerns and risks. Mutually agreeable state and federal approaches to assuring fair market value is a priority and MMS should eliminate all barriers to competition by providing as much data as possible when advertising lease availability.

Aleutians West Borough, Alaska, supports expanded offshore leasing during 2007-2012. This coastline is described as adjacent to the North Aleutian Basin and the comment describes the landings, harvesting and other local uses. The comment urges MMS to increase revenue sharing and work with communities.

Belkofski Tribal Council, Alaska, supports MMS planning for the North Aleutian Basin provided maximum protection for the fisheries resources and other natural resource assets. This group would like an additional lease sale in 2009 to expedite development of baseline studies and environmental assessments.

City of Cold Bay, Alaska, provided Resolution No. 07-08 specifically addressing its support for oil and gas leasing in the North Aleutian Basin provided certain protections and stipulations are included requiring companies to employ residents of the Aleutians East Borough. Additional recommendations include a request for federal funding.

City of False Pass, Alaska, provided Resolution No. 07-03 that supports oil and gas leasing in the North Aleutian Basin and recommends that the 1998 presidential withdrawal prohibiting leasing for a small portion of the North Aleutian Basin be withdrawn. Resolution 07-03 requests federal funding and adequate lease stipulations to address social and environmental affects.

The City of Kaktovik, Alaska, opposes the MMS program and has concerns that the EIS is inadequate.

City of Kenai, Alaska, unanimously passed Resolution 2006-57 supporting sensible and responsible access to oil and gas resources.

City of King Cove, Alaska, provided Resolution No. 06-17 that supports oil and gas leasing in the North Aleutian Basin and recommends that the 1998 presidential withdrawal prohibiting leasing for a small portion of the North Aleutian Basin be withdrawn. Resolution 06-17 requests federal funding, adequate lease stipulations to address social and environmental affects.

City of Sand Point, Alaska, supports the MMS proposed 5-year program and sent Resolution 06-10 confirming its support for oil and gas leasing in the North Aleutian Basin, provided conditions such as federal funding, environmental protection, adequate stipulations, and consultation be in place.

City of Wasilla, Alaska, submitted Resolution Serial No. 06-49 supports MMS Planning Proposals.

Curyung Tribal Council, Alaska, submitted Resolution 2003-16 in opposition to OCS 92 Lease sale and in opposition to the current OCS planning proposals published by MMS.

Eastern Aleutian Tribes, Inc, Alaska supports MMS planning with Resolution No. 2006-13.

Egegik Tribal Council, Alaska is opposed to MMS planning related to Bristol Bay. The reasons are stated in Resolution # 06-06, that the estimated reserves are too low to justify the resulting damage to the local habitats of marine life and the changes to the local residential communities.

Isanotski Corporation, Alaska, supports MMS planning for the North Aleutian Basin provided maximum protection for the fisheries resources and other natural resource assets.

Kenai Peninsula Borough, Alaska, supports the inclusion of the two Cook Inlet Lease Sales in the 2007-2012 program in Resolution 2001-127 that adopted these 5 principles: No offshore loading of tankers; specific plans to minimize and avoid commercial fishing gear conflicts; oil exploration companies must have adequate spill prevention and response capability; identification of critical habitat areas; provisions for local government revenue sharing.

Kodiak Island Borough, Alaska, submitted Resolution No FY2007-13 providing that the Kodiak Island Borough confirms its support for MMS planning for 2007-2012.

Kongiganak Traditional Council, Alaska, submitted Resolution 06-10-01 to show opposition to opening Bristol Bay to offshore oil and gas leasing because of the high risk for harm to the marine resources and way of life. The resolution urges MMS to maintain the current status of Bristol Bay as withdrawn from the federal OCS programs and to remove it from the proposal for 2007-2012.

Kotlik Tribal Council, Alaska, requests the leasing program for Bristol Bay OCS oil and gas leasing to be excluded from the Plan. They submitted a resolution opposing MMS planning and urging more dialogue to protect the OCS and specifically Bristol Bay, which is a critical habitat, from oil and gas exploration.

Manokotak Village Council, Alaska, submits Resolution 06-05 to show opposition to opening Bristol Bay to offshore oil and gas leasing because of the high risk for harm to the marine resources and way of life. The resolution urges MMS to maintain the current status of Bristol Bay as withdrawn from the federal OCS programs and to remove it from the proposal for 2007-2012.

Native Village of Ekuk, Alaska, submits Resolution 06-17 to show opposition to opening Bristol Bay to offshore oil and gas leasing because of the high risk for harm to the marine resources and way of life. The resolution urges MMS to maintain the current status of Bristol Bay as withdrawn from the federal OCS programs and to remove it from the proposal for 2007-2012.

Native Village of Goodnews Bay, Alaska, submits Resolution 06-10-01 to show opposition to opening Bristol Bay to offshore oil and gas leasing because of the high risk for harm to the marine resources and way of life. The resolution urges MMS to maintain the current status of Bristol Bay as withdrawn from the federal OCS programs and to remove it from the proposal for 2007-2012.

Native Village of Nunam, Alaska, requests the leasing program for Bristol Bay OCS oil and gas leasing not is included in the program. Resolution #06-24 is enclosed along with letters and policy documents opposing OCS oil and gas exploration.

Native Village of Nunapitchu, Alaska submits Resolution 06-11-01 to show opposition to opening Bristol Bay to offshore oil and gas leasing because of the high risk for harm to the marine resources and way of life. The resolution urges MMS to maintain the current status of Bristol Bay as withdrawn from the federal OCS programs and to remove it from the proposal for 2007-2012.

Nelson Lagoon Tribal Council, Alaska provided Resolution No. 20-06 supporting oil and gas leasing in the North Aleutian Basin and recommends that the 1998 presidential withdrawal prohibiting leasing for a small portion of the North Aleutian Basin be withdrawn. Resolution 20-06 urges that an additional lease sale be held in year 2009 to expedite development of this important national gas supply, requests federal funding, adequate lease stipulations to address social and environmental affects.

North Slope Borough, Alaska, submitted comments containing specific information about the history of comments from the Borough and the testimony provided on a number of relevant topics. Long-standing strenuous objections are referenced for the 5 sales scheduled in the area. Comments on the 2002-2007 Program are referenced, namely the deferral of entire Alaskan Arctic planning areas and area deferrals within planning areas. While not advocating that withdrawn areas be placed in consideration, the comment questions why they are off-limits while the Beaufort and Chukchi Sea planning areas are not. The Borough notes that oil and gas developed in Alaska is not prohibited from export and that Alaskan oil has been exported to Asian markets. This comment contains environmental concerns, including concerns for the human environment, concerns that subsistence harvests will suffer from proximity to seismic programs, and concerns about a full range of environmental impacts. Deferral areas were understood not to be considered during development of the 5-year program, but the Borough argues that discussion over deferral areas for each lease sale is a waste of time and that these areas could be permanently removed from leasing. Furthermore, the 2002-2007 EIS is flawed and inadequate and should not be used. Additional comments include the failure to identify meaningful alternatives to the full planning area leasing proposal, failures in "development scenarios," failed oil spill risk estimates, and a general overstatement of technological capabilities.

North Slope Borough, Alaska, Department of Wildlife Management's comments provide new data and find that MMS materials are lacking in current information. By including new

references, this comment hopes to show that the rankings provided by MMS in the DEIS tables are flawed and the MMS discussion of the relevant issues must be updated to take into account the more current information.

Ohogamiut Traditional Council, Alaska, submits Resolution 06-24 to show opposition to opening Bristol Bay to offshore oil and gas leasing because of the high risk for harm to the marine resources and way of life. The resolution urges MMS to maintain the current status of Bristol Bay as withdrawn from the federal OCS programs and to remove it from the proposal for 2007-2012.

Pauloff Harbor Tribe, Alaska, Environmental Advisory Committee, supports inclusion of a small portion of the North Aleutian Planning area, limited to the area previously described and leased by MMS during the 1985 as Sale 92. Citing job opportunities, expanded local infrastructure and improved air transportation systems and marine harbors, Pauloff Harbor makes the case for positive impacts on the community. This comment urges MMS to provide support for people after the oil and gas are depleted and to provide federal funds for studies. Pauloff Harbor supports lifting the moratorium for the offshore leasing in the North Aleutian Basin.

Platinum Traditional Village, Alaska, Resolution 06-21 is submitted to show opposition to opening Bristol Bay to offshore oil and gas leasing because of the high risk for harm to the marine resources and way of life. The resolution urges MMS to maintain the current status of Bristol Bay as withdrawn from the federal OCS programs and to remove it from the proposal for 2007-2012.

Shumagin Corporation, Alaska, submits Resolution No. 2006-05 confirming its support for oil and gas leasing in the North Aleutian Basin and recommends that the Governor of Alaska request the President of the United States eliminate the 1998 withdrawal prohibiting oil and gas leasing for a small portion of the North Aleutian Basin (Sale 92). Federal funding is requested and lease stipulations should be in place as needed.

The Aleut Corporation, Alaska, submits Resolution No. 06-13 to support oil and gas leasing in the North Aleutian Basin.

Twin Hills Village Council, Alaska, submits Resolution 04-01 to show opposition to opening Bristol Bay to offshore oil and gas leasing because of the high risk for harm to the marine resources and way of life. The resolution urges MMS to maintain the current status of Bristol Bay as withdrawn from the federal OCS programs and to remove it from the proposal for 2007-2012.

Unga Tribal Council, Alaska, confirms its support for the MMS proposed 5-year program with Resolution 06-10. This comment calls for localities and states adjacent to offshore leasing zones to be provided with a fair share of the revenues and all development activities to be conducted within safe environmental standards. The tribe should be included in all EIS discussions.

Town of Glen Allen, Alabama, supports MMS planning and urges MMS to develop new supplies of oil and clean-burning natural gas.

Treasure Coast Regional Planning Council, Florida, found that the MMS planning proposal was "not in conflict or inconsistent with the Strategic Regional Policy Plan."

West Florida Regional Planning Council finds the program generally consistent with the Council Strategic Regional Policy Plan. However, a finding of consistency with this Policy Plan does not denote approval.

Lafourche Parish, Louisiana submits the view that lease sales lead to activities that require mitigation. It is necessary to readjust the economies of OCS revenue sharing. Support for OCS activities is contingent on revenue sharing.

St. Mary Parish, Louisiana, supports greater access to our nation's offshore oil and natural gas resources during the 2007-2012 time frame, while also urging MMS to ensure that land-based impacts from this activity be adequately identified and mitigated. Revenue sharing is important to this commenter.

Terrebonne Levee & Conservation District, Louisiana, supports MMS on the proposed 5-year leasing plan, but is extremely concerned with the use of revenues generated by oil and gas activities. Local communities do not receive adequate compensation to mitigate the heavy impacts of supporting the oil and gas industry. This commenter's support is contingent on the State of Louisiana and Terrebonne Parish receiving significant additional revenue sharing off the coast in federal waters.

County of Ocean, New Jersey, provided information that the Ocean County Board of Chosen Freeholders adopted a resolution opposing the development or production of oil or natural gas off the Mid-Atlantic Coast and supporting a permanent ban on exploration and drilling off the New Jersey coastline.

**Members of Congress and Federal Agencies**

California Representative Lois Capps is strongly opposed to the MMS 5-year proposal. Congresswoman Capps urges MMS to support bipartisan policies and to reject any proposal to allow oil and gas leasing in areas now off limits to development. Appropriations committee bills have reaffirmed the longstanding Congressional ban on new offshore drilling and these actions have met with public acclaim. There are abundant alternative resources for energy and we are moving ahead with a range of new options and conservation methods. Appreciating that drilling technologies are advancing is not enough to justify new drilling.

U.S. Senator Frank Lautenberg, New Jersey, provided a statement at the public meeting in Atlantic City, NJ. The Senator's spokesperson emphasized the need to protect the marine areas off the coast of New Jersey. And he opposed the plan to include Virginia areas in the Plan.

U.S. Senator Robert Menendez, New Jersey, provided a statement at the public meeting in Atlantic City. The Senator's spokesperson emphasized strong opposition to the Plan and the need to protect the marine areas off the coast of New Jersey. He opposes the plan to include Virginia areas in the Proposed Plan.

Members of the New Jersey Congressional delegation sent views opposing the provisions in the MMS proposal that would open the OCS off the coast of Virginia for oil and gas drilling. Similarly, commenters requested more hearings in New Jersey.

Comments were provided on behalf of New Jersey Congressmen LoBiondo and Saxton at the public meeting in Atlantic City. The spokespersons emphasized the need to protect the marine areas off the coast of New Jersey, and opposition to the plan to include Virginia areas in the proposed program.

Congressman Smith, New Jersey, thanked the MMS for conducting a public meeting in Atlantic City. Mr. Smith opposes the development of OCS leases off the Virginia coast and supports the moratorium.

Department of Energy (DOE) Office of Fossil Energy supports MMS's development of the proposed 5-year program, particularly the proposal to continue the annual offering of all the acreage in the Central and Western Gulf of Mexico, proposals related to the OCS in Alaska, and efforts to pursue resource characterization and estimations in all OCS areas, including those currently under moratoria, as directed by the Energy Policy Act of 2005. The DOE supports more flexibility in the new plan and urges MMS to consider advances in technology in assessing resource potential in the OCS and in assessing environmental impacts of future development. Cooperation between the states and the Federal Government was stated as a goal in the development of ocean resources. The DOE does not recommend that MMS consider issuing gas-only leases.

Department of Interior, Office of Policy Analysis, describes the policies in the proposed program as to energy needs, environmental issues, lease timing and location, balancing. Specific reference is made to departmental Trust issues and methodologies found in the analysis. Policy issues are discussed at length and MMS is urged to reconcile varied statements in specific footnotes contained in the proposed plan.

Environmental Protection Agency comments focus entirely on the DEIS with special attention to the analysis of potential impacts.

National Aeronautics and Space Administration (NASA) provided technical data on restricted airspace and a map in opposition to the MMS proposal off Virginia, including conflicts with range hazard areas, adjacent Department of Defense designated warning areas, and target missions related to the Wallops Flight Facility off the coast of Virginia. The NASA outlines risk factors including safety risks, risk to high value equipment, increased ship and air traffic, presence of undersea equipment, risks to surface skimming missiles. General operational concerns were enumerated and NASA support for U.S. Navy missions was described.

The Department of the Navy supports the Mid-Atlantic/Virginia areas of the proposal that reflect changes such as the 25-mile buffer. However the Navy must oppose the special interest sale in the Mid-Atlantic because it is inconsistent with the military needs in the area. The Navy foresees no OCS-use conflicts within the lease sale areas proposed for the Alaska Planning Areas and only minimal conflicts with the proposed lease sale areas in the Gulf of Mexico. The Virginia Capes (VACAPES) Operations Areas are located within the MMS proposed area, where the Navy's training and test and evaluation community operates. Navy comments elaborate on Department of Defense activities in this area and sets forth concerns related to oil and gas development activity. Lease stipulations for the Eastern Gulf of Mexico Sale 197 are provided.

**Environmental and Other Public Interest Organizations**

The Alaska Beluga Whale Committee comments focused entirely on the Draft EIS.

Alaska Center for the Environment commented on behalf of 16 groups (NRDC, Alaska Wilderness League, Northern Alaska Environmental Center, Alaska Marine Conservation Council, The Wilderness Society, Pacific Environment, Alaska Coalition, Alaska Center for the Environment, Cook Inlet Keeper, Alaska Watch, Oceana, Greenpeace, Defenders of Wildlife, The Ocean Conservancy, Sierra Club, WWF). Consistent with comments from EarthJustice, Alaska Center for the Environment opposes MMS planning for the Alaska OCS, specifically North Aleutian Basin due to the fact that Bristol Bay is home to large populations of marine mammals. Closure decisions remain as strong today as at their inception just 10 years ago. EarthJustice and Alaska Center for the Environment oppose MMS planning in the Chukchi Sea due to concerns about the migratory patterns of whales, oil spill concerns, and important habitat considerations for polar bears and other animals. Noise disturbances are an issue of particular concern. The MMS has arbitrarily expanded access to the Chukchi Sea planning area and underestimated the sensitivity of the Chukchi shoreline. With respect to the Beaufort Sea, MMS should not hold any more lease sales unless and until the industry demonstrates that it can clean up spilled oil. The MMS should exclude sensitive areas offshore of the National Petroleum Reserve Alaska. Cook Inlet supports vital fishing and therefore should be excluded. Also, the industry lacks interest in purchasing leases in this area thus, MMS should not offer it for lease. No "special interest" sales should be offered. Seismic surveys are not impact-free and MMS should complete a comprehensive NEPA process in connection with seismic activities. Recent oil spills once again demonstrate that safety precautions are needed, as well as criminal investigation and reporting rules. Global warming must be considered by MMS and MMS should evaluate energy alternatives to new offshore oil and gas leasing. The groups elaborate on the DEIS as deficient, lacking in scientific baseline data. This group supports the 25-mile boundary line.

Alaska Eskimo Whaling Commission (AEWC) is opposed to offshore oil and gas leasing because it appears that the program is not about the development of an environmentally sound leasing program, but about avoiding information that might be considered contrary to the agency's leasing objectives. The MMS proposal threatens the habitat and migratory patterns of the bowhead whale. If the whales become unavailable for native subsistence lifestyle,

communities will be unable to provide for themselves. The Secretary must exclude the Chukchi Sea from the program for the sole reason that too little is known about that sea and its capacity to rebound from environmental pressures of leasing activity. With respect to MMS cumulative impacts analysis, MMS must focus on vessel traffic noise effects and multiple simultaneous seismic operations. The Bureau of Land Management and the State of Alaska must be consulted. The MMS must work with AEWC to revise the "significance thresholds" it uses to decide whether impacts to subsistence communities are significant. The MMS is misapplying standards prescribed by the Council on Environmental Quality for determining the "significance" of the potential impacts of a proposed federal action. Selective compliance with CEQ regulations is unwarranted. Furthermore, the Secretary's obligations to balance exploitation of the resources of the federal OCS with the welfare of the human environment mandate that he or she consider exclusion areas, as well as areas to include in the program. The comments contain an attachment of the North Slope Borough Department of Wildlife Management. The AEWC submitted additional statements at the November 16, 2006 hearing. The oral comment focused on the DEIS and primarily addressed whaling populations. The MMS proposal threatens the habitat and migratory patterns of the bowhead whale. If the whales become unavailable for native subsistence lifestyle, communities will be unable to provide for themselves.

Alaska Marine Conservation Council (AMCC) participates in the third set of comments on the 5-Year leasing program. The AMCC is concerned about the potential ecological, cultural and economic impacts of offshore oil and gas development in the Bristol Bay and eastern Bering Sea. The concerns raised go well beyond concerns with the effects on the fisheries industry, to include the combined threats of oil and gas development on the unparalleled resources of marine and coastal Alaska and the communities that depend on them. The AMCC urges MMS to maintain the presidential withdrawal. Raising the concern of increasingly destructive storms in the eastern Bering Sea, and citing ecologically sensitive and economically important waters of Bristol Bay, AMCC urges MMS to pursue policies that focus on conservation and renewables. Extensive remarks are directed to the DEIS materials.

Alaska Watch opposes MMS planning in the Alaska OCS and asks that MMS remove references to Bristol Bay and Chukchi Sea and reduce areas to be leased in Beaufort Sea. This comment cites spills to demonstrate the inability to control or minimize oil spills in Alaska due to weather and water conditions.

Alaska Wilderness League opposes the MMS planning process and documents. The MMS is out of step with the rising tide of public concern for the nation's coastal and ocean resources and the Proposed Plan and Draft EIS exhibit this attitude. The Proposed Plan and the Draft EIS threaten critically-important protected areas along the Alaska coast. The 5-Yr Plan and the Draft EIS are the wrong approach to an issue of growing international importance -- global warming. The League recommends that MMS should join mainstream American values and cancel a number of specific lease sales.

American Conservative Union, a conservative public interest group, supports MMS planning in all OCS regions. The Union urges MMS to achieve an accelerated leasing program with

additional acreage; appropriate OCS revenue-sharing with impacted states and local communities; and ensure environmental protection.

Cascadia Wildlands Project Alaska Field Office strongly opposes the program and cites specific problems with the DEIS. Particular concerns center on the cumulative impacts, the alternatives and the risks to subsistence from allowing OCS drilling. Chronic sublethal doses of oil are harmful to salmon and other wildlife and this comment sees the role of federal and state action to protect rather than exploit these resources.

Center for Biological Diversity discusses at length the Draft EIS and opposes MMS planning and sees oil and gas development as having site specific regional and global environmental impacts and risks. Greenhouse gas pollution is chief among the risks outlined in this comment. Requirements of the Endangered Species Act and NEPA are outlined. Furthermore the requirements of the Global Change Research Act are discussed with specific reference to scientific assessment. The Center hopes MMS will produce an EIS that will fully and accurately analyze each of the project's environmental impacts, including greenhouse gas emissions and global warming.

Center for Policy Research of New Jersey provided statements from the public meeting in Atlantic City. The Center's spokesperson supports the program and emphasized the need to craft a responsible national energy strategy, to protect the marine areas off the coast of New Jersey, and to take a multi-faceted approach. He supported the plan to include Virginia areas.

Clean Ocean Action (New Jersey) submitted a statement at the Atlantic City public meeting that firmly objects to the Virginia areas of the proposal and states that MMS planning puts at risk unique marine areas. As for energy resources in the mid-Atlantic area, the MMS is looking for a needle in a haystack. Clean Ocean Action submitted another comment strongly opposing inclusion of the Mid-Atlantic Region in the proposed program area and the EIS process. Violation of the current moratoria is the primary objection to the MMS program. The Mid-Atlantic waters have been protected since 1990 by an Executive Order by former President George H.W. Bush and subsequently by President Clinton to the year 2012. Additionally, congressional moratoria in place for the Mid-Atlantic prohibit the use of appropriated funds for "leasing, pre-leasing, and related activities." Clean Ocean Action states that the environmental risks are high for New Jersey and New York and that the potential dangers due to exploring and drilling for oil and gas outweigh the supposed benefits. Specific risks to commercial fishing, recreational fishing, surfing, and tourism are outlined. Studies showing limited reserves in this area are noted. The Administrative Boundaries are "arbitrary, and are not supported by many coastal states." Thus, Clean Ocean Action believes that the boundaries cannot be used by the Department of the Interior to delineate the proposed boundaries for any MMS lease sales, or schemes related to revenue sharing, CZMA authority or any other purpose. Further, MMS's Virginia proposal conflicts with DOD operations.

International Fund for Animal Welfare comments on the array of marine mammals that are adversely affected by MMS planning on the U.S. OCS as the reason that this group opposes the plan. Each classification of mammal is described and the disturbances and the contaminants are

detailed. Cumulative impacts are reviewed and the conclusion is that the plan requires more study, is detrimental to the environment, and is insupportable by the scientific community.

James Madison Institute provided a series of journal articles that generally describe the controversy that surrounds energy development and urges the national strategy to "use what we have," thus supporting domestic production options.

KAHEA, the Hawaiian-Environmental Alliance, is opposed to the MMS planning and cites numerous marine mammals worthy of more protection. The comment is focused on the Draft EIS, as well as programmatic opposition. The MMS is urged to abandon all planning to exploit the oil and gas resources in already abused oceans.

Last Stand (Florida) submitted a Resolution to support new congressional moratoria and to permanently cancel the existing and active leases and to oppose any new offshore leasing activity is enclosed.

Louisiana Technical College writes in support of allowing greater access to the OCS during the 2007-2012 timeframe.

Manasota -- 88, a Project for Environmental Quality 1968-2088 (Florida), finds the MMS proposal objectionable citing environmental impacts, limited spill response ability by the industry and the Federal government, and risks of drilling in sensitive areas.

Morganza Action Coalition (Louisiana) provides a discussion on the importance of mitigation funding and revenue sharing. Discussion of the Final EIS is emphasized.

New Jersey Environmental Lobby opposes MMS planning, particularly as the planning relates to New Jersey's coastline. This comment notes its common interests and view points contained in the Clean Ocean Action’s comments.

New Jersey Society of Environmental, Economic Development submitted a statement at the public meeting in Atlantic City. The spokesperson supports the program but emphasized the view that this approach may be inadequate. He supported the plan to include Virginia areas in the Proposed Plan.

Northern Alaska Environmental Center opposes MMS planning for the North Aleutian Basin due to the fact that Bristol Bay is home to large populations of marine mammals. Noting that Public Connect was "down" and that the public hearing in Wainwright, Alaska was cancelled and the need to comment on the Chukchi lease sale 193, Northern Alaska Environmental Center requests more time to provide material in opposition to MMS planning in the Chukchi Sea. The MMS has arbitrarily expanded access to the Chukchi Sea planning area and underestimated the sensitivity of the Chukchi shoreline. With respect to the Beaufort Sea, MMS should not hold any more lease sales unless and until the industry demonstrates that it can clean up spilled oil. The MMS should exclude sensitive areas offshore of the National Petroleum Reserve Alaska. Cook Inlet supports vital fishing and therefore should be excluded. Also, the industry lacks interest in

purchasing leases in this area, thus, MMS should not offer it for lease. No "special interest" sales should be offered. Seismic surveys are not impact-free and MMS should complete a comprehensive NEPA process in connection with seismic activities. Recent oil spills once again demonstrate that safety precautions are needed, as well as criminal investigation and reporting rules. Global warming must be considered by MMS and MMS should evaluate energy alternatives to new offshore oil and gas leasing. Much of this comment focuses directly to the Draft EIS.

Oceana opposes MMS planning for the North Aleutian Basin due to the fact that Bristol Bay is home to large populations of marine mammals. The MMS has arbitrarily expanded access to the Chukchi Sea planning area and underestimated the sensitivity of the Chukchi shoreline. With respect to the Beaufort Sea, MMS should not hold any more lease sales unless and until the industry demonstrates that it can clean up spilled oil. The MMS should exclude sensitive areas offshore of Florida and Virginia. Recent oil spills once again demonstrate that safety precautions are needed, as well as criminal investigation and reporting rules. MMS should evaluate energy alternatives to new offshore oil and gas leasing. Much of this material goes directly to the Draft EIS.

Pacific Environment is opposed to MMS planning in the Alaska regions. With the belief that our "addiction" to oil sacrifices rich ecological areas such as Bristol Bay and the entire Arctic in order to supplement a small percentage of oil and gas production, they urge MMS not to go forward with the program.

Pacific Seabird Group comments relate to the Draft EIS and focus entirely on the seabird topic. This comment opposes the methods and conclusions of the Draft EIS.

Restore or Retreat (Louisiana) comments that without adequate mitigation and a significant, steady funding mechanism in place to address development that is on the brink of economic and environmental disaster, this non-profit coastal advocacy group is opposed to the MMS proposal. The hurricanes were evidence of inadequate planning and mitigation techniques.

Sierra Club et al comments on behalf of millions of members, and raises eight points of concern, in opposing the MMS program. 1. New Administrative Boundaries are inequitable, illegal, not subject to proper notice and comment and unacceptable. 2. The 5-year program should not include any areas protected by moratoria or executive withdrawal. 3. Such areas should be granted permanent protection. 4. No permits for "air gun" inventories should be issued for protected areas. 5. "Gas-Only-Leasing proposals are inappropriate and deceptive because they open the door for oil drilling. 6. Retroactive application of a pre-existing EIS for a prior Lease Sale #181 proposal would fail to address many important concerns, namely the well-known "Loop Currents" in the Gulf of Mexico. 7. Alaska OCS Leasing proposals would endanger a wide range of resources of national significance. 8. Lack of Attention to Protecting Living Resources and the "Royalty relief" provisions enacted in the Energy Policy Act of 2005 fail to meet the test of ensuring fair return for the U.S. taxpayer. 9. No acknowledgement of the Carbon-Constrained Future. 10. Growing scandals over MMS giveaway of taxpayer-owned U.S. resources to the oil industry. This comment opposes most aspects of the MMS proposal.

Surfrider Foundation submitted a statement at the public meeting in Atlantic City. The spokesperson was against the proposal and looked back to history to find its compelling reasons. The speaker emphasized the need to protect the marine areas off the coast of the U.S., specifically New Jersey. He opposed the plan to include Virginia areas in the proposed program.

T Roosevelt Conservation Partnership, American Fly Fishing Trade Association, et al., oppose development on the OCS under current methods for multiple-use management, particularly due to the increased demand for permitting and development. On behalf of the hunting, fishing, and conservation organizations, this group urges MMS to consider changes in funding and management practices. Adequate management and protections for fish and wildlife resources are described in the FACTS sheet provided with this comment.

The 60 Plus Association provided at the public meeting in Atlantic City. The Association supports the MMS proposal from the perspective of older Americans on fixed incomes. The spokesperson supports the program and emphasized the need to craft a responsible national energy strategy, and to take a national security approach. He supported the plan to include Virginia areas in the program.

The Energy Council submitted a policy statement that was unanimously passed to support access to the OCS in concert with the affected States and to evaluate the prospects of environmentally sound development.

The Garden Club of Long Beach Island (New Jersey) is an environmental activist organization formed after medical wastes washed up on shore in 1987. The possibility of Virginia's coastline being developed is alarming and this group is opposed to an exploration and drilling anywhere off the Atlantic coast.

Water Watch International provided a statement at the public meeting in Atlantic City. The comment opposes the plan specifically with respect to oil and gas leasing off the coast of Virginia. Coastal habitats, residential benefits, and the uncertain reserves are the reason for this group's opposition.

World Wildlife Fund/Audubon Alaska oppose MMS planning due to oversights in data and inadequate analysis throughout the 5-Year process. As for the North Aleutian Basin, due to the fact that Bristol Bay is home to large populations of marine mammals, they specifically oppose the plan. WWF/Audubon oppose MMS planning in the Chukchi Sea due to concerns about the migratory patterns of whales, oil spill concerns, and important habitat considerations for polar bears and other animals. Noise disturbances are an issue of particular concern. The MMS has arbitrarily expanded access to the Chukchi Sea planning area and underestimated the sensitivity of the Chukchi shoreline. With respect to the Beaufort Sea, MMS should not hold any more lease sales unless and until the industry demonstrates that it can clean up spilled oil. The MMS should exclude sensitive areas offshore of the National Petroleum Reserve Alaska. Cook Inlet supports vital fishing and therefore should be excluded. Also, the industry lacks interest in

purchasing leases in this area, thus, MMS should not offer it for lease. No "special interest" sales should be offered. Seismic surveys are not impact-free and MMS should complete a comprehensive NEPA process in connection with seismic activities. Recent oil spills once again demonstrate that safety precautions are needed, as well as criminal investigation and reporting rules. Global warming must be considered by MMS and MMS should evaluate energy alternatives to new offshore oil and gas leasing. Much of the statement submitted goes to the Draft EIS.

**Oil and Gas Companies and Related Associations**

Alamo Resources, LLC supports the program but would like to see further planning to develop America's energy resources. The comment focuses on competitiveness, infrastructure development and economic growth.

Alaska Oil and Gas Association (AOGA) submitted a statement at Anchorage meeting in September, 2006. Similar to previous statements, AOGA agrees with American Petroleum Institute comments and repeats its position in these individual comments. The AOGA supports expanded leasing on the OCS. Offshore development must be conducted in an environmentally safe manner. The MMS is encouraged to utilize "special sales" to allow leasing in all Alaska OCS planning areas based on industry interest. The AOGA also strongly supports revenue sharing and comments on the Draft EIS.

Alaska Support Industry Alliance supports the MMS proposed 5-year program and urges MMS to expand lease acreage to ensure adequate domestic oil and gas supplies. Fishing and oil and gas industries coexist better today due to technology advances, and MMS is encouraged to consider seasonal operating restrictions in order to further reduce risks to the region's fishing industry. Environmental risks, revenue sharing, and the Bristol Bay communities were discussed.

American Electric Power supports domestic production efforts and calls for an expansion of energy resource development.

American Gas Association (AGA) supports increased domestic oil and gas production in the OCS and urges MMS to open the "Sale 181" including the northern segment known as the "stovepipe", Eastern Gulf of Mexico, and Alaskan areas. The MMS should expand the program to include further assessment of as many of the remaining OCS planning areas as possible and should include the dialogue begun with Virginia as a model for dialogues with Georgia and the Carolinas.

American Petroleum Institute (API) strongly supports the MMS draft proposed program and urges MMS to appreciate that the Plan will not adequately meet America's energy needs now or going forward. The MMS is urged to expand the program to include all OCS areas, in particular, the Sale 181 Area and the "stovepipe". Energy needs are growing and without access, the OCS role in providing energy will decline. The API recommends that where restrictions are in place, the areas should be offered as available once restrictions are lifted. The plan should be as

flexible as possible so that the Federal Government can be responsive to changing circumstances and needs of the country. Discussion of the OCSLA supports that notion that the Plan should be broader, that the Secretary is intended to support energy development and that the Secretary should not prejudge the plan in the Notice. Options are discussed and supported individually by area.

American Public Gas Association (APGA) strongly supports the MMS proposed 5-year program and urges MMS to expand leasing. The APGA notes that administrative boundary issues in Florida should not restrict significant potential in terms of natural gas development. The major concern of APGA is the price of natural gas.

Anadarko Petroleum Corporation comments that domestic production trends will be marked by the development of new deepwater fields and that any increase in domestic production will be the result of 15-20 years of investment. Anadarko urges MMS to make available more and greater OCS areas, specifically the North Aleutian area and the Eastern Gulf of Mexico. Anadarko believes that MMS has failed to provide sufficient access to offshore resources and that all areas of the Eastern Gulf should be opened.

Apache Corporation strongly supports expanded oil and gas leasing and encourages the agency to include additional areas in the 2007-2012 planning.

Austin Exploration Inc. supports MMS plans to provide access to areas of the U.S. OCS and would like MMS to include all OCS areas in the future.

Blessey Marine Services, Inc. supports the 5-year program and urges MMS to work hard to develop national energy resources.

BP America Production Company supports the activities provided in the proposed program for 2007-2012 but believes MMS should encourage more domestic oil and natural gas production. Specifically, BP supports continued areawide leasing in the Western and Central Gulf of Mexico, minimum bid as in the previous 5-year program, and bid adequacy review as in the previous 5-year program. BP supports discussions about revenue sharing between the Federal Government and States and localities.

Chemistry Council of New Jersey submitted a statement at the public meeting in Atlantic City. The Council supports the plan and emphasized the need to protect the economy of the nation, and of New Jersey. He supported the plan to include Virginia areas in the program.

Chevron North America supports the MMS proposal and offers extensive comments on the proposed 5-year leasing program, in particular detail about the planning process. This comment offers suggestions in favor of the new planning areas boundaries but is opposed to the splitting of existing blocks and details materials related to the bid adequacy process, and coordination with affected States. With respect to the bid adequacy process, the concern is that, with few exceptions, the foundation for MMS's bid adequacy evaluation process is based on subjective data interpretation. Chevron supports this process when two or fewer bids are submitted.

However, when 3 or more bids are submitted, market forces should be used to establish market value. The MMS should not avoid market determination of value by placing qualifiers on what is considered an acceptable competitive bid. Market determination of value by 3 or more non-affiliated bidders irrefutably establishes the value of the block.

ConocoPhillips supports the MMS program and wishes it were expanded. ConocoPhillips summarizes the OCSLA to support the view that the program should be expanded and gives details on the need to increase the size, timing, and location of leasing and objects to the limited options provided for some areas. These areas should be fully analyzed in the program and EIS. This comment supports changes in the withdrawal and moratoria areas before 2012. Under separate cover are comments on proposed lease sale schedules and proposed valuation methodology.

ConocoPhillips Alaska, Inc supports the MMS proposal and attached prior comments submitted to MMS. In addition to previous comments, ConocoPhillips elaborates on the Chukchi and Beaufort Seas within the Alaska program. In general the comment strongly supports Alternative 1. Also, Alternative 5 is addressed with respect to excluding a 25-mile buffer zone. The company seeks a basis for the 25-mile coastline buffer zone. Assuming the zone is to provide additional protection for marine mammals, the company does not share that finding and finds that the zone unnecessarily restricts exploration opportunities. As for the Beaufort Sea, the company opposes adoption of the Barrow and Kaktovik deferral areas and asks the agency to provide justification for these exclusions. Extensive comments are provided for the Draft EIS.

Devon Energy Corporation comments that energy prices are the reason it supports MMS planning on the OCS. This comment urges legislation to enhance revenue sharing and makes the point that development has improved in environmental protection and efficiency.

Diamond Offshore strongly supports expanded oil and gas leasing from the OCS during 2007-2012.

Domestic Petroleum Council (DPC) urges MMS to produce a more robust leasing program and supports expanded leasing on the OCS. The program does not include adequate study and preparation for potential sales in areas that may be brought out of moratoria status in the 2007-2012 time period. The DEIS should also include additional Eastern Gulf of Mexico and Mid-and South Atlantic areas. The DPC takes exception to the concept of arbitrary "buffers" or zones off any state's coast within which no leasing should occur. With today's needs and technologies, arbitrary no-leasing buffers are not compatible with the national interest.

DTE Energy Gas reiterates its views to urge MMS to expand the plan further; however, it supports the current plan. The DTE encourages MMS to expand its proposal in order to advance assessment goals covering as many of the remaining OCS planning areas as possible.

Eni Petroleum Co., Inc. supports the MMS proposal and urges expanded leasing opportunities in all OCS areas. This comment focuses on deepwater operations and supports reliable, consistent

sales. Eni supports the concept of reversing the moratoria, eliminating the "Restricted Bidders List" in certain areas, and enforcing environmentally safe practices.

Enterprise Products Partners L.P. (EPP) supports MMS planning and aligns with responses from the National Ocean Industry Association (NOIA). The EPP reviews the OCSLA and concludes that the plan is not strong enough. The EPP supports alternative #1 as coming closest to meeting the goals of the OCSLA. As for the area changes from the Draft Proposed Plan, the 25-mile buffer zone is not supported as it is shortsighted to take this acreage off the table. The EPP supports the 2 sales in the Beaufort Sea; and 2007, 2010, and 2012 sales for the Chukchi Sea. As for the North Aleutian, EPP supports 2 sales and in the Cook Inlet, EPP supports 2 special interest sales in 2009 and 2011. The EPP supports the plan to set minimum bid levels by individual lease sale based on market conditions and to continue to use the 2-phase post-sale bid evaluation process.

Exxon Mobil Exploration supports the MMS program proposal; however, the program should not continue to exclude so much of the OCS. Specifically, congressional and administrative moratoria and withdrawals that limit energy development should be reversed. Such exclusion will lead to an accelerated decrease of domestic oil and gas production and inadequate geographic and diversity of domestic offshore oil and gas resources to serve as a buffer from the kind of painful supply disruptions experienced from Hurricanes Katrina and Rita.

Fairfield Industries supports the MMS proposal for 2007-2012, except the configuration of the Central Gulf of Mexico planning area. Acreage in the original Sale 181 area is now in the Central Gulf and should have been included in Central Gulf lease sales. Fairfield urges MMS to include areas withdrawn or covered by the moratoria because these offshore areas, at a minimum, could be analyzed should their status or circumstances change between now and 2012. Excluding almost 90% of the OCS until 2012, even from environmental or geological analysis, is a flawed plan and is in contradiction with the intent of the section 18 of the OCSLA Lastly, Fairfield asks MMS to reconsider the program to place more acreage in the plan.

Hydril Company LP urges MMS to expand the proposal beyond the plan presented for comment. The comment refers to MMS actions as a failed policy of limited access that does not consider the full potential of our nation's offshore resources.

Independent Petroleum Association of America (IPAA) supports MMS proposals for offshore oil and gas leasing. Specifically, IPAA comments on the need to expand leasing areas and the need to open the remaining Sale 181 area, including the stovepipe. The IPAA urges that areas in the moratoria and withdrawn areas be opened.

International Association of Geophysical Contractors (IAGC) supports NOIA's comments and supports the proposed program. The IAGC strongly urges MMS to expand the program in numerous areas, and supports the configuration of the Central Gulf of Mexico planning areas. The IAGC supports the initiation of revenue sharing and urges MMS to adopt provisions to facilitate new seismic data acquisition and subsequent analysis of the OCS, including areas that are "off-limits." The IAGC discusses the technology of seismic data acquisition and its

processing and urges MMS to access modern seismic data noting that this is a long-term process over many, many years. Concerns about cost, coverage, timing, capacity are provided. The IAGC advises MMS not to prejudge the planning process by stating "no intention" of offering for lease some areas of the Eastern Gulf. The IAGC states that the OCSLA and other federal policies call for MMS to expeditiously open the OCS to activity. The IAGC offers support for Option 1 for the Beaufort Sea Planning Area. While, IAGC prefers regular sales for Cook Inlet, they support MMS being flexible and including the areas in the 2007-2012 program. The IAGC offers support for areawide leasing in the Gulf of Mexico Planning Areas. With respect to the area included in the Mid-Atlantic Planning Area, IAGC objects to limiting the area for analysis, and urges MMS to gather data from the entire Mid-Atlantic Region.

Louisiana Oil & Gas Association strongly supports the proposed MMS 5-year OCS leasing program and specifically supports Alternative 1 which includes access to specific areas of the Eastern Gulf of Mexico, as well as continued development of the Central and Western areas of the Gulf. Increases in revenue sharing are strongly encouraged.

Lynden urges MMS to consider more acreage and an expanded program. Focusing on Alaska, this company see the most prospective resources in the Chukchi Sea and urges MMS to open all Alaska regions for energy development. Jobs, local revenue, and supporting the national economy are the reasons given in this comment.

Marathon Oil Company reiterates its support for the MMS proposed 5-year program and urges MMS to expand leasing in numerous specified areas.

McMoran Oil and Gas calls the OCS a key part of the nation's energy infrastructure. This comment supports MMS planning and would like to see an expanded program.

National Ocean Industries Association (NOIA) represents 6 groups (National Ocean Industries Association, Domestic Petroleum Council, International Association of Drilling Contractors, Independent Petroleum Association of America, Natural Gas Supply Assoc, and U.S. Oil & Gas Association). This comment strongly supports the inclusion of the areas of the MMS interest in the proposed program. The MMS is urged to expand the program to include all OCS areas. Where areawide leasing is not possible, "focused leasing" is recommended. Where restrictions are in place, the areas should be offered as available once restrictions are lifted. The plan should be as flexible as possible so that the Federal Government can be responsive to changing circumstances and needs of the country. Discussion of the OCSLA supports that notion that the Plan should be broader, and the Secretary should not prejudge the plan in the Notice.

Nippon Oil Exploration U.S.A. Limited supports expanded OCS development and urges MMS to reject a failed policy of limited access. It describes the planning as a national effort, national in interest and scope.

North Carolina Petroleum Marketers Association supports MMS program planning; views expanded access to our offshore resources as vitally important to American energy independence; and urges MMS to expand leasing opportunities, particularly for Sale 181 area

and other areas in Alaska and in the Gulf of Mexico, and the South Atlantic region that are considered "off-limits."

Offshore Marine Service Association supports expanded leasing on the OCS. Offshore development provides many benefits and revenues and a stable source of income for local merchants.

Parallel supports expanded development and planning on the OCS.

Reed Hycalog strongly supports the plan and expresses the view that the plan should go further.

Seacor Holdings, Inc. broadly supports expansion in all areas.

Seacor Marine, LLC comments in broad support of expansion in all areas.

Shell Exploration & Production reiterates its support of an expanded MMS program. Specifically, Shell comments on expanding areas offered for lease. The plan should be as flexible as possible so that the Federal Government can be responsive to changing circumstances and needs of the country. With respect to revenue sharing, Shell strongly advocates OCS revenue sharing of royalties, bonus bids, and fees with coastal states. Shell is pleased that MMS did not propose gas-only leasing. Shell is supportive of legislative efforts to provide an exception to the prohibition on joint bidding on OCS Alaska lease sales.

TGS NOPEC Geophysical Company L.P. strongly supports the MMS draft proposed program, specifically for including the areas in the Central and Western Gulf, Alaska, and Virginia. The MMS is urged to expand the program, with proposed areas only going forward if restrictions are lifted. The TGS requests as flexible a plan as possible in order that the Federal Government will be able to respond to changing circumstances. The TGS reviews OCSLA\A mandates to MMS and is concerned that the planning process is prejudged; and by declaring the Secretary's intention not to offer certain areas, undermines the NEPA process. The TGS strongly objects to the limited options provided in the Atlantic and Straits of Florida.

Walter Oil & Gas Corporation supports the plan and encourages MMS to expand access to all other OCS areas including Eastern Gulf of Mexico, Atlantic and Pacific areas, including withdrawn areas.

**Non-Energy Industry Interests and Business Groups**

AG Processing Inc. supports MMS proposal but views the plan as not sufficiently bold enough. The MMS is urged to expand its plan to include all planning areas.
Agriculture Energy Alliance (AEA) represents over 100 companies who support expanded access to the OCS for the development of energy resources. The major concern of this comment is the price and short supply of natural gas and the harm this poses to the farming communities. The AEA specifies areas where an expanded MMS program is needed in almost all 26 areas of the federal OCS.

Alaska Independent Fisherman's Marketing Association is the largest salmon fisherman's association in Bristol Bay, Alaska, and opposes MMS efforts to open offshore oil and gas drilling in the North Aleutian Basin. Due to the sensitivity of the area, weather conditions, and volcanic activity, this group is strongly opposed.

Alaska Miners Association, Inc. strongly supports increased domestic oil and gas production on the OCS. This comment provides specific locations for MMS program expansion in Alaska, generally recognizing that all areas need to be expanded in a manner that attracts companies to risk the time and cost to explore the areas. Draft EIS comments are extensive and addressed in the Final EIS.

Alaska State Chamber of Commerce supports and urges MMS to include additional acreage for lease to insure that adequate supplies of oil and natural gas are available to U.S. consumers. Specifically the Chamber asks MMS to consider Bristol Bay for development. This comment approves of greater attention to revenue sharing in the U.S. Congress.

Alaska Trucking Association (ATA) supports expanded leasing in the U.S. OCS during the 5-year period, 2007-2012. The ATA's position is that the Alaska OCS should move forward only after proper local stakeholder consultation, planning, and environmental analysis. A strong regulatory system should be in place. The ATA urges MMS to adopt new revenue sharing plans.

American Highway Users Alliance strongly supports expanded leasing on the U.S. OCS and supports consideration of additional acreage in all available Federal offshore waters, specifically in the Eastern Gulf of Mexico and throughout the Atlantic. On behalf of the transportation sector, alleviating energy price increases and supply shortages is the primary reason to access domestic energy resources.

American Iron and Steel Institute strongly supports increased domestic oil and gas production on the OCS and provides specific locations for expansion, generally recognizing all areas that need to be expanded in the program. The Institute notes today's sophisticated and safe technologies.

Anchorage Economic Development Corporation specifically supports offshore expansion in the Beaufort and Chukchi Seas, in Bristol Bay and in the North Aleutian Basin. Noting that 11 companies have an interest in lease activity in the North Aleutian Basin, currently under moratoria, AEDC supports expanded leasing on the U.S. OCS. This group states that the proposal is controversial and that impact to whales and other sea mammals is a concern. However, economic diversification is needed in the area. Protection of the natural resources is important in the process of lifting the moratoria to allow exploration and production activities. Congressional proposals regarding revenue sharing are supported.

Arkansas State Chamber of Commerce and the Associated Industries of Arkansas, Inc. support the MMS program, but feel it is not bold enough for our future energy needs. The MMS should expand oil and natural gas production as a high priority in all areas, including the Sale 181 area

and the "stovepipe." Expansion in Alaska, Gulf of Mexico, and the South Atlantic region is important. Loss of manufacturing jobs and energy costs to farmers is of concern.

Associated Industries of Florida (AIF) supports enhanced exploration and drilling for oil and natural gas in the eastern Gulf of Mexico beyond 125 miles. The AIF renews its views that Florida's economy is built on growth and that while supporting nuclear power, the economy of Florida needs continued oil and natural gas resources.

Assumption Area Chamber of Commerce supports the 5-year program and urges MMS to address increased revenue sharing and to design a development program that is environmentally sound.

Atlas Tubular, L.P. supports the program and urges MMS to expand the program further to secure the energy resources the nation needs.

Barriere Construction Co., L.L.C., a family-owned construction business, supports the program and requests a more aggressive plan for energy independence.

Bayou Industrial Group, Inc., an organization of business groups in south Louisiana, supports MMS planning and urges allowing greater access to our nation's offshore oil and natural gas resources during the 2007-2012 time frame, while also urging MMS to ensure that land-based impacts from this activity be adequately identified and mitigated.

Bering Sea Fisherman's Association opposes MMS planning in the Alaskan region and finds the plan to be entirely premature given the lack of baseline scientific data. The comment sets forth the goals of the organization: to help take the opinions and ideas of the Bering Sea Fishermen to the state, nation, and world; to work with agencies on issues related to Bering Sea Fishermen; and to inform fishermen of new political, economic and technological developments which may affect their livelihoods. The Association comments on the Draft EIS and the impacts of seismic activity. The harm to populations of marine mammals is the primary focus of the comments. The commenters will not support federal programs which unnecessarily endanger renewable resources.

Bob's Farm Center, Inc., a member of the Agriculture Energy Alliance, resubmits the Alliance's views. The major concern noted in this comment is the price and short supply of natural gas and the harm this poses to the farming communities.

Broadway Services, Inc. represents the views of one of the largest private non-profit retirement communities in support of expanded development on the OCS.

Canal Barge Company, Inc. supports MMS planning in all areas and makes this decision based on fuel costs and national security concerns.

CB Richard Ellis provides specific support for the Virginia proposal.

CF Industries is a fertilizer company and sees high prices as harming U.S. agriculture. They urge MMS to open more areas to OCS development, commenting that MMS should expand the availability of resources in all OCS areas, and include new areas in Alaska and the Atlantic region. CF Industries explains that nitrogen fertilizer, the main ingredient of which is natural gas, is their dominant concern.

Chickasaw Distributors, Inc. strongly supports the MMS proposed 5-year program and urges MMS to expand leasing in all available lease sale areas.

Council of Industrial Boiler Owners (CIBO) supports the development of more domestic oil and natural gas resources off our coasts. The CIBO raises the supply/demand imbalance as a problem in domestic energy markets and advocates for numerous specific areas to open to analysis and leasing. They urge MMS to take bold action to make as many offshore areas available as possible and conclude that the plan is not sufficiently bold enough to meet future energy needs.

Coastal Pipe of Louisiana strongly supports the MMS planning for OCS resources. However, the comment suggests that the MMS did not go far enough to fulfill its duty to the American consumer.

Conam Construction Company supports expanded leasing on the U.S. OCS because it employs Alaskans; is safe; the reserves are there; and it solves America's energy shortages.

Consumer Energy Alliance (CEA) supports development of all domestic energy resources and finds that high energy prices negatively impact consumers and the U.S. economy. The CEA supports MMS plans to access domestic resources and discusses how safe U.S. operations are compared to oil and gas operations worldwide. The CEA provides data about the OCS inventory, hurricane shut-downs, and safety/ environment policies. Specifically, CEA urges MMS to open Alaska, the Pacific, the Atlantic, and the Gulf of Mexico to offshore oil and gas development and to initiate revenue sharing between the Federal Government and individual localities.

Corrosion Testing Services supports further OCS leasing development and expansion on current MMS planning. Jobs and national economic forecasting are the primary focus of this comment.

Farm Bureau of Arkansas supports the MMS proposed 5-year program and urges MMS to expand leasing.

Fieldwork Communications opposes MMS planning, specifically in Bristol Bay, due to extreme weather conditions, inhospitable coastlines, delicate ecosystems, and native peoples, whose interests are harmed by development.

Florida Chamber of Commerce supports expanded oil and natural gas exploration and production in the Eastern Gulf of Mexico as long as this exploration is at least 100 miles away from

Florida's coast; allows for ongoing military training exercises; and includes appropriate safeguards for Florida's beaches and beach communities.

Florida Fertilizer and Agrichemical Association supports the MMS planning and the programmatic proposals in general.

Florida Minerals and Chemistry Council supports expansion of the offshore oil and gas development program; specifically for natural gas, an energy source critical to Florida. They enclosed their Energy Policy.

Greater Fairbanks Chamber of Commerce enclosed a resolution strongly supporting the MMS proposed 5-year program as providing sensible and responsible access to oil and gas resources on the Alaska OCS and elsewhere in U.S. offshore waters.

Greater Houston Partnership, a group to foster economic development, supports MMS planning to develop the OCS and finds that the data is useful to chart reliable development schedules for companies to access resources as safely and effectively as possible under this plan.

Greater Lafourche Port Commission's Director provides personal views from 28 years as port director. The views are related to the evolution of this area and the impacts of the hurricanes of 2005. The Director is strongly in favor of revenue sharing and makes the point that as the industry moved much further offshore, the impacts were greater. The comment generally is opposed to MMS planning, but reserves the position based on revenue sharing, mitigation, and strong mechanisms to fund localities.

Greater New Orleans Inc. supports MMS planning and requests expedited actions to achieve final approval of the plan.

Greater Seattle Chamber of Commerce supports oil and gas development in Alaska and strongly urges MMS to include additional Alaska offshore acreage. Specifically, they encourage consistent lease sales in the Beaufort and Chukchi seas, Bristol Bay, and the Lower Cook Inlet.

Hampton Roads Chamber of Commerce specifically supports including the waters off the Virginia coast in the OCS plan.

Harvey Canal Industrial Association strongly supports leasing in all the lease sale areas proposed in the MMS 5-year program and requests additional acreage for additional leasing.

Industrial Energy Consumers of America (IECA) supports increased domestic oil and gas production on the OCS and provides numerous examples of America's need for energy and the costs associated with the energy supply needs of consumers. The IECA notes specific locations for MMS program expansion, generally recognizing that all areas need to be expanded. The IECA notes that today's sophisticated and safe technologies will allow for exploration and development without harm to the environment.

International Brotherhood of Electrical Workers, a labor group, supports expanded offshore leasing during the 5-year period of 2007-2012.

International Foodservice Distributors Association, a national trade group, urges MMS to expand OCS development and to access all offshore oil and natural gas supplies.

International Paper supports MMS expansion of OCS oil and gas leasing and efforts to analyze OCS lands currently under presidential withdrawal or congressional moratoria. However, this comment notes that MMS does not propose a leasing strategy capable of satisfying the nation's growing energy demands. For this reason, MMS should promote greater domestic production through its leasing programs. At a minimum, MMS should consider opening the remaining portions of the Lease 181 area in the Gulf of Mexico and expand acreage offered for lease in the Beaufort and Chukchi Seas and the North Aleutian planning areas.

IPSCO Inc., a steel and pipe producer, supports MMS plans to expand oil and gas leasing on the OCS, based on the belief that the domestic manufacturing sector is suffering from high natural gas prices. Supply disruptions are detrimental and global competition for limited liquefied natural gas supplies conflicts with import restrictions and works against U.S. industrial interests. The MMS is urged to make the new plan as flexible as possible.

Jefferson Parish Chamber supports the MMS program in total, referencing the impacts of Hurricanes Rita and Katrina to make the point that geographic diversification is important.

Krispy Kreme doughnut franchise owner in south Louisiana and Alabama supports the proposed 5-year program and cites fuel costs and domestic supplies for consumers as the reasons for this support.

LA 1 Coalition notes the mounting frustration with MMS's lack of action in mitigating the impacts to Louisiana. Discussion of the importance of mitigation funding and revenue sharing dominates this comment.

South Lafourche Levee District notes the importance of mitigation funding and revenue sharing.

Laborers' International Union of North America Local 341 is in favor of expanded access to development on the OCS, specifically in Alaska. They urge MMS to allow for more acreage to allow for work opportunities and to alleviate a dependence on foreign oil. Revenue sharing is important.

Louisiana Ammonia Producers supports the proposal and urges MMS to advance a development plan that increases domestic oil and gas production and curtails high costs of natural gas.

Louisiana Association of Business and Industry continues to support expanded OCS exploration and production. Based on the long-term needs of the nation, jobs, and other national interests, this comment urges MMS to expedite exploration and development.

Louisiana Chemical Association, a major consumer of natural gas, seeks more moderate gas prices and a more predictable gas marketplace. The Association urges MMS to expand leasing opportunities, particularly for the Sale 181 area, and to streamline the leasing process.

Lyondell Chemical Company supports MMS planning and states that greater OCS access is needed.

McDonough Marine Service, a shipment and chartering company, supports MMS planning for the OCS 2007-2012. Fuel prices and national interests were noted to support this position.

Michigan Manufacturers Association urges expansion and strongly supports MMS planning in all areas.

National Association of Manufacturers (NAM) provides comments from the perspective of the manufacturing sector, namely the chemical manufacturing industry, which is most hard-hit by the recent price spikes in natural gas. The NAM comments that the proposal does not adequately increase domestic supplies of natural gas and oil and does not address overwhelming public support for an expanded OCS plan. The NAM opposes the 25-mile buffer zone and the no obstruction zone and opposes the military mission line in the Central Gulf. This comment discusses the estimated reserves in the OCS and finds the OCS contains substantial energy resources. The NAM states that offshore leases could create a revenue stream for the states and finds the policy rationales for continuing federal moratoria on the OCS to be obsolete. The NAM concludes that congressional intent to use the OCS to support energy development requires MMS to expand production and promote investment.

National Electrical Manufacturers Association (NEMA) supports MMS planning for OCS development, due to the need for new supplies of natural gas to support the electric generation sector for the expansion of the nation's grid in the 21st Century. Given Energy Information Administration data, the total endowment of recoverable oil and gas is a known resource. Congressional intention must be interpreted to warrant further development.

North Pacific Fisheries Association is opposed to federal planning in the Bering Sea off of Port Moller and north of the Alaska Peninsula. Fishermen, the state of Alaska, and the local fishermen's marketing associations have spent countless millions of dollars marketing the purity of Alaskan seafood. Even in the best case scenario, air and water discharges will adversely affect the reputation for purity in the world market of Alaskan seafood. This group resolves for the President to extend the Presidential withdrawal.

North Star Terminal & Stevedore Co., LLC fully supports expanded leasing in the U.S. OCS. Focusing on Alaska offshore waters but also mentioning other areas, they comment that OCS development is considered safe and important.

Premier Pipe, LLP comments that high prices and tight supplies account for their support for MMS Planning during the 2007-2012 period.

Pulp & Paperworkers' Resource Council comments that natural gas is a feedstock of the paper sector and supports MMS planning to expand leasing on the OCS. Long-term planning depends on establishing development opportunities in this country and state-of-the-art technology allows safe development. Future stability is needed.

Resource Development Council supports increased access to the American OCS and the proposed lease sales for Alaska, specifically supporting the new schedule. Noting that development takes many, many years, the comment urges MMS to stay on track. Local stakeholder consultation is a priority with conflict avoidance measures, and reasonable efforts to protect scientifically-verified, environmentally-sensitive areas. The Chukchi Sea is singled out as an area of importance. This comment supports the notion that the oil and gas industries can coexist with other industries in Alaska. The MMS is urged to include revenue sharing with states and local communities in its leasing plan.

Society of the Plastics Industry, Inc. stresses that the price of natural gas is the reason they seek increased development along U.S. coasts and supports MMS planning on the OCS. The Society sees no reason to maintain the moratorium and the withdrawals that exist today.

Solutions Through Science cites high natural gas prices as the main reason this group advocates in favor of the MMS program. As manufacturing facilities, the comment urges MMS to move forward with the OCS planning as proposed.

South Central Industrial Association, an industrial business group, supports MMS actions and urges MMS to look at local conditions. A critical issue is to appropriately compensate Louisiana interests before further burdening Louisiana with increased impacts from new lease sales. Deteriorating coast and impacts on infrastructure are noted.

South Louisiana Economic Council supports the MMS proposed plan and urges expeditious development with a plan that is as broad as possible.

St. Mary Chamber of Commerce supports the MMS proposed plan and urges expeditious development with a plan that is as broad as possible.

St. Mary Industrial Group supports the MMS proposed plan and urges expeditious development with a plan that is as broad as possible.

Tacoma-Pierce County Chamber supports the MMS proposed 5-year program and urges MMS to expand leasing in adherence with strong environmental standards. Specific support for offshore expansion in the Beaufort and Chukchi Seas, in Bristol Bay and in the North Aleutian Basin is offered.

Temperature Control Heating & Air Conditioning specifically supports the Virginia proposal.

The Fertilizer Institute cites nitrogen fertilizer production as the dominant concern in support of MMS planning. Plant closures, reliance on imports, and high prices jeopardize food security and pose challenges to national security. Ammonia is the source of nearly all the nitrogen fertilizer produced in the world. Average U.S. ammonia production costs more than doubled from 1999 to 2004. The MMS is urged to open and expand the availability of resources in all OCS areas and to include new areas in the South Atlantic region such as Georgia and the Carolinas. Recommendations related to resource estimates point to new technologies as a better way to identify resources and their locations. The Institute urges MMS to expand the proposal to include all available areas and to build a program to provide for our future energy needs.

The Port of Corpus Christi supports MMS in efforts to increase U.S. oil and gas production and to expand production opportunities in new areas.

U.S. Chamber of Commerce supports MMS planning for the OCS and provides a detailed discussion of the congressional actions in 2006 and Presidential authority over OCS areas currently off-limits. While the Chamber applauds MMS for consideration of two planning areas that are currently under moratoria or Presidential withdrawal, the Chamber finds the proposed plan does not go far enough. The Chamber finds that the plan does not adhere to the requirements of the OCSLA and concludes that the need for domestic production is greater than ever and that oil and gas resources can be safely and responsibly recovered at this time.

United Association of Journeymen and Apprentices Plumbing and Pipefitting supports MMS proposed plans in the Alaska region.

United Catcher Boats Association, being dependent on the Bering Sea groundfish and crab fisheries and on the health of the East Bering Sea fisheries, opposes MMS planning in the region. The Draft EIS is not well-detailed and the value of the development is not worth the risks to the environment.

United Fishermen of Alaska represents multiple interests in the Alaska region. Hunting and fishing interests are opposed to the MMS proposal but are eager to engage in advisory committee processes for guiding input on development.

Univar supports the proposed plan and the conclusions of the Draft EIS. Developing resources with new technology, with a cohesive work relationship between government and industry will lead to future economic growth. They support revenue sharing.

Wisconsin Crop Production Association, an agriculture trade association, represents over 100 growers and agribusinesses that use high volumes of natural gas. Price and availability are important to this group; therefore, they support MMS planning in this 5-year document.

Wisconsin Fertilizer & Chemical Association urges MMS to open the remaining "Lease Sale 181" area including the "Stovepipe", expand the availability of resources in all OCS areas, and include new areas in the South Atlantic region such as Georgia and the Carolinas.

Wisconsin Manufacturers & Commerce supports more OCS development, based on rising prices after Rita and Katrina, sophisticated environmentally-friendly technology, and the needs of the country and the Wisconsin manufacturing sector.

World Trade Center of New Orleans submitted comments on behalf of 1,900 corporate and individual members, in support of expanded leasing on the U.S. OCS.

**General Public**

In response to the Proposed Plan, the MMS received over 73,400 comments in total from the general public, of which almost 55,000 comments are in favor of some level of access for oil and gas operations in the OCS and over 18,450 are opposed to some or all access. Most comments from private citizens were received regarding the 5-year program as a result of what appeared to be mass mail campaigns generating form letters for each respondent to sign and mail.

A majority of the commenters, almost 75 percent, supported a 5-year program that offers increased acreage for offshore oil and gas development planning. These comments focus on the instability in the Middle East, American military operations in Iraq, and high energy prices in the United States. Approximately 25 percent of the private citizens who wrote letters oppose development of the domestic OCS, viewing the environmental hazards as too great a risk for limited energy resources.

Some commenters urged Federal Government resources to be used to develop alternative resources, either in place of or in addition to oil and gas resources.


**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 **Minerals Revenue Management** 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.